

CENF-Common European Numeracy Framework

Common European Numeracy Framework

European Numeracy Survey

Niamh O'Meara, Kathy 'Sullivan, Kees Hoogland (Editors)

With contributions of:

Javier Díez-Palomar, Marina Stanic, Mieke van Groenestijn

Common European Numeracy Framework -European Numeracy Survey

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Coordinator

HU University of Applied Sciences Utrecht, The Netherlands
Dr. Kees Hoogland, project manager

Partners

BFI-Oberösterreich, Linz, Austria
University of Limerick, Ireland
University of Barcelona, Spain



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Introduction

This phase of the project built on the literature review which investigated existing work relating to the teaching and learning of numeracy to adult learners. The literature review established that numeracy is grounded in everyday contexts that adults experience in their lives and work. Research has shown that adults who struggle with numeracy are more likely than others to have lower incomes, have trouble finding employment, and suffer from poorer physical and mental health (Carpentieri, Litster, & Frumkin, 2010; Parsons & Bynner, 2005; Tout et al., 2017). Hence, it is critical that every effort is made to remove or address any obstacles or challenges that prevent adults from developing numeracy competences and increasing the quality of their numerate behaviour.

In this phase of the study the research team conducted field research in a bid to identify the main challenges facing adult numeracy education across European countries. A survey was initially designed and piloted with the assistance of a Survey Research Advisory Group (SRAG) and it was then distributed to leading figures in the area of adult numeracy education in a large number of EU states ($n = 33$). The survey sought to investigate the main challenges faced by adult educators and policy makers when delivering numeracy provisions. Twelve countries offered responses and the main challenges identified in the research related to the lack of a standardised definition of numeracy, the lack of a standardised framework to support numeracy education among adults and the need for professional development of adult numeracy tutors. In this report we will look at how these problems manifest themselves in different jurisdictions and offer some suggestions for overcoming these significant challenges in the future.

Executive Summary

Aim of the Study

This phase of the project aimed to develop a shared vision on adult numeracy teaching and learning and the challenges facing this endeavour across a range of European jurisdictions. Furthermore it sought to establish a body of knowledge in the partner countries about high quality adult numeracy education and how this can be achieved. In doing so it is anticipated that this phase of the study will empower adults to better participate in the current technologised and number-drenched society.

Methodology

This phase of the study was qualitative in nature. The fieldwork for this phase of the study was facilitated by the use of a qualitative questionnaire that sought to garner information in relation to numeracy content and frameworks as well as policies and practices in numeracy education that are in place across Europe. The survey was designed in conjunction with a Research Advisory Group (RAG), which consisted of four leading academics who have conducted much of their research in the field of adult numeracy and numeracy education. English was the native tongue to two members of the RAG and the second language for the remaining two members. The academics involved in this group were experienced in their positions and were recruited using a purposive sampling method (each academic was part of the wider project team). Once finalised, the survey was hosted on an online platform (Qualtrics) and distributed to major stakeholders in national adult numeracy agencies across 33 European countries. All surveys responses were anonymous. In total 12 countries/jurisdictions nominated an individual who submitted a response to the survey. This response rate of ~37% is in line with the expected response rate of 40% for online needs assessment surveys (Archer, 2008). The responses to the survey can be found in Appendix 1.

Data Analysis

The data collected was predominantly qualitative in nature. All responses submitted were initially translated into English and transcribed by the research team. The transcriptions were then circulated to the wider project team to check for accuracy. As the data was qualitative in nature thematic analysis was considered the most reliable analysis method. Thematic analysis involves identifying, analysing, and reporting patterns/themes across the data set. It is used to examine the ways individuals make meaning of their experiences and thus was relevant to this study (Braun and Clarke 2006). There was a small volume of quantitative data also collected via the survey and this was recorded, summarised and analysed using the computer package SPSS.

Main Findings

The following is an overview of the findings to emerge from this phase of the project:

1. The majority of jurisdictions who responded indicated that professionals were responsible for the delivery of adult numeracy education. Only 19% of respondents ($n=2$) suggested that this responsibility lay with untrained volunteers or professionals.
2. The study found that training was not made available to numeracy educators on a regular basis. In the majority of jurisdictions ($n=7$) adult numeracy tutors engaged in professional development activities less than once a year with one other jurisdiction reporting that their tutors never engaged in any kind of professional development.

3. Jurisdictions reported a lack of clarity around the term *numeracy* and what exactly it entailed. Many reported that a working definition of numeracy was not in place for adult learners while many more stated that while numeracy was defined in their jurisdiction the definition provided lacked clarity.
4. Respondents in many jurisdictions indicated that the conceptualisation of numeracy was quite narrow. In particular, many reported that numeracy was viewed as a “*basic knowledge of mathematics*” or a mirror image of literacy in a quantitative sense and this contributed to low levels of understanding of the convoluted and intricate nature of numeracy.
5. Another significant challenge identified in this phase of the study was in relation to the status attributed to numeracy and how this differs from the importance attributed to numeracy. The vast majority of jurisdictions ($n=10$) reported that literacy was held in much higher regard than numeracy, with only two of these jurisdictions reporting that efforts were being made in recent years to address this imbalance.

Methods

Intellectual Outputs 2 and 4 first involved the research team designing a research instrument which allowed them to collect a mixture of quantitative and qualitative data. The research team were keen to attract responses from a large proportion of the 44 EU States to which the instrument would be distributed. They therefore needed a research instrument that would be easy to distribute and collect and one that the participants did not find too time consuming to complete. In addition to this, they were cognisant of the need for the research instrument used to be distributed internationally in a convenient and efficient manner. As a result, the research team opted for the use of an online questionnaire. The questionnaires were initially designed with the help of a Research Advisory Group (RAG), which consisted of four leading academics who have conducted much of their research in the field of adult numeracy and numeracy education. English was the native tongue to two members of the RAG and the second language for the remaining two members. The academics involved in this group were experienced in their positions and were recruited using a purposive sampling method (each academic was part of the wider project team). The academics in the advisory group were not research subjects and as such did not complete the questionnaire. Rather they were invited to participate on the basis of the expertise they could bring to the research and the contemporary experiences they have in similar peer groups to the research participants (Murphy, Lundy, Emerson & Kerr, 2013). Their remit was to advise the research team on the development and distribution of the questionnaires and to provide a key stakeholder perspective to any of the issues raised in the literature review. There were two meetings held with the RAG. Prior to the first meeting the research team had conducted an extensive literature review (see IO2) investigating the teaching and learning of numeracy to adults internationally that would underpin the study. This enabled the research team to identify various issues associated with numeracy education and these issues were discussed with the RAG during the first meeting. The issues included society's understanding of numeracy, adult education and the provision of numeracy education in this setting. Following this discussion, the research team produced a first draft of the questionnaire.

The first draft of the questionnaire was then distributed to the RAG and shortly after a second meeting was held. This meeting involved the piloting of the research instrument with the four academics. They advised that the wording of some questions was ambiguous and at times misleading, particularly for an international audience, and made some suggestions for rewording. Other issues relating to phrases or terms that had different meanings in different jurisdictions were also identified by members of the RAG. Finally, recommendations were also made regarding the inclusion of a new section in the questionnaire which focussed on the working definition of numeracy. This advice was heeded and an additional section was added to the questionnaire. Finally, the RAG also gave the authors some advice in relation to the identification of participants for the study and provided a list of contacts that they had in adult education settings across Europe. The research team made amendments to the questionnaire in light of this advice and a final draft of the questionnaire was prepared. The final version of questionnaire designed for this phase of the project consisted of seven sections. The focus of each section along with the type of questions asked in each section is described in Table 1.

Table 1. Nature of Questions in Online Survey

Section	Focus	No. of Questions	Question Type
A	Demographics	7	6 open-ended 1 multiple choice
B	Concepts & policies for adult numeracy education	15	2 dichotomous 7 open-ended 5 multiple choice 1 Likert scale

C	Content & practice	11	1 dichotomous 8 open-ended 2 multiple choice
D	Teachers/trainers & volunteers	5	1 dichotomous 1 open-ended 3 multiple choice
E	Learners' experience of numeracy and levels of proficiency	7	6 open ended 1 multiple choice
F	Working definition of numeracy	7	1 open ended 6 Likert scale
G	International co-operation and support	3	3 open ended

This final version of the questionnaire was transferred to an online platform, namely Qualtrics and can be found at the following link: https://unioflimerick.eu.qualtrics.com/jfe/form/SV_8IZF06gaol75Bvn. However, prior to selecting a study sample and distributing the questionnaire ethical approval for a study of this nature was required. Details of the purpose of the project, the research team, the research instrument to be used, the data collection and analytical methods were submitted to the Education and Health Sciences Ethics Committee on March 6th 2019 and ethical approval was granted on April 4th 2019.

With ethical approval in place the research team set about identifying the most appropriate sample for this study. The sampling method employed was convenience sampling. Whilst non-probabilistic sampling methods, such as convenience sampling, are considered a limitation the research team and the RAG, due to their own experience in the field, had well-established, formal working relationships with many policy makers and academics who had many years expertise in the field of adult numeracy. Many of these people were responsible for the organisation and delivery of adult numeracy education in their country/jurisdiction and so the team felt they were best placed to answer the questions in the online survey. The sampling frame for the study was the 33 EU countries in which one member of the research team had a connection with the body/organisations responsible for adult education. In order to disseminate the survey, the point of contact in each of the 33 countries was contacted and invited to participate or alternatively nominate another individual or organisation in their country/jurisdiction whom would be in a better position to offer insights into the provision of numeracy education to the adult population. In using this approach 52 people/institutions were contacted across 33 EU countries. Once individuals/agencies agreed to complete the questionnaire it was made available on the Google platform, on the Qualtrics platform and as a MS Word document to try to ensure everyone who received the survey could complete it using a platform with which they were familiar. In total 12 countries/jurisdictions nominated an individual who submitted a response to the survey. This response rate of ~37% is in line with the expected response rate of 40% for online needs assessment surveys (Archer, 2008). The responses to the survey can be found in Appendix 1.

Data Analysis

Once these responses had been submitted the research team were in a position to begin the analysis phase of the study. The quantitative data was recorded, summarised and analysed using the computer package SPSS. This package was used by the research team to generate descriptive statistics and graphical representations of the data. The open-ended questionnaire responses were transcribed and analysed using NVivo. Thematic analysis was employed to analyse this qualitative data. Thematic analysis involves identifying, analysing, and reporting patterns/themes across the data set. It is used to examine the ways individuals make meaning of their experiences and thus was relevant to this study (Braun and Clarke 2006). The research team followed the Braun and Clarke's six step approach when conducting thematic analysis on the qualitative data:

1. Familiarising oneself with the data
2. Generating initial codes
3. Searching for themes
4. Reviewing themes
5. Defining and naming themes
6. Producing a report

Each of the research team worked individually during the initial three phases and derived their own codes. The coding allocated by each researcher was then compared under phase 4 and any discrepancies were discussed and resolved by the research team before the coding scheme was finalised in phase 5.

On completion of the data analysis the research team worked on two additional outputs, namely two journal manuscripts which could be used to further disseminate the work.

Results

The first significant challenge noted by the authors was in relation to the qualifications of the tutors responsible for delivering numeracy programmes to adult learners. Respondents to the survey were asked to provide details about the people who deliver numeracy programme to adult learners and to describe the training/education that these tutors received in relation to the teaching of numeracy. Initially the findings in relation to numeracy tutors were positive in that six of the eleven people that responded to this question indicated that professionals were the only people responsible for the delivery of adult numeracy education in their jurisdiction while a further two respondents indicated that the responsibility lay with a blend of professionals and trained personnel. Only two respondents indicated that untrained volunteers or professionals were responsible for the delivery of adult numeracy education. However, when the authors further investigated the level of training that these professionals/volunteers received a more concerning picture began to emerge. As part of the survey, respondents were asked to describe how often teachers/volunteers received professional development in the area of numeracy education. The responses are summarised in Figure 1.

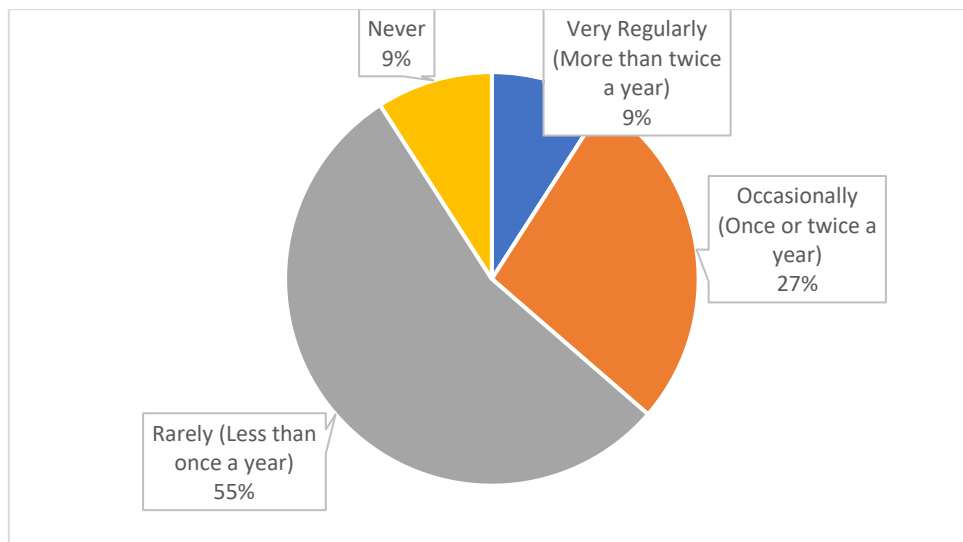


Figure 1. Summary of responses in relation to how often do professionals/volunteers receive professional development for teaching adult numeracy

Respondents from 11 different European countries offered a response to this question. Figure 1 shows that the majority of jurisdictions ($n = 7$) report that tutors of adult numeracy rarely or never received professional development in the area, while on the other hand only one country reported that professional development is made available to these tutors more than twice a year. The importance of professional development for teaching cannot be understated, as will be discussed in the next section of this report, and hence the findings to emerge here present a significant challenge that must be overcome if looking to improve the teaching and learning of numeracy among the adult population.

A second challenge to emerge during this aspect of the study was in relation to a lack of clarity surrounding what numeracy entails. This issue first came to the fore when respondents were asked if there is a standard definition for numeracy in their jurisdiction. In total 12 people offered a response to this question and the results are summarised in Figure 2.

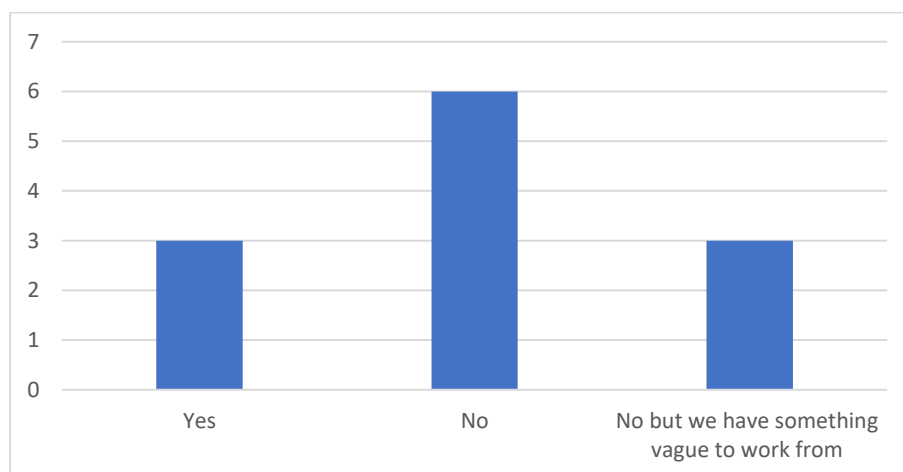


Figure 2. Responses when asked if there was a standardised definition of numeracy used in their jurisdiction

From Figure 2 it is evident that in three-quarters of the jurisdictions involved in this study there was no standardised definition of numeracy. Respondents from six jurisdictions reported that there was no definition adopted from international reports, or otherwise, for them to work off. The authors believe that the lack of a standardised definition for numeracy will have a multitude of knock-on effects for the teaching and learning of numeracy and will result in numeracy being misconstrued by adult learners and educators alike. This latter issue

around the lack of appreciation or understanding of numeracy, what it entails and its role in the life of adult learners was also identified through a second item on the survey. When asked to outline the terms used for adult numeracy in their jurisdiction two responses featured much more frequently than any other. The first, mentioned by four respondents, was that numeracy was considered the equivalent of basic mathematical skills or a “*basic knowledge of mathematics*”. This, according to Goos (2018) is an extremely narrow conceptualisation of numeracy and highlights that without a standardised definition of numeracy challenges surrounding the misinterpretation of numeracy will persist and many critical dimensions of numeracy and numeracy education will be overlooked. The findings from this study also show that a second common term used to describe numeracy across a number of European countries is “*mathematical literacy*”. This was the response offered by a further four respondents. Defining numeracy as mathematical literacy or as a mirror image of literacy in a numerical sense presents another challenge for numeracy education and a challenge that was again identified in responses offered to a variety of items in the survey and relates to the status attributed to numeracy education, particularly when compared to literacy.

This third challenge was noted by the authors when analysing the qualitative data collected in response to the survey item *Do literacy and numeracy have the same status in your jurisdiction? Please explain*. Only two of the respondents asserted that numeracy and literacy were held in the same regard in their jurisdictions. A sample response from one such jurisdiction was as follows:

R11: Yes both are listed within the framework of basic functional literacy in adult education.

However, the vast majority of jurisdictions ($n = 10$) believed that literacy was held in much higher regard than numeracy, with two of these jurisdictions reporting that efforts were being made in recent years to address this imbalance. The following sample responses give some indication of the scope of the challenge facing adult educators and policy makers in this regard:

R2: No literacy is actually more important and visible than numeracy. Probably affected people can hide this [numeracy] weakness in their daily lives and there is a lack of awareness in society.

R3: Yes, according to the law (Federal Act) numeracy is part of the basic skills, which must be promoted by the federal state and the regional states (cantons). Basic skills are: (a) Reading, writing and oral expression in a national language; (b) “basic knowledge of mathematics” and (c) application of ICT. De facto, financial flows, public awareness and the political will to support reading, writing and language skills are disproportionately higher compared to support for numeracy.

R6: In the past this was not the case and literacy took precedent. However, numeracy has been gaining more importance in recent years.

R8: Numeracy is merely seen as part of (multiliteracy) so in that sense it doesn’t appear to be an equal to literacy.

These responses clearly highlight that numeracy is held in higher regard than literacy across the majority of European countries. While the response from Jurisdiction 6 (R6) offers some hope for the future of adult numeracy education, the response from Jurisdiction 3 (R3) highlights an additional layer to this problem. Notably, they assert that while official state documents attribute equal status to numeracy and literacy, the situation on the ground is quite different. They believe that in their jurisdiction the financial support available for literacy, the public awareness of literacy and the political will to develop literacy skills supersedes that of numeracy, irrespective of what is stated in policy documents. Such findings must lead us to question those jurisdictions where it was reported that numeracy and literacy were of an equal standing. Despite a small number of respondents ($n = 2$) in this study being of the belief that numeracy and literacy were equally weighted, the rationale underpinning their belief in this regard was that policy documents attested to this. However, as many research studies have found in the past (Quirke, 2018) and as has been discovered in this study what happens on the ground can often differ quite substantially from what is advocated for in policy documents. As a result while over eighty percent of respondents in this study indicate that numeracy is viewed less favourably to numeracy,

the true extent of this problem might be even greater than that reported here. This was also an issue raised later in the questionnaire when respondents were asked to identify the biggest issue that faced numeracy education going forward. The following response from Jurisdiction 5 reinforces the idea that numeracy is seen as a poorer relation to literacy:

R5: Hidden behind literacy – ‘literacy and numeracy’ So often within discussions of literacy and numeracy, the two are written and spoken of in combination as if they are a single skill, with literacy frequently used as a proxy for both.

Overall, the three challenges discussed thus far were identified as the most pertinent issues facing numeracy education across Europe. Many of these were also explicitly stated by respondents when asked what they believed to be the most significant challenges facing numeracy education in the future. However, when the authors analysed the responses to this question as well as the challenges discussed so far another challenge identified was in relation to a lack of awareness of the importance of numeracy and negative attitudes that persist towards numeracy among society. One respondent argued that society perceives mathematics to be difficult which also leads to an avoidance of numeracy among adult learners

R12: Bias towards difficulty of mathematics

While another respondent stated that the public domain and society are not aware of the importance of numeracy which in turn has an effect on the way in which it is viewed when compared with literacy.

R1: a lack of awareness around the importance of numeracy.

Overall, the literature review (IO2) conducted as part of this study clearly demonstrated the importance of numeracy in the 21st Century. In this review strong correlations were found to exist between numeracy and health outcomes; numeracy and financial wellbeing; numeracy and job prospects; as well as numeracy and ones’ ability to engage in society. As such it is critical that we ensure all adults are numerate and this can only be achieved through effective teaching. However, this dimension of the study has unearthed many challenges currently facing the effective teaching and learning of numeracy across Europe. Until such challenges are recognised, acknowledged and strategies put in place to overcome them European countries will continue to report issues in relation to deficient numeracy skills in a proportion of the adult population which will have dire consequences for the individual and the economies in question.

Conclusions/Recommendations

Government bodies and educators around the world have advocated that numeracy is a skill that all adults need to possess. However, the results from this dimension of the Common European Numeracy Framework research study identified some challenges in relation to supporting the development of adult numeracy. The authors identified three challenges that emerged from this aspect of the study which may have an effect on adult numeracy education, namely; a clearer definition of numeracy; equal affordance of attention and funding for literacy and numeracy; and more professional development for adult numeracy tutors.

This aspect of the study explored the standardised definitions of numeracy in different jurisdictions and it emerged in the findings that there was a lack of clarity around what numeracy entails. The review of literature showed that very often the meaning of numeracy may be embedded in a definition of literacy (Crowther 1959; SOLAS 2014; UNESCO 2006). As presented in the findings of this paper, over 75% of respondents were not aware of a standardised definition of numeracy in their jurisdiction. Bolstad (2019) acknowledges that numeracy is a new phenomenon which can be difficult to define, especially as it is not a term that easily translates to different languages. These findings support the work of Frejd and Geiger (2017), who acknowledge there are many different definitions of numeracy and they argue that this can often lead to misunderstandings regarding the role of numeracy development within the field of education. Kaye (2018) asserts that clarification is needed in terms of identifying who is responsible for the development of adult numeracy. Depending on the country or jurisdiction, there are varying views as to who is responsible for developing adults numeracy competencies. Additionally, there is also the opinion that numeracy learning for adults can happen in different contexts. The findings from this research study relating to a standardised definition revealed that there is a need for a clearer definition of numeracy that can be utilised across different jurisdictions. As a result, it is essential that those responsible for teaching and developing numeracy in adult education are provided with a clear standardised definition of numeracy which will further support their understanding of numeracy. Consequently, a common standardised definition for numeracy needs to be developed and work has commenced on a framework to support teaching and learning of adult numeracy, as part of this European project.

The second challenge identified as part of this research study was in relation to literacy and numeracy maintaining an equivalent role in adult education and society as a whole. Literacy and numeracy are often referred to as essential skills that everyone needs to possess to engage fully in society. However, developing skills in literacy often takes precedence over numeracy. This research study found that only two respondents agreed that literacy and numeracy are afforded the same status with one respondent stating “Yes both are listed within the framework of basic functional literacy in adult education.”. However, the fact that the respondent justified that both skills are part of the “functional literacy” framework reinforces the idea that numeracy is part of the broader skill of literacy. O’ Donoghue (2002) argues that because numeracy came after the term literacy, often the two terms are merged together or sometimes numeracy even becomes a subset of literacy. This notion that numeracy is part of the overall competency of literacy was highlighted even further when the majority of respondents argued that government bodies place a strong emphasis on improving both literacy and numeracy skills, however, they argued that the focus is predominantly on improving literacy. Carpentieri et al. (2010) state that in order for an economy to continue to grow, it is necessary to improve both adult literacy and numeracy skills, with more emphasis needing to be placed on the latter. Moreover, this aspect of the research study revealed that funding is one of the factors that contributes to the imbalance and inequity between literacy and numeracy. Respondents believed that in their jurisdiction, the financial supports available for literacy development, along with the public awareness of the importance of literacy and the aspiration by government bodies to develop adult literacy skills

exceeds any supports for numeracy development, irrespective of what the policy documents state. As a result, the authors argue that it is necessary to place a stronger emphasis on numeracy so that people view literacy and numeracy as equally important and that budget allocations for literacy and numeracy reflect this stance.

The final challenge identified as part of this research study, was the lack of professional development to support tutors in teaching numeracy in adult education settings. This aspect of the study revealed that firstly there is a need for a standardised definition for numeracy, which in turn will help support tutors in facilitating adult numeracy development. This study also revealed that the people responsible for facilitating and teaching numeracy programmes rarely receive any supports or professional development to help them in their mission to develop numeracy skills of adult learners. Bennison et al. (2020), argue that there is a lack of professional development in relation to teaching numeracy in post-primary school settings. A similar issue was revealed as part of an Irish study which focussed on adult learners, whereby it was recommended that tutors supporting adult learners' development of numeracy skills need to have the necessary qualifications and furthermore should attend Continuous Professional Development (CPD) to support them in their job (NALA, 2021). It is obvious that there is a lack of CPD for professionals who deliver the adult numeracy programmes internationally and this needs to be addressed and prioritised if we are to improve the numeracy skills of the adults in Europe.

A number of recommendations can then be made based on the findings of this European research study. The first recommendation is to identify a standardised definition and framework that can be used across multiple jurisdictions when supporting adults numeracy development. As mentioned previously, this work is already underway as part of the Common European Numeracy Framework Erasmus project (Hoogland et al., 2021). Secondly, it is now abundantly clear that literacy and numeracy are not competing on a level playing field. This study revealed that the majority of European countries who completed the survey perceived literacy to be more important, with some arguing that it was due to the negative public perception towards mathematics and others arguing that literacy development receives more financial support. Therefore the authors recommend that key stakeholders promote numeracy development in a positive light and can do so by ensuring more financial supports are made available to the adult numeracy education sector. This in turn will support and recognise the equal importance of literacy and numeracy. Finally, the findings of this study revealed the need for more continuous professional development for tutors who are facilitating adult numeracy education programmes. Additionally, the authors recommend that the tutors who are responsible for delivering and facilitating adult numeracy programmes possess the necessary knowledge and qualifications for teaching numeracy. It is essential that those responsible for developing adults' numeracy skills have a deep understanding of numeracy, along with the necessary teaching strategies to support the adult learners development.

The findings unearthed as part of this study raise many questions about the provision of numeracy in adult education. There are many challenges in the field of adult numeracy education, the most pressing were identified as part of this research study and the authors have acknowledged the need for adult numeracy education to be prioritised not only by governments, but also in the adult education sector. Furthermore, adult numeracy education is complex. The arguments put forward in this study highlight the need for a concrete definition of numeracy, along with the need for more financial supports and formal professional supports to ensure numeracy is not overshadowed by literacy. Such initiatives may result in better outcomes and overall better proficiency of numeracy in adult learners across Europe.

Annex 1

European Adult Numeracy Survey 2019

This survey is conducted under the Erasmus+ project entitled Common European Numeracy Framework. The project co-funded by the European Union.

Informed Consent

I have read and understood the participant information sheet.

Agree

Disagree

I understand what the project is about, and what the results will be used for.

Agree

Disagree

I understand that what the researchers find out in this study may be shared with others but that my name will not be given to anyone in any written material developed.

Agree

Disagree

I know that I am choosing to take part in the study and that I can stop taking part in the study at any stage without giving any reason to the researchers.

Agree

Disagree

I would like to be kept informed on the developments around the Common European Numeracy Framework (CENF) by a quarterly newsletter.

Yes

No

Section A: Demographics

A1. Name

A2. Job title

A3. Email address

A4. In what country do you work?

A5. In what institute/organisation do you work?

A6. What is your position within that institute/organisation?

A7. Please outline the scope/jurisdiction to which your answers to this survey will apply. Use an X to select one option.

Country level	
Regional level	
Local level	
Other (Please describe)	

Section B: Concepts and Policies for Adult Numeracy Education

B1. Which words are used to describe the term "numeracy for adults" in your language?

B2. Is there a standard definition for numeracy for adults in your jurisdiction?

B2 (a). If you answered yes to B2, please provide this definition.

B2 (b). If you answered no to B2, please give a short description of the principal meaning of the term adult numeracy.

B3. How important are adult numeracy skills considered in policy documents in your jurisdiction? Use an X to select one option.

Extremely important	
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Important	
Unsure	
Somewhat unimportant	
Not at all important	

B4. Do literacy and numeracy for adults have the same status in your jurisdiction? Please explain.

B5. Do you have a numeracy policy for adults in your country/jurisdiction/organisation? Use an X to select one option.

Yes	
No	

B6. If you answered yes to B5, please state if the policy is a national or regional or local policy. Use an X to select one option.

National	
Regional	
Local	

B7. If there is a policy in place for adult numeracy, could you provide a hyperlink (URL) to the policy document?

B8. What type of organisations in your jurisdiction are teaching numeracy to adults?

B9. What educational institutes or organisations are involved in the teaching of numeracy to adults? Use an X to mark all relevant answers

Early childhood education	
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Primary schools	
Secondary schools	
Technical/vocational colleges/schools	
Universities	
Adult education centres	
Other (Please describe)	

B10. What type of training do adult learners receive in the area of numeracy in your jurisdiction? Use an X to mark all relevant answers

Online courses	
Short courses (1 - 3 days)	
Long courses (6+ weeks)	
Other (Please describe)	

B11. Is there any official certificate or qualification in your jurisdiction that acknowledges adults competencies in numeracy? Use an X to select one option.

Yes	
No	
Unsure	

B12. If you answered yes to B11, please specify the name of the certificate or qualification.

B13. What are the overall goals of numeracy education for adults in your jurisdiction? Use an X to mark all relevant answers

Facilitate digitization	
Facilitate creativity	
Facilitate critical thinking	
Facilitate media competence	
Facilitate citizenship	
Facilitate tolerance, respect and diversity	
Facilitate further learning	
Enhance job prospects	
To gain accreditation	
Other (Please describe)	

Section C: Content and Practice

C1. Is there a numeracy curriculum for adults in your jurisdiction? Use an X to select one option.

Yes	
No	

C2. If you answered Yes to C1, and if available, please provide a URL for this curriculum or otherwise describe what is on the curriculum.

C3. If you answered No to C1, please briefly describe the skills taught to adult learners in the area of numeracy.

C4. What numeracy skills do you intend adult learners to develop in the future?

C5. What teaching approaches (e.g. collaborative learning, didactic approaches, teaching with ICT etc.) are used when teaching numeracy to adult learners in your jurisdiction?

C6. Describe how you assess numeracy skills among adult learners in your jurisdiction? Use an X to mark all relevant answers

Diagnostic tests	
Personal interviews	
Portfolios	
There are no methods	
Other (Please describe)	

C7. Please describe the levels/categories that adult learners can be assigned to based on their numeracy skills in your jurisdiction.

C8. Who designs numeracy assessments in your jurisdiction?

C9. Do you use diagnostic tests (digital or paper-based) to assess levels of proficiency in numeracy among adult learners? If so, please provide a hyperlink (URL)

C10. How do you assess the effectiveness of the courses offered to adult learners in the area of numeracy in your jurisdiction (i.e. how do you determine if the courses are meeting the demands of the learners)?

C11. Which areas of everyday living are covered by numeracy courses in your country? Use an X to mark all relevant answers.

Work (dealing with pay slips, working hours, wages etc.)	
Private life (family, friends etc.)	
Managing a household (paying bills, renovations etc.)	
Daily routines (shopping, driving etc.)	
Personal development (self reflection etc.)	
Digital skills (using a computer, mobile phone etc.)	
Reading and understanding context (working with big data etc.)	
Health (interpreting data, understanding risk etc.)	
Other (Please describe)	

Section D: Teachers/Trainers and Volunteers

D1. Who mainly educates adult learners in numeracy in your jurisdiction? Use an X to mark all relevant answers.

Professionals	
Trained Volunteers	
Untrained Volunteers	
Other (Please describe)	

D2. What framework, if any, underpins the teaching of adult numeracy in your jurisdiction? Use an X to select one option.

National framework	
Jurisdictional framework	
Local framework	
No framework	
Other (Please describe)	

D3. How often do teachers or volunteers receive professional development for teaching numeracy? Use an X to select one option.

Very regularly (More than twice a year)	
Occasionally (Once or twice a year)	
Rarely (Less than once a year)	
Never	

D4. Please describe the professional development opportunities available to teachers or volunteers in your jurisdiction. In your description, please refer to the courses available, the content taught the aims of the courses and the structure of the courses.

D5. Do these professional development courses contain digital components? Mark only one oval.

Yes	
No	
I don't know	

Section E: Learners' Experiences of Numeracy and Levels of Proficiency

E1. Which age category are courses for developing adult numeracy skills aimed at in your jurisdiction? Mark only one oval.

Young adults (age 16 - 24)	<input type="radio"/>
Adults (age 25 - 65)	<input type="radio"/>
Retirees (age 65+)	<input type="radio"/>

E2. What characterizes low levels of numeracy in your jurisdiction? Can you describe a person who would fit in this category?

E3. What characterizes average levels of numeracy in your jurisdiction? Can you describe a person who would fit in this category?

E4. What characterizes high levels of numeracy in your jurisdiction? Can you describe a person who would fit in this category?

E5. What anxieties are demonstrated by those who have low levels of numeracy skills in your jurisdiction?

E6. What anxieties are demonstrated by those who have average levels of numeracy skills in your jurisdiction?

E7. What anxieties are demonstrated by those who have high levels of numeracy skills in your jurisdiction?

Section F: Working Definition of Numeracy

For each of the definitions of numeracy given in the left hand column of the table below, please state whether the working definition of numeracy in your jurisdiction is in agreement with the definition provided (SA = Strongly agree, A = Agree, U = Unsure, D = Disagree. SD = Strongly Disagree).

	SA	A	U	D	SD
We would wish 'numerate' to imply the possession of two attributes. The first of these is an 'at-homeness' with numbers and an ability to make use of mathematical skills which enable an individual to cope with the practical mathematical demands of his everyday life. The second is ability to have some appreciation and understanding of information which is presented in mathematical terms, for instance in graphs, charts or tables or by reference to percentage increase or decrease.					
Numeracy is the ability to access, use, interpret, and communicate mathematical information and ideas, to engage in and manage mathematical demands of a range of situations in adult life.					
Numeracy is defined as a word to represent the mirror image of literacy					
Numeracy is an individual's capacity to formulate, employ, and interpret mathematics in a variety of contexts. It includes and Skills reasoning mathematically and using mathematical concepts, procedures, facts, and tools to describe, explain, and predict phenomena. It assists individuals to recognise the role that mathematics plays in the world and to make the well-founded judgments and decisions needed by constructive, engaged and reflective citizens.					
Numeracy in the 21st century emphasises the role of mathematical knowledge, dispositions, tools and critical orientation in solving problems in real world contexts.					
To be numerate is to use mathematics effectively to meet the general demands of life at home, in paid work, and for participation in community and civic life					

If your working definition is not in agreement with any of the above, please provide your jurisdiction's working definition.

Section G: International Co-operation and Support

G1. What kind of international co-operation or support (e.g. declaration, international organisation, framework) would be helpful to improve numeracy education in your jurisdiction?

G2. What kind of international co-operation or support (e.g. exchange of practice, on-line professional development, lesson materials etc.) would be helpful to improve numeracy education practices in your jurisdiction?

G3. What are the main obstacles in your jurisdiction to improve or expand numeracy education?

Section H: Other Contact

If you cannot provide answers for all sections of this form, because some questions are not in your area of expertise, could you suggest a person/institute that can help complete this form?

Suggested Contact Name

Email Address

Annex 2

Section A

A1. Name

Blinded

A2. Job Title

Belgium: Co-ordinator of the Strategic Literacy Plan

Liechtenstein: Managing Director

Switzerland: Project Manager

Greece: Mathematician, teacher of numeracy to adults

United Kingdom: CEO

Ireland: Social Inclusion Manager

Austria: Regional Project Manager Basic Education

Finland: Counsellor of Education

Spain: Co-ordinator

Serbia: Director

Denmark: Associate professor - Ministry Consultant and Adult Math Teacher

A5. In what institution/organisation do you work?

Blinded

A.6 What is your position within that institute/organisation?

Belgium: Team Co-ordinator

Liechtenstein: Managing Director

Switzerland: Project Manager

Greece: Scientific associate/teacher of numeracy

United Kingdom: CEO

Ireland: Social Inclusion Manager

Austria: Regional Project Manager Basic Education

Finland: Expert

Spain: Co-ordinator

Serbia: Director

Denmark: Associate Prof in Mathematics Education - Consultant for XXXXXXXXXX

A7. Please outline the scope/jurisdiction to which your answers to this survey will apply.

Belgium: Regional Level

Liechtenstein: Country Level

Switzerland: Country Level

Greece: Country Level

United Kingdom: [Other] Our answers are in reference to our own work and experience of working to improve adult numeracy across the UK. To date we have engaged more than 250,000 people through our online learning platform (the National Numeracy Challenge) and want to use our learnings from the data set this has created, in addition to our face to face work carried out with adults across the UK, to inform the European Adult Numeracy Framework. All answers given will refer to our own policies and not the UK as a whole. When the survey asks from information from our “jurisdiction” we will refer to National Numeracy as an organisation and our extensive work with learners.

Ireland: Country Level

Austria: Regional Level

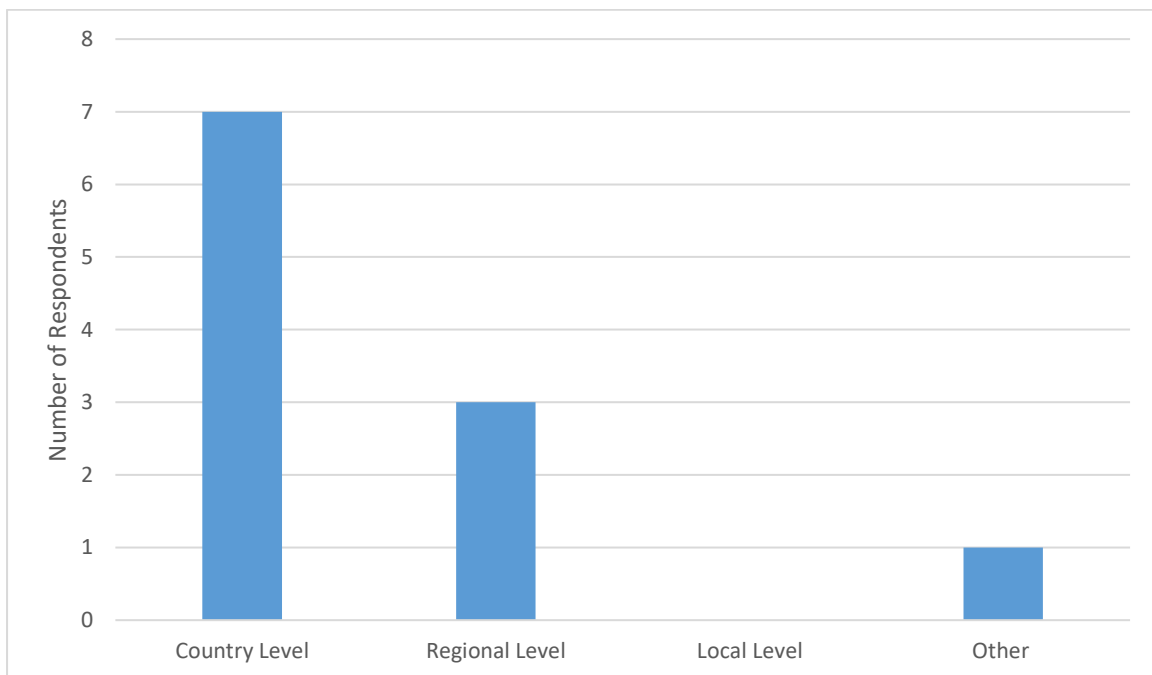
Finland: Country Level

Spain: Regional Level

Serbia: Country Level

Denmark: Country Level

Summary



Section B

B1. Which words are used to describe the term “numeracy for adults” in your language?

Belgium: Gecijferdheid [Translation: numeracy], numerieke vaardigheden [Translation: numerical skills], geletterdheid [Translation: literacy].

Liechtenstein: Alltagsmathematik für Erwachsene [Translation: Everyday maths for adults]

Switzerland: In German: “Alltagsmathematik” [Translation: numeracy] and “Grundkenntnisse der Mathematik” [Translation: basic knowledge of mathematics]

Greece: Mathematical literacy

United Kingdom: English is our language – numeracy is normally described as basic or everyday maths and is strongly associated with confidence levels and not just skills in isolation. We are trying to improve numeracy in the UK and summarise our mission as: To enable everyone to have the confidence and competence to use numbers and data to make good decisions in their daily life.

Ireland: The term numeracy is widely used in adult literacy and basic education programmes. Maths and mathematics are also widely used.

Austria: Numeracy for adults also

Finland: Aikuisten numeeriset taidot [Translation: Adult numerical skills]

Spain: There is no Spanish word for numeracy and we translated as “Alfabetización matemática” (Mathematical literacy)

Serbia: “numericka pismenost”, pojedina dokumenta koriste i termin “matematska pismenost” [Translation: “Numerical literacy”, some documents use the term “mathematical literacy”]

Denmark: Numeralitet, voksenundervisning i matematik [Translation: Numeracy, adult education in maths]

Turkey: Yetişkinler için Aritmetik/Matematik [Translation: Arithmetic / Mathematics for Adults]

B2. Is there a standard definition for numeracy for adults in your jurisdiction?

Belgium: Yes

Liechtenstein: No

Switzerland: No but there is an example what it could be in the message of the Federal Act.

Greece: No

United Kingdom: Yes

Ireland: No but PIAAC definition is used.

Austria: No

Finland: No

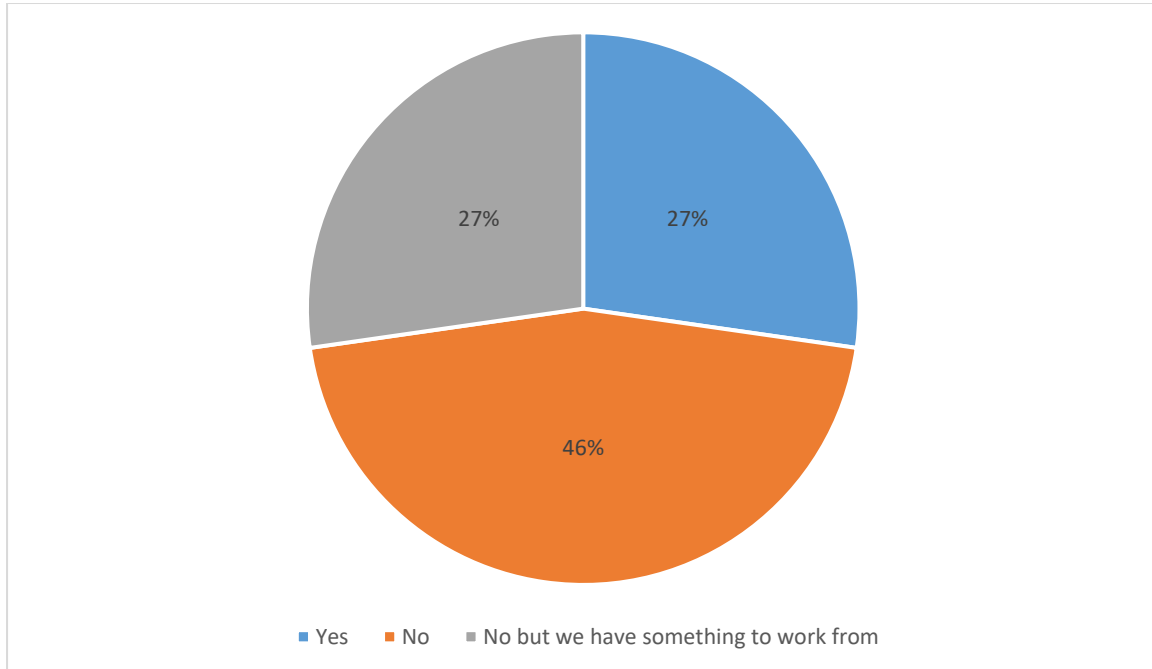
Spain: No

Serbia: Ne, ali postoji siroko prihvaceno shvatanje [Translation: No, but there is a widely accepted view]

Denmark: Yes

Turkey: No

Summary



B2 (a) If you answered yes to B2, please provide this definition.

Belgium: Geletterdheid omschrijven ze als de competenties om informatieve te verwerven, te verwerken en gericht te gebruiken. Dit betekent met: 1. taal, 2. Cijfers en grafische gegevens kunnen omgaan, 3. Em gebruik kunnen maken van ICT. Geletterd zijn is belangrijk om zelfstandig te functioneren en participeren in de samenleving en nodig om zich persoonlijk te kunnen ontwikkelen en bij te kunnen leren.

[Translation: They describe literacy as the competencies to acquire, process and use information. This means with: 1. language, 2. being able to handle figures and graphic data, 3. being able to use ICT. Being literate is important in order to function independently and participate in society and is necessary to be able to develop and learn personally.]

Liechtenstein: N/A

Switzerland: N/A

Greece: N/A

United Kingdom: In one sentence: Having the confidence and competence to use numbers and data to make good decisions in daily life. In a bit more detail: Numeracy represents an individual's capacity, both in terms of attitudes and skills, to identify and understand the role that mathematics plays in the world, to make well-founded judgements, and to use and engage with mathematics in ways that meet the needs of that individual's life as a citizen. It implies the essential skills needed for solving problems, processing information, making decisions and interpreting data. Being numerate is about appreciating number relationships and interpreting answers, and not just about doing calculations. Put simply it is having the confidence and competence to use numbers in day to day life.

Ireland: N/A

Austria: N/A

Finland: N/A

Spain: N/A

Serbia: N/A

Denmark: Present description at the Ministerial 'EMU'-webpage: 'Numeracy consists of functional mathematical skills and understanding that in principal people need to have. Numeracy changes in time and space along with social change and technological development.' Page 5 at 'Guidance for teachers in Preparatory Adult Education'. <https://emu.dk/sites/default/files/2018-12/FVU%20vejledning%20matematik.pdf>

Present description at the Ministry webpage for immigrant education: 'Numeracy consists of functional mathematical competences and prerequisites for participate actively in lifelong education'. [In Danish: Numeralitet omhandler elevens funktionelle matematiske kompetencer og forudsætninger for at kunne indgå i undervisningen]. <https://emu.dk/grundskole/saerlige-elevgrupper/hele-vejen-rundt-om-elevens-sprog-og-ressourcer/trin-2-spor-1-og-2>

B2 (b) If you answered no to B2, please give a short description of the principal meaning of the term adult numeracy.

Belgium: N/A

Liechtenstein: The adults should have a stable range of numbers, can calculate and are familiar with different measure of lengths, weight, time and currency. They can read, understand and operate with these measures.

Switzerland: Example what it could be in the message of the Federal Act: "In a course on 'Alltagsmathematik' knowledge of budget planning or insurance can be promoted"

Greece: Mathematics for adults in order to fulfil the compulsory education.

United Kingdom: N/A

Ireland: Adult numeracy is based on the concept of providing adults with the skills, competence and confidence to manage everyday financial and mathematical situations. It has at its core mathematical concepts.

Austria: Basic types of calculation based on simple everyday use, simple time calculations, costing, making estimates and relations.

Finland: In the literacy training phase, teaching mathematics aims to provide students with basic numerical skills that are essential in daily life management, communication and the progress of studies. Teaching also aims to provide students with positive, diverse experiences of mathematics. In language-aware mathematics teaching, the focus is on clarity, the precise expression and explanation of mathematical concepts using everyday language and on ensuring that students understand the topics taught (National Core Curriculum for Basic Education for Adults, 2017).

Spain: The ability to use mathematical skill in order to participate successfully as a citizen in the society.

Serbia: Razmatranje numerickih informacija uz upotrebu jednostavnih matematičkih operacija [Translation: Consideration of numerical information using simple mathematical operations]

B3. How important are adult numeracy skills considered in policy documents in your jurisdiction?

Belgium: Extremely important

Liechtenstein: Unsure

Switzerland: Somewhat unimportant

Greece: Unsure

United Kingdom: Extremely important

Ireland: Important

Austria: Important

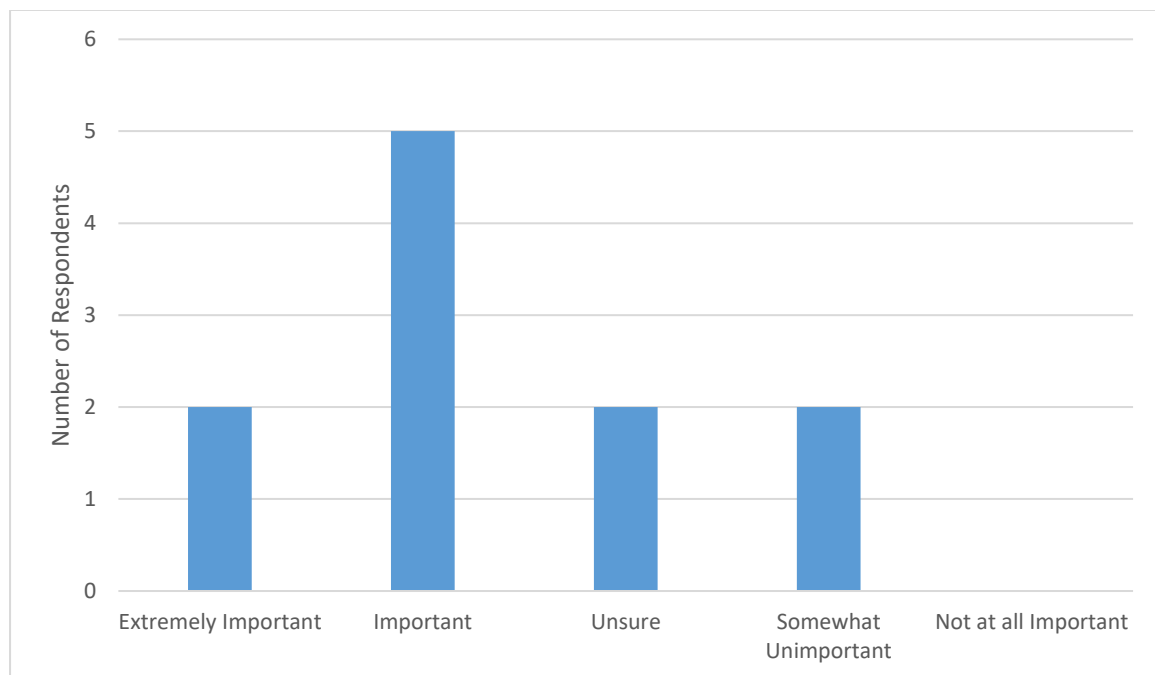
Finland: Important

Spain: Somewhat unimportant

Serbia: Important

Denmark: Important

Summary



B4. Do literacy and numeracy for adults have the same status in your jurisdiction? Please explain.

Belgium: The concerned policy makers give literacy and numeracy the same status. But in public opinion literacy is considered more important and is better known. The lack of digital skills has the highest priority.

Liechtenstein: No literacy is actually more important and more visible than numeracy. Probably affected people can hide this weakness in their daily life and there's a lack of awareness in society.

Switzerland: Yes, according to the law (Federal Act) numeracy is part of the basic skills, which must be promoted by the federal state and the regional states (cantons). Basic skills are: (a) Reading, writing and oral expression in a national language; (b) "basic knowledge of mathematics" and (c) application of ICT. De facto, financial flows, public awareness and the political will to support reading, writing and language skills are disproportionately higher compared to support for numeracy.

Greece: No I believe that literacy has a greater status than numeracy.

United Kingdom: *National Numeracy* was set up following the 2011 UK Skills for Life survey. In this report it was shown that between 2003 and 2011 literacy skills improved while numeracy skills worsened. National Numeracy was set up to address this imbalance, arguing that whatever was working for literacy clearly wasn't working for numeracy – so numeracy needs to be considered independently from literacy. They cannot both sit under the banner of basic skills where they are considered one problem. Literacy and numeracy have their own barriers to learning which cannot be solved with the same approach. While learning to read and write (in English particularly)

is cognitively taxing, our (now evidence based) assertion is that the main barrier to improving functional numeracy is cultural. We often cite this question: “You are paid £9/hour and receive a 5% pay increase. What is your new rate of pay” as an example of something that between one-quarter and one-half of adults in the UK cannot answer correctly – with the use of a calculator/phone. Given that understanding the concept of 5% is not cognitively taxing, we believe that the fundamental barrier is their attitudes and confidence – these were not addressed effectively through the classroom and skills-based approach that were the main focus of adult maths interventions during the Skills for Life period; in spite of increased intervention numeracy worsened. Instead a new approach, focussed on tackling these barriers was needed, which is exactly what *National Numeracy* aim to achieve.

Ireland: Numeracy has been gaining more importance in recent years. The most recent PIAAC report shows one in four adults in Ireland with very low numeracy/maths skills. This has brought a new focus on increasing maths/numeracy programme provision and raising awareness of the importance of numeracy skills.

Austria: In principal no (first literacy, then numeracy), but sometimes yes (reading and writing numbers).

Finland: Numeracy is merely seen as part of (Multi)literacy, so in that sense it doesn't appear equally with literacy.

Spain: No there are much efforts and resources to work in Literacy than in numeracy in our jurisdiction. Literacy is ensured in both regional official languages. And there is mathematical literacy but not worked as numeracy and there is not much effort on this area.

Serbia: Da, obe su navedene u okviru osnovne funkcionalne pismenosti u obrazovanju odraslih [Translation: wlgYes, both are listed within the framework of basic functional literacy in adult education].

Denmark: No, literacy for adults is prioritised higher than numeracy.

Turkey: Yes. Both are equally important if you want to get certified. Even more important in certificates that require a numerical competence.

B5. Do you have a numeracy policy for adults in your country/jurisdiction/organisation?

Belgium: Yes

Liechtenstein: No

Switzerland: Yes

Greece: No

United Kingdom: Yes

Ireland: Yes

Austria: Yes

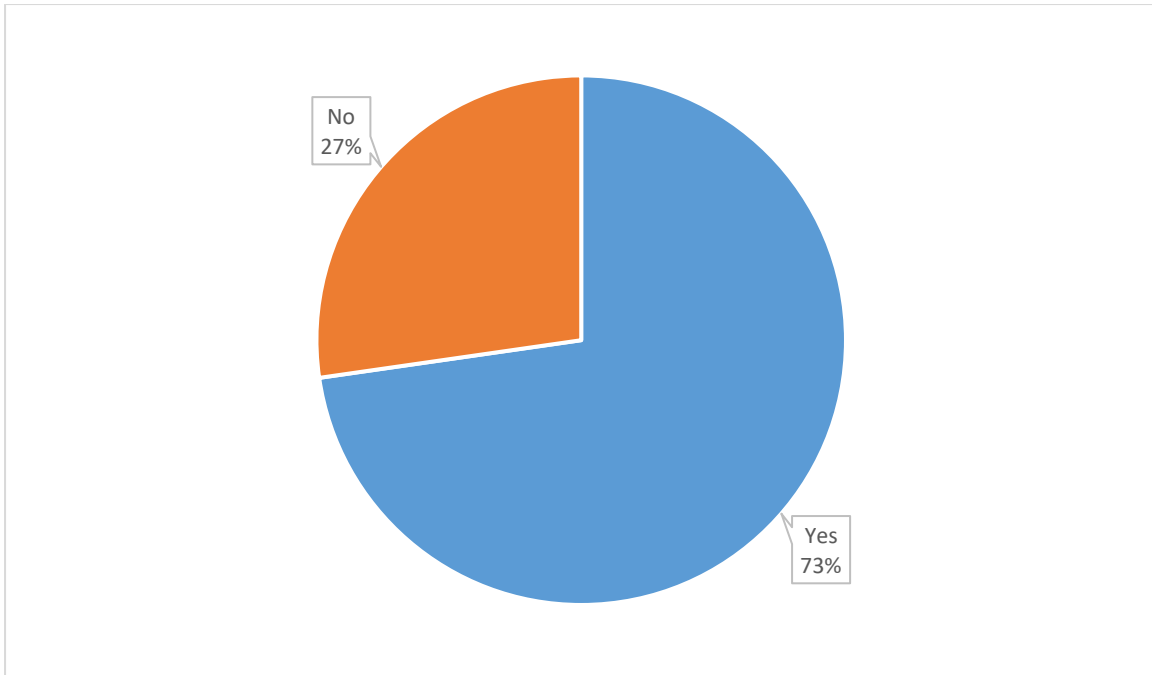
Finland: No

Spain: Yes

Serbia: Yes

Denmark: Yes

Summary



B6. If you answered yes to B5, please state if the policy is a national or regional or local policy?

Belgium: Regional

Liechtenstein: N/A

Switzerland: National

Greece: N/A

United Kingdom: National

Ireland: National

Austria: National

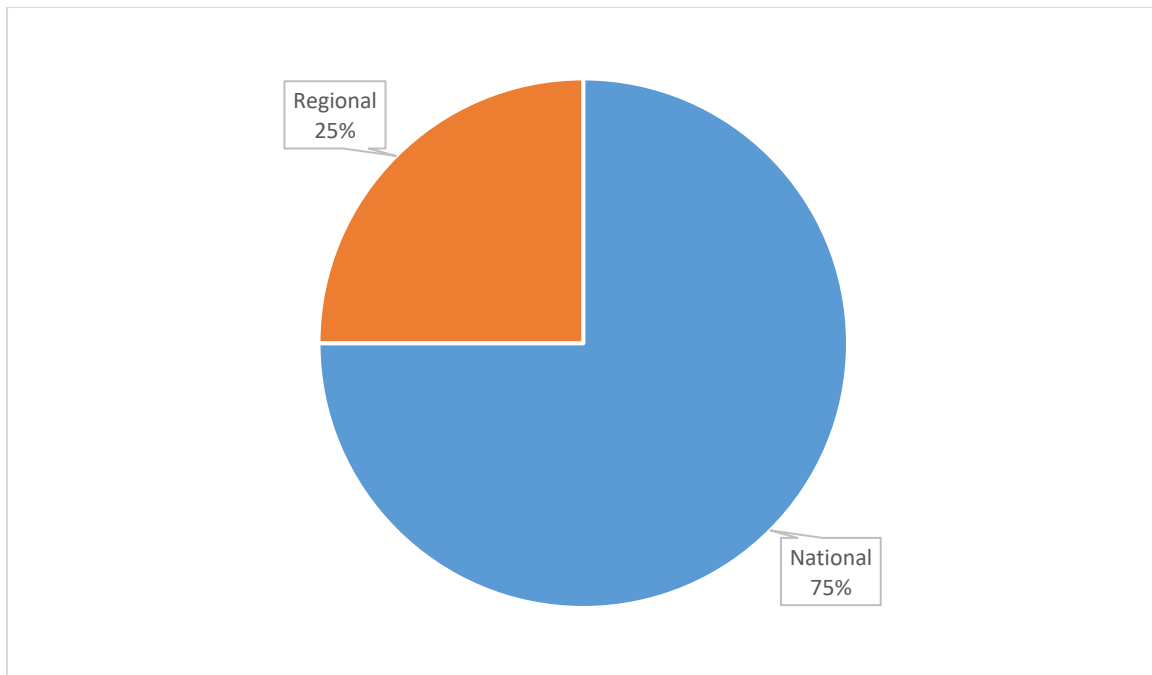
Finland: N/A

Spain: Regional

Serbia: National

Denmark: National

Summary



B7. If there is a policy in place for adult numeracy, could you provide a hyperlink (URL) to the policy document.

Belgium:

https://onderwijs.vlaanderen.be/sites/default/files/atoms/files/2018_strategisch_plan_geletterdheid.pdf

Liechtenstein: N/A

Switzerland: <https://www.admin.ch/opc/de/classified-compilation/20141724/index.html>

Greece: N/A

United Kingdom:

https://www.nationalnumeracy.org.uk/sites/default/files/nn124_essentials_numeracyreport_for_web.pdf

Ireland: <https://www.education.ie/en/Publications/Policy-Reports/Further-Education-and-Training-Strategy-2014-2019.pdf>

Austria:

https://www.initiative-erwachsenenbildung.at/fileadmin/docs/Endversion_Curriculum_Basisbildung.pdf

Finland: N/A

Spain: <http://xtec.gencat.cat/ca/curriculum/educacioadults/curriculum/>

Serbia: <http://www.mpn.gov.rs/wp-content/uploads/2016/01/1.1Pravilnik-o-NPP-OOO.htm>

Denmark:

<https://www.retsinformation.dk/Forms/R0710https://www.ug.dk/uddannelser/grundskoleundervisning/almenuddannelseforvoksne/forberedende-voksenundervisning-fvu.aspx?id=205753>

B8. What type of organisations in your jurisdiction are teaching numeracy to adults?

Belgium: Centra voor Basiseducatie [Translation: Basic Education Centres], Centra voor Volwassenenonderwijs [Translation: Adult Education Centres]

Liechtenstein: We don't have a policy but a kind of curriculum/lesson plan. The entire course offer in literacy and numeracy is organised by a provider. The teachers are specialised for Basic Skills. The provider has a service contract with us, the Adult Education foundation. We finance and control the entire Basic Skills course offer.

Switzerland: The policy is national but also regional. The cantons should also.

Greece: Second Chance Schools

United Kingdom: *National Numeracy* does not teach numeracy. It was set up to put forward a new approach to improving adult numeracy skills, as the current system was (and still is) failing. The Skills for Life Survey highlighted that numeracy levels in the UK were getting worse, despite a (then) focus on numeracy courses. Investment in adult education has since collapsed, which is a pity but it was not terribly effective anyway. The failure was (and still is) because traditional education providers "teach" maths. Through our work to date we have found that the largest barrier to improving numeracy is a learner's confidence. Teaching maths skills does not address this barrier and in many cases deepens it. Instead an attitudinal approach is required. Moreover, there is a tendency to teach people to pass an exam, instead of helping them develop the skills and confidence they need for day to day life. Only a quarter of 16 to 25 year olds in the UK can replicate the numeracy level they achieved at GCSE when they are retested at a later date. Yet despite this, in adult education the system repeats the school process by primarily funding qualifications – which put off the vast majority who need help and in the case of GCSE have almost no relevance to daily life. *National Numeracy* run one-hour attitudinal workshops, aimed at breaking down the participants' barriers to learning. We happily claim that our sessions involve no maths. Instead we talk about the group's thoughts and feelings towards maths – what has led them to say they are "not a maths person". At the end of the session we introduce our online learning platform, which uses a diagnostic assessment to give learners an accurate depiction of where their strengths and weaknesses lie. Thereafter, users can use this information to direct their own learning. To date 77% of those that have retaken the assessment have improved their numeracy level, which has been achieved without any "teaching".

Ireland: Education and Training Boards Adult Education Programmes offer numeracy programmes to adults.

Austria: Accredited offers from private educational institution, folk high schools.

Finland: Education providers who provide basic education for adults, liberal adult education institutions, such as adult education centres, folk high schools, and summer universities. Numeracy is taught also as a part of integration training in various institutes organised by TE offices (Employment and Economic Development Office).

Spain: Adult schools

Serbia: Skole za osnovno obrazovanje odraslih [Translation: Adult Primary Education Schools]

Denmark: Adult learning centres, daghøjskole, folkehøjskole, erhvervskoler, AMU-centre, produktionsskoler, social- og sundhedsskoler, folkehøjskoler, aftenskoler, sprogcentre og skoler med specialundervisning for voksne. [Translation: Adult learning centres, day school, folk high school, business schools, AMU centres, production schools, social and health schools, folk high schools, evening schools, language centres and schools with special education for adults].

B9. What educational institutes or organisations are involved in the teaching of numeracy to adults (please select all relevant options)?

Belgium: Early childhood education; Primary schools; Secondary schools; Technical/vocational colleges/schools; Universities; Adult education centres.

Liechtenstein: Adult Education Centres; Other [Our institution is the biggest provider for AL in Liechtenstein].

Switzerland: Adult education centres. Other (Charitable NGOs; public and private adult education providers).

Greece: Secondary schools. Technical/vocational colleges/schools

United Kingdom: Other [Although *National Numeracy* works with all of the above [listed] institutions, we are not directly teaching numeracy to adults. We encourage these organisations to either refer staff to our online platform, or to run regularly attitudinal sessions – led by trained facilitators.

Ireland: Technical/vocational colleges/schools; Adult education centres.

Austria: Other [Private educational institution]

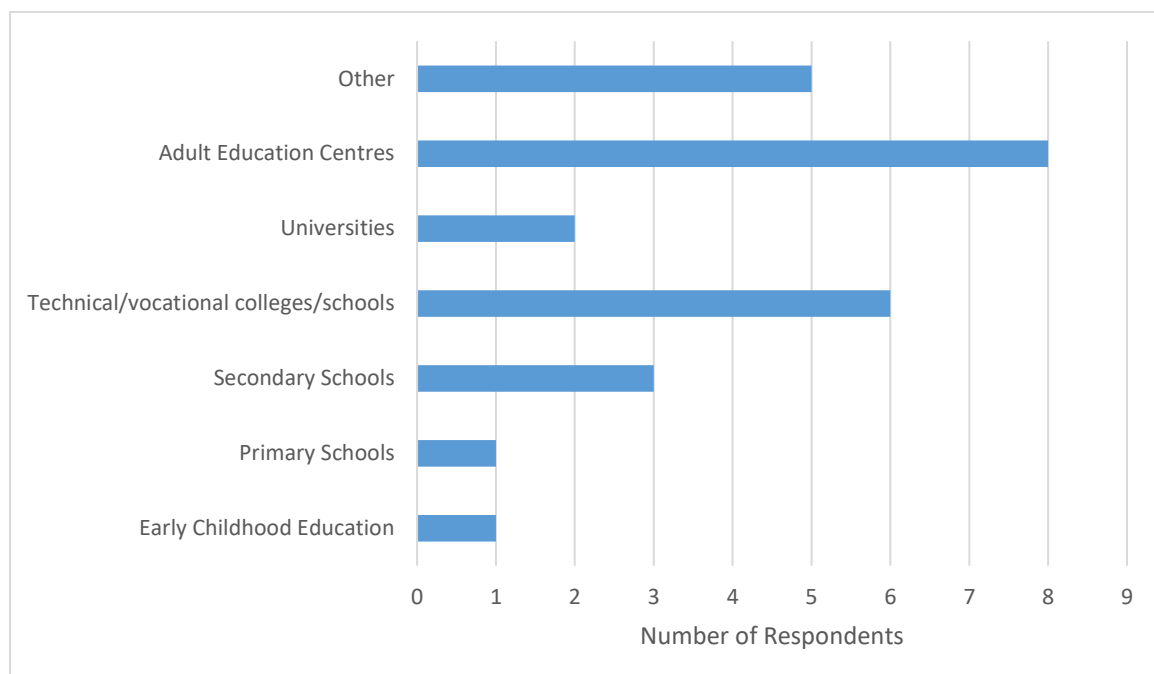
Finland: Secondary schools; Technical/vocational colleges/schools; Adult education centres; Other [see previous answer]

Spain: Technical/vocational colleges/schools; Universities; Adult education centres.

Serbia: Adult education centres

Denmark: Technical/vocational colleges/schools; Adult education centres.

Summary



B10. What type of training do adult learners receive in the area of numeracy in your jurisdiction (please select all relevant options)?

Belgium: Short courses (1 – 3 days); Long courses (6+ weeks); Other [often embedded in other courses].

Liechtenstein: Long course (6+ weeks); Other [Tailor made courses].

Switzerland: Other: This is not defined, depends on the offer of the education provider

Greece: Long courses (6+ weeks)

United Kingdom: Online courses; Other [We run a one-hour attitudinal session focussed on breaking down the attitudes to learning. At the end of this discursive session we introduce our online learning platform (the National Numeracy Challenge), through this platform learners can direct their own learning based on their strengths and weaknesses.

Ireland: Online courses; Short courses (1 – 3 days); Long courses (6+ weeks); Other [Unaccredited and accredited options are available to learners at Levels 1 – 6 on the National Framework of Qualifications.

Austria: Long courses (6+ weeks)

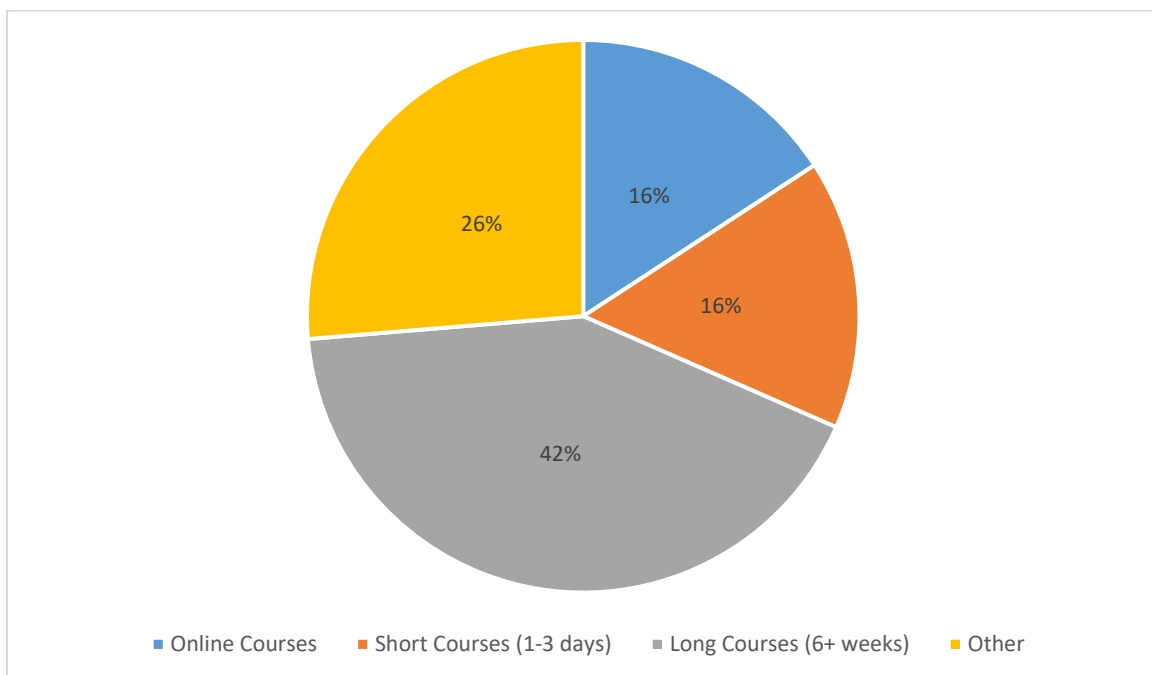
Finland: Online courses; Short courses (1 – 3 days); Long courses (6+ weeks)

Spain: Long courses (6+ weeks)

Serbia: Long courses (6+ weeks)

Denmark: Long courses (6+ weeks)

Summary



B11. Is there any official certificate or qualification in your jurisdiction that acknowledges adults competencies in numeracy?

Belgium: Yes

Liechtenstein: No

Switzerland: No

Greece: Unsure

United Kingdom: Yes

Ireland: Yes

Austria: Yes

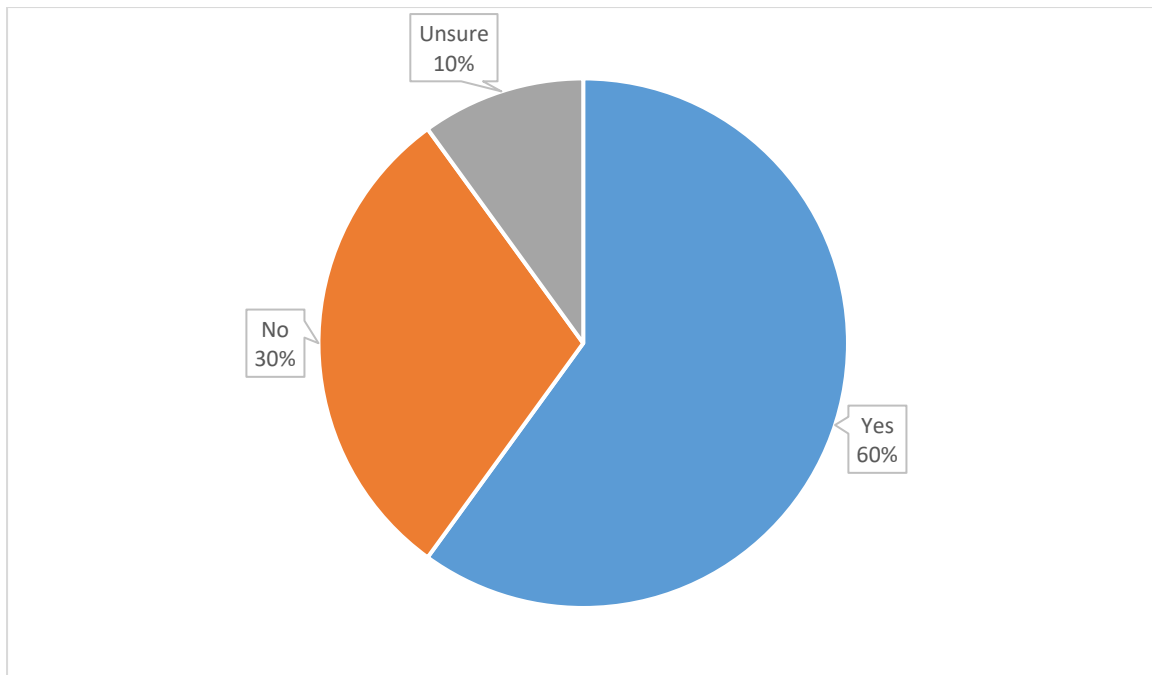
Finland: Yes

Spain: Yes

Serbia: No

Denmark: XXX

Summary



B12. If you answered yes to B11, please specify the name of the certificate or qualification?

Belgium: (Deel) Certificaten [Translation: (Part) Certificates]

Liechtenstein: N/A

Switzerland: N/A

Greece: N/A

United Kingdom: Essentials of Numeracy

Ireland: Quality and Qualification Ireland (QQI) have certified maths programmes at Levels 1 – 6 on the NFQ.

Austria: Certificate of basic education

Finland: Each student gets a certificate at the end of the training programme, a certificate will be awarded for completion of literacy training for adult migrants.

Spain: Graduat Escolar Secundaria Obligatoria (GESO) this is the certificate for the mandatory education and includes languages, science, social studies and mathematics skills.

Serbia: N/A

Denmark: Two modules of Pedagogical Diploma

B13. What are the overall goals of numeracy education for adults in your jurisdiction? (Please select all relevant options).

Belgium: Facilitate digitization; Facilitate critical thinking; Facilitate media competence; Facilitate citizenship; Facilitate further learning; Enhance job prospects; To gain accreditation; Other [everyday life, finances].

Liechtenstein: Facilitate digitization; Facilitate critical thinking; Facilitate media competence; Facilitate further learning; Enhance job prospects.

Switzerland: Facilitate citizenship; Facilitate further learning; Enhance job prospects.

Greece: Facilitate critical thinking; Facilitate further learning; Enhance job prospects; To gain accreditation.

United Kingdom: Facilitate digitization; Facilitate creativity; Facilitate critical thinking; Facilitate media competence; Facilitate citizenship; Facilitate tolerance, respect and diversity; Facilitate further learning; Enhance job prospects; To gain accreditation.

Ireland: Facilitate digitization; Facilitate creativity; Facilitate critical thinking; Facilitate media competence; Facilitate citizenship; Facilitate tolerance, respect and diversity; Facilitate further learning; Enhance job prospects; To gain accreditation; Other [to provide adults with the confidence, skills and knowledge to manage everyday situations]

Austria: Facilitate critical thinking; Facilitate tolerance, respect and diversity; Facilitate further learning; Enhance job prospects; Other [Facilitate everyday life, enhance independence]

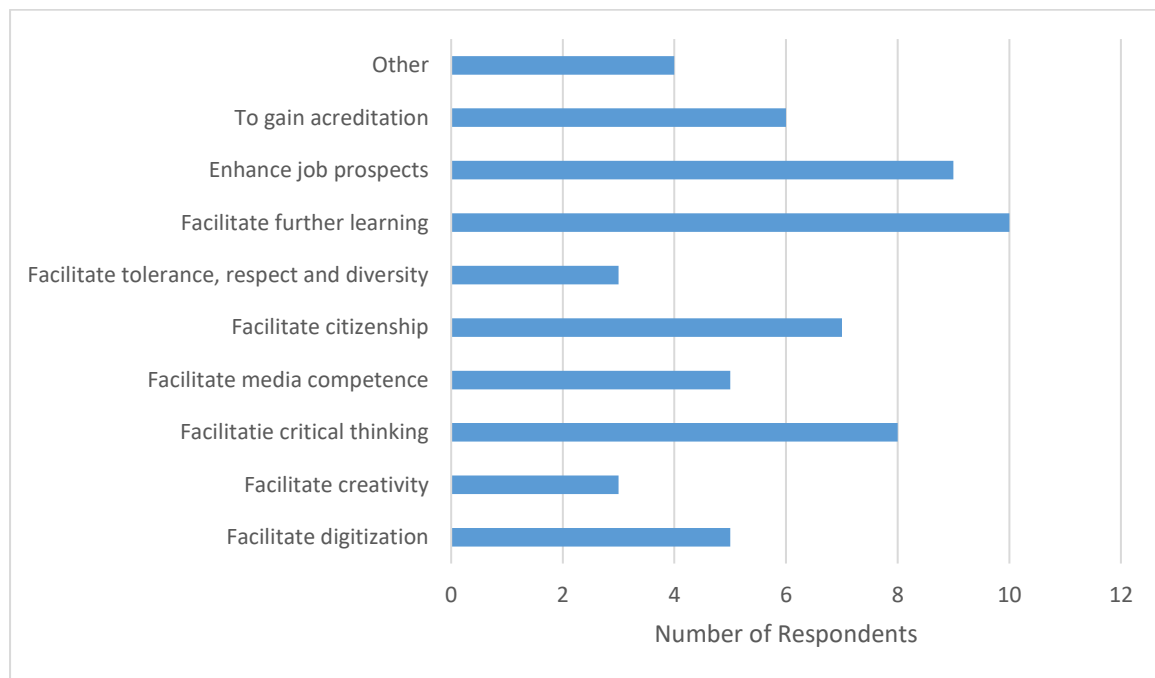
Finland: Facilitate digitization; Facilitate creativity; Facilitate critical thinking; Facilitate media competence; Facilitate citizenship; Facilitate further learning.

Spain: Facilitate critical thinking; Facilitate citizenship; Facilitate further learning; Enhance job prospects; To gain accreditation.

Serbia: Other [resavanje problema u situacijama u svakodnevnom zivotu] [Translation: solving problems in situations in everyday life].

Denmark: Facilitate citizenship; Facilitate further learning; Enhance job prospects; To gain accreditation.

Summary



Section C

C1. Is there a numeracy curriculum for adults in your jurisdiction?

Belgium: Yes

Liechtenstein: Yes

Switzerland: No

Greece: Yes

United Kingdom: Yes

Ireland: No

Austria: No

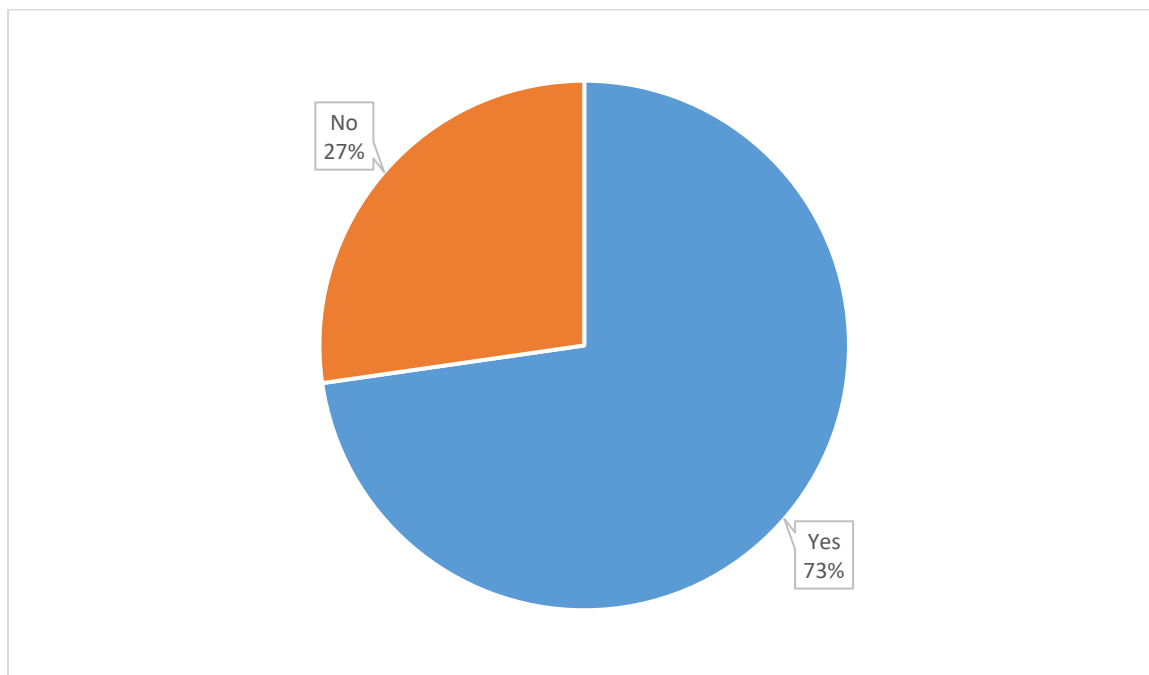
Finland: Yes

Spain: Yes

Serbia: Yes

Denmark: Yes

Summary



C2. If you answered yes to C1, and if available please provide a URL for this curriculum or otherwise describe what is on the curriculum.

Belgium: <http://www.stuurgroepvo.be/basiseducatie/leerplan/wiskunde>

<http://www.stuurgroepvo.be/svwo/leerplan/algemene-vorming>

Liechtenstein: It's mainly focussed on range of numbers, measures of length, weight, currency.

Switzerland: N/A

Greece: The main mathematical notions that must be taught to adult learners in order to complete their compulsory education.

United Kingdom: <https://www.nationalnumeracy.org.uk/essentials-numeracy>. The essentials of Numeracy is our curriculum which is broken down into the following five components.

Numbers – It is essential to be confident using numbers and to understand the structure of the number system.

- Whole numbers
- Place value and rounding
- Fractions, decimals and percentages
- Comparing numbers

Operations and Calculations – It is essential to be able to choose the right mathematical operations to use in a given situation and combine them effectively. Skills such as percentages calculations, estimation and rounding are very useful in daily life.

- Addition and subtraction
- Multiplication and division
- Choosing and combining operations
- Percentage calculations and ratios
- Estimating, checking, and using technology

Shape, space and measures – It is essential to be able to tackle practical problems involving measurements, scales, common units, the properties of shapes, position and direction.

- Measurement
- Converting units
- Shapes
- Position and direction

Handling data – It is essential to be able to make sense of numerical information presented in a variety of ways, to understand, interpret and evaluate statistical claims, and to understand common situations involving probability.

- Data
- Graphs and charts
- Averages
- Probability

Being Numeracy – It is essential to be confident using numbers and to understand the structure of the number system.

- Decision making – getting started, identifying information, selecting the maths
- Reasoning – exploring, identifying patterns, logical arguments
- Problem solving – planning, executing, monitoring and reflecting

Ireland: N/A

Austria: N/A

Finland: <https://www.oph.fi/en/statistics-and-publications/publications/national-core-curriculum-basic-education-adults-2017>

<https://www.oph.fi/en/statistics-and-publications/publications/curriculum-guidelines-literacy-training-liberal-adult-0>

Spain: <http://xtec.gencat.cat/ca/curriculum/educacioadults/curriculum/>

Serbia: <http://www.mpn.gov.rs/wp-content/uploads/2016/01/1.1Pravilnik-o-NPP-OOO.htm>

Denmark:

<https://www.retsinformation.dk/Forms/R0710https://www.ug.dk/uddannelser/grundskoleundervisning/almenuddannelseforvoksne/forberedende-voksenundervisning-fvu.aspx?id=205753>

C3. If you answered no to C1, please briefly describe the skills taught to adult learners in the area of numeracy.

Belgium: N/A

Liechtenstein: To build a stable range of numbers, do calculations, translation to different currency, budget preparation, accounting, use of ICT.

Switzerland: This is not defined by law. The interpretation of what numeracy is and what kind of courses are financially supported by public authorities varies vastly.

Greece: N/A

United Kingdom: N/A

Ireland: QQI accredited programmes are available at Levels 1-6 on the NFQ. Unaccredited programmes are designed to meet identified needs of learners and include financial literacy, budgeting, family learning – maths to support parents supporting their children with maths.

Austria: Mathematical thought processes (Level 1 to 4); Working with numbers and dimensions (L1 – L4); Working with figures and bodies (L1 – L4); Working with variables, models, statistics (L1 – L4).

Finland: N/A

Spain: N/A

Serbia: N/A

Denmark: N/A

C4. What numeracy skills do you intend adult learners to develop in the future?

Belgium: These skills necessary to function and participate in society, to be able to continue learning, to take care of children and function well in a job.

Liechtenstein: No concrete plans.

Switzerland: SVEB's goal is that not only numeracy skills are publicly supported, which focus on employability. Numeracy skills should also help to develop citizenship and self-determination in everyday life and at work.

Greece: Reading of graphs, understanding the omnipresence of mathematics, connection of mathematics with the everyday life.

United Kingdom: Improved numeracy skills leads to a number of positive outcomes including better financial and health literacy. These outcomes come as a result of people with better numeracy being less influenced by information bias and more willing to engage in working out the best outcome for them, as opposed to accepting the solution in front of them. Most importantly we have seen that improved numeracy leads to higher confidence levels – for more information look through our case studies here: https://www.nationalnumeracy.org.uk/news-and-media?type=numeracy_story.

Ireland: Education and Training Boards Adult Education Services will endeavour to design and offer maths/numeracy programmes based on identified needs of learners.

Austria: Daily living competences, compulsory school graduations.

Finland: In the literacy training phase, teaching mathematics aims to provide students with basic numerical skills that are essential in daily life management, communication and the progress of studies. Teaching also aims to provide students with positive, diverse experiences of mathematics. In language-aware mathematics teaching, the focus is on clarity, the precise expression and explanation of mathematical concepts using everyday language

and on ensuring that students understand the topics taught (National Core Curriculum for Basic Education for Adults, 2017).

Spain: Financial literacy, understanding the everyday mathematical operations in order to understand policies and everyday life.

Serbia: Dugacka je lista vestina, pogledajte gore navedeni dokument [Translation: It's a long list of skills, see the document above at <http://www.mpn.gov.rs/wp-content/uploads/2016/01/1.1Pravilnik-o-NPP-OOO.htm>]

Denmark: No response offered.

C5. What teaching approaches (e.g. collaborative learning, didactic approaches, teaching with ICT etc.) are used when teaching numeracy to adult learners in your jurisdiction?

Belgium: Different professional approaches (because these courses are embedded in the formal education system of Flanders)

Liechtenstein: Collaborative learning, teaching with ICT.

Switzerland: This varies from education provider to education provider and from teacher to teacher.

Greece: Collaborative learning, projects, use of art for the teaching of mathematics, teaching with ICT.

United Kingdom: Our approach focuses on overcoming attitudinal barriers to re-engage with numeracy. We do not describe ourselves as teachers, instead as facilitators. Our workshops focus on discussing myths and mindsets around maths and numeracy and creating a distinction between “school” maths and “real-world” numeracy. Numeracy is something that everyone is able to do, it is basic skills that we use every day, often without knowing. Over the course of the workshop we warm people to the idea of restarting their journey, going from “I can’t do maths” to “I’ll give it a go”. At the end of the session we introduce our online learning platform (the National Numeracy challenge). After a diagnostic assessment, learners are given learning resources targeted at their strength and weaknesses. Learners are free to direct their own learning and when they feel more confident encouraged to retake the assessment and see if any by how much they have improved.

Ireland: Adult Education programmes based in Education and Training Boards based on best practice guidelines for adult literacy work (including numeracy) which places the learner at the centre of the process. Small group collaborative and peer learning approaches are embedded in modes and medium of delivery. The use of ICT by tutors and learners is encouraged and promoted in line with the Technology Enhanced Learning Strategy adopted by ETBS (http://www.solas.ie/SOLasPdfLibrary/TEL_Strategy.pdf)

Austria: All of these

Finland: Teaching is based on the idea of using topics familiar to the students from everyday situations. Mathematics is taught in a learning environment where concretisation and tools play a key role and where emphasis is focused on the use of the senses. Students are introduced to the use of study and measuring tools, including rulers, metre-rules and scales. Diverse methods are employed in teaching. Students learn to work in groups and independently. Information and communication technology can be used as a tool in teaching and learning. Adequate time must be reserved for the learning of basic mathematical skills. The students’ mathematical skills and their development are monitored continuously. Students have access to support that provides them with the opportunity to develop their skills in a way that strengthens their positive attitude and feeling of capability. Each student is provided with adequate opportunities to practice their skills, gain insight and understand the topics. Skilled students are supported by offering them alternative forms of work and by enriching the content discussed.

Spain: Dialogic learning and interactive groups

Serbia: Kombinovano [Translation: Combined]

Denmark: No response offered.

C6. Describe how you assess numeracy skills among adult learners in your jurisdiction.

Belgium: Other [different methods are used].

Liechtenstein: Personal interviews

Switzerland: There are no methods.

Greece: Diagnostic tests

United Kingdom: Diagnostic tests

Ireland: Portfolios

Austria: Diagnostic tests

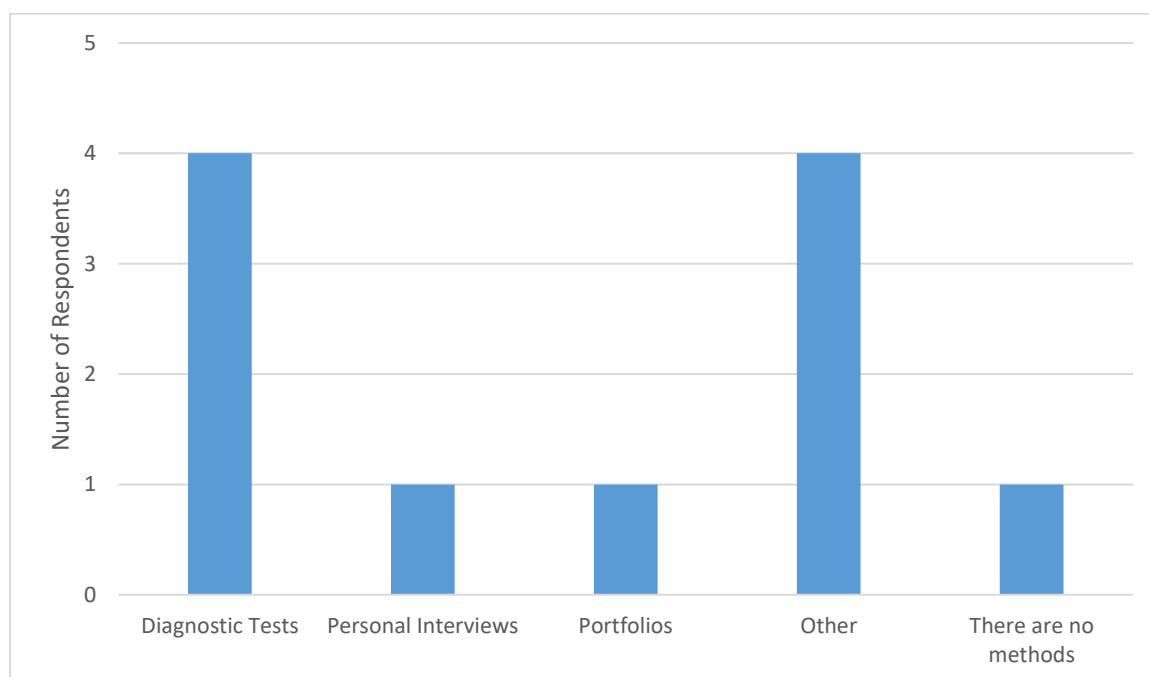
Finland: Diagnostics tests

Spain: Other [Dialogical interview evaluations with students and standardized test]

Serbia: Other [Kombinovano [Translation: Combined]]

Denmark: Other [National Digitalised Examination]

Summary



C7. Please describe the levels/categories that adult learners can be assigned to, based on their numeracy skills in your jurisdiction.

Belgium: In Centra for Basic education: functioneren – participeren – doorstroom [Translation: Centers for Basic Education: functioning – participating – transfer] (look at: <http://www.stuurgroepvo.be/basiseducatie/leerplan/wiskunde>). In Centres for Adult Education: ?

Liechtenstein: 4 Levels.

Switzerland: There are no levels.

Greece: Primary education degree

United Kingdom: After taking our diagnostic assessment learners are presented with a breakdown of their score across the areas of maths outlined within the Essentials of Numeracy (Numbers; Handling Information; Operations & Calculations; Shape, Space & Measures). For each area learners are given a score out of 100, as well as an average score which indicates the learner's current overall numeracy level.

Follow the link for a more detail breakdown what the scoring relates to compared to other qualifications:
<https://www.nationalnumeracy.org.uk/what-do-adult-numeracy-levels-mean>

Below is a descriptions of what is expected of learners within each numeracy level bracket.

- 80 to 100 - Learners have achieved the Essentials of Numeracy – the competence and confidence to use maths in daily life
- 60 to 79 - May struggle with numeracy in complex situations, but do have the basic maths skills necessary for daily life
- 40 to 59 - While these learners may have the basic skills, they lack confidence when applying them to the real world
- 20 to 39 - Low levels of numeracy – both in terms of competence and confidence
- 0 to 19 - Very low levels of numeracy – both in terms of competence and confidence

Ireland: Learners can be assigned to accredited or unaccredited programmes based on initial assessment and learning goals expressed by the individual.

Austria: L1: Detect simple mathematical situations from the environment and describe in own words. L2: Presenting mathematical situations using technical terms and presenting them in different ways; L3: Describe and justify mathematical relationships; take information from graphics and talk about it; L4: Using appropriate methods and media to solve mathematical problems – Translating and solving situations in the language of mathematics – Representing, interpreting and reflecting solution processes – Assessing the solutions of others.

Finland: The main task of assessment is to support and promote the development of the students' basic mathematical skills. In the assessment of learning, attention is focused on the provision of encouraging feedback. Students are encouraged to practice their developing skills. They must be given the opportunity to demonstrate their progress in different ways. In assessment, it is important to observe the use of numbers and basic mathematical symbols and the correctness of results but also the method and fluency of the student's work. When providing verbal assessments or grades, the teacher assesses the students' competence in relation to the objectives set in the local curriculum. Assessment determines how the student has progressed in relation to the objectives. The key areas for assessment and feedback in terms of the learning process:

- identification of numerals and digits and comprehension of the concept of number
- proficiency in basic mathematical operations
- progress in the use of numerical information in everyday situations
- progress in mathematical thinking and expression.

Spain: Beginning, intermediate and the mandatory level certificate.

Serbia: Zadovoljave/nezadovoljava [Translation: Good/bad]

Denmark: 1 and 2 (Danish labels)

C8. Who designs numeracy assessments in your jurisdiction?

Belgium: Teachers

Liechtenstein: The Foundation in collaboration with "Lesen und Schreiben" Schweiz [Translation: "Reading and writing" Switzerland]

Switzerland: N/A

Greece: The teacher of numeracy

United Kingdom: Through collaboration with our in-house team, external experts and employers *National Numeracy* is responsible for developing its own curriculum.

Ireland: The National Initial and On-going Assessment of Adult Literacy and Numeracy at Levels 1-3 is available in all ETB Adult Education Centres. Locally devised initial assessment is also available as are some online options e.g. WRAT 4 and BKSB

<https://www.solas.ie/SolasPdfLibrary/Initial%20and%20Ongoing%20Assessment%20of%20Adult.pdf>

Austria: Adult educators

Finland: The teachers

Spain: Regional Government

Serbia: Ministarstvo prosvete [Translation: Ministry of Education]

Denmark: The Ministry hires a group of experienced teachers in adult education plus some more.

C9. Do you use diagnostic tests (digital or paper based) to assess levels of proficiency in numeracy among adult learners? If so, please provide a hyperlinklink (URL).

Belgium: No standardised tests

Liechtenstein: No

Switzerland: No

Greece: No answer given

United Kingdom: www.nnchallenge.org.uk

The National Numeracy Challenge, is our online learning platform. Once a learner has registered they then take the “check-up” – this is our diagnostic test which assesses the learners strengths and weaknesses based on the Essentials of Numeracy. Our diagnostic assessment has the following features:

- It is free for anyone to use
- Following the skills assessment there is a short psychometric quiz, designed to assess the learner’s attitudes towards maths and give us an indication of how they might best learn.
- It is adaptive. The assessment is different for each learner. If you keep getting questions correct, they will get harder until you start to make mistakes. Similarly, if you are struggling you won’t be given difficult questions. We do not want the assessment to ask learners questions that they are unable to answer, as such the assessment adapts to your level.
- There is no pass or fail mark. Although a score of 80 or above is what we would call the Essentials of Numeracy, the purpose of the diagnostic tool is to determine your current level and use that as a baseline for learners to improve from.
- All the questions are based on real world situations. It tries to reflect simple maths in complex situation.
- There is an “I don’t know” option for each question. As it’s not a test that you can pass or fail, we encourage people to click “I don’t know” instead of simply guessing. At the end of the assessment learners are given learning resources for each of the questions they got wrong or clicked “I don’t know” on.

Ireland: Diagnostic tests are used in ETB Adult Education and Youthreach Centres. These online tests are available only to centre personnel who have paid for the use of tests.

Austria: No answer given

Finland: Yes, they vary according to the education providers and individual teachers.

Spain: No

Serbia: Ispitnim testovima [Translation: By exam tests]

Denmark: No response offered

C10. How do you assess the effectiveness of the courses offered to adult learners in the area of numeracy in your jurisdiction (i.e. how do you determine if the courses are meeting the demands of the learners)?

Belgium: Formal inspectorate of education (<https://www.onderwijsinspectie.be/homepage-inspectorate-of-education>)

Liechtenstein: There are actually no running courses.

Switzerland: There is no assessment so far.

Greece: With diagnostic tests during this year.

United Kingdom:

https://www.nationalnumeracy.org.uk/sites/default/files/nn158_2018_impact_report_aw.pdf

We are constantly assessing the learning and improvement rates of the users accessing the National Numeracy Challenge in comparison to our key performance indicators. We learn lessons across areas where we have met our targets and where applicable seek to replicate these successes in areas we are struggling to reach our targets. On specific projects are targets and evaluation indicators are set in collaboration with the employer/funder. 77% of people who retake the assessment currently improve. This improvement rate has been achieved with no face to face teaching.

Ireland: As part of Education and Training Boards programme evaluation learners are invited to evaluate their learning experience and provide feedback to their ETB. As part of their Quality Assurance Policies and Procedures ETBs participate in self-evaluation of which programme evaluation is part.

Austria: In a very individual way, mainly in one-to-one interviews.

Finland: See C7 [The main task of assessment is to support and promote the development of the students' basic mathematical skills. In the assessment of learning, attention is focused on the provision of encouraging feedback. Students are encouraged to practice their developing skills. They must be given the opportunity to demonstrate their progress in different ways. In assessment, it is important to observe the use of numbers and basic mathematical symbols and the correctness of results but also the method and fluency of the student's work. When providing verbal assessments or grades, the teacher assesses the students' competence in relation to the objectives set in the local curriculum. Assessment determines how the student has progressed in relation to the objectives. The key areas for assessment and feedback in terms of the learning process:

- identification of numerals and digits and comprehension of the concept of number
- proficiency in basic mathematical operations
- progress in the use of numerical information in everyday situations
- progress in mathematical thinking and expression.]

Spain: Not sure

Serbia: Skole za osnovno obrazovanje odraslih [Translation: Adult Primary Education Schools]

Denmark: No response offered

C11. Which areas of everyday living are covered by numeracy courses in your country?

Belgium: Work (dealing with pay slips, working hours, wages etc.); Private life (family, friends etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.); Personal development (self

reflection etc.); Digital skills (using a computer, mobile phone etc.); Reading and understanding context (working with big data etc.); Health (interpreting data, understanding risk etc.)

Liechtenstein: Work (dealing with pay slips, working hours, wages etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.); Digital skills (using a computer, mobile phone etc.); Reading and understanding context (working with big data etc.); Health (interpreting data, understanding risk etc.);

Switzerland: Work (dealing with pay slips, working hours, wages etc.); Private life (family, friends etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.); Personal development (self reflection etc.); Digital skills (using a computer, mobile phone etc.); Reading and understanding context (working with big data etc.); Health (interpreting data, understanding risk etc.)

Greece: Work (dealing with pay slips, working hours, wages etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.);

United Kingdom: Work (dealing with pay slips, working hours, wages etc.); Private life (family, friends etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.); Reading and understanding context (working with big data etc.); Health (interpreting data, understanding risk etc.)

Ireland: Work (dealing with pay slips, working hours, wages etc.); Private life (family, friends etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.); Personal development (self reflection etc.); Digital skills (using a computer, mobile phone etc.); Reading and understanding context (working with big data etc.); Health (interpreting data, understanding risk etc.); Other [Support is also provided to apprentices struggling with the maths element of their apprenticeship. Family Learning Numeracy programmes support parents in supporting their children with maths. Numeracy integrated into vocational programmes e.g. cookery, woodwork.

Austria: Work (dealing with pay slips, working hours, wages etc.); Private life (family, friends etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.); Personal development (self reflection etc.); Digital skills (using a computer, mobile phone etc.); Reading and understanding context (working with big data etc.); Health (interpreting data, understanding risk etc.)

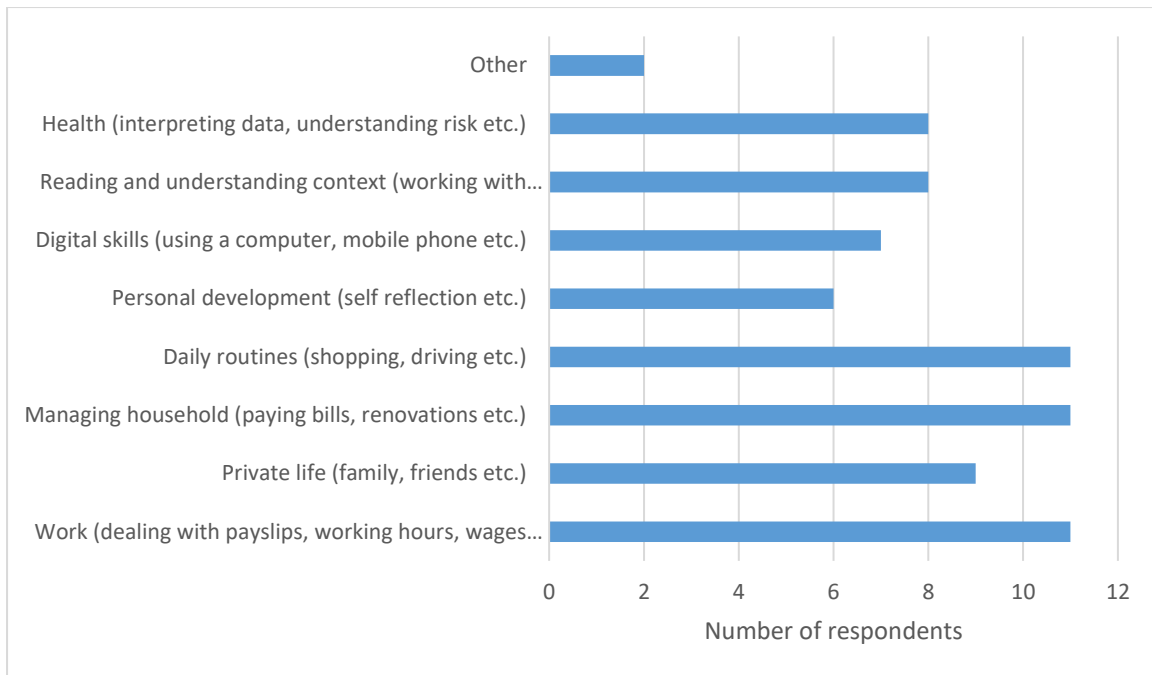
Finland: Work (dealing with pay slips, working hours, wages etc.); Private life (family, friends etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.); Personal development (self reflection etc.); Digital skills (using a computer, mobile phone etc.); Reading and understanding context (working with big data etc.); Health (interpreting data, understanding risk etc.)

Spain: Work (dealing with pay slips, working hours, wages etc.); Private life (family, friends etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.)

Serbia: Work (dealing with pay slips, working hours, wages etc.); Private life (family, friends etc.); Managing household (paying bills, renovations etc.); Daily routines (shopping, driving etc.)

Denmark: Work (dealing with pay slips, working hours, wages etc.); Private life (family, friends etc.); Managing a household (paying bills, renovations etc.); Daily routines (shopping, driving etc.); Personal development (self reflection etc.); Digital skills (using a computer, mobile phone etc.); Reading and understanding context (working with big data etc.); Health (interpreting data, understanding risk etc.); Other (Citizenship)

Summary



Section D

D1. Who mainly educates adult learners in numeracy in your jurisdiction?

Belgium: Professionals

Liechtenstein: Professionals

Switzerland: Professionals

Greece: Professionals

United Kingdom: No answer given

Ireland: Professionals; Trained volunteers

Austria: Professionals

Finland: Professionals; Other [Unqualified professionals]

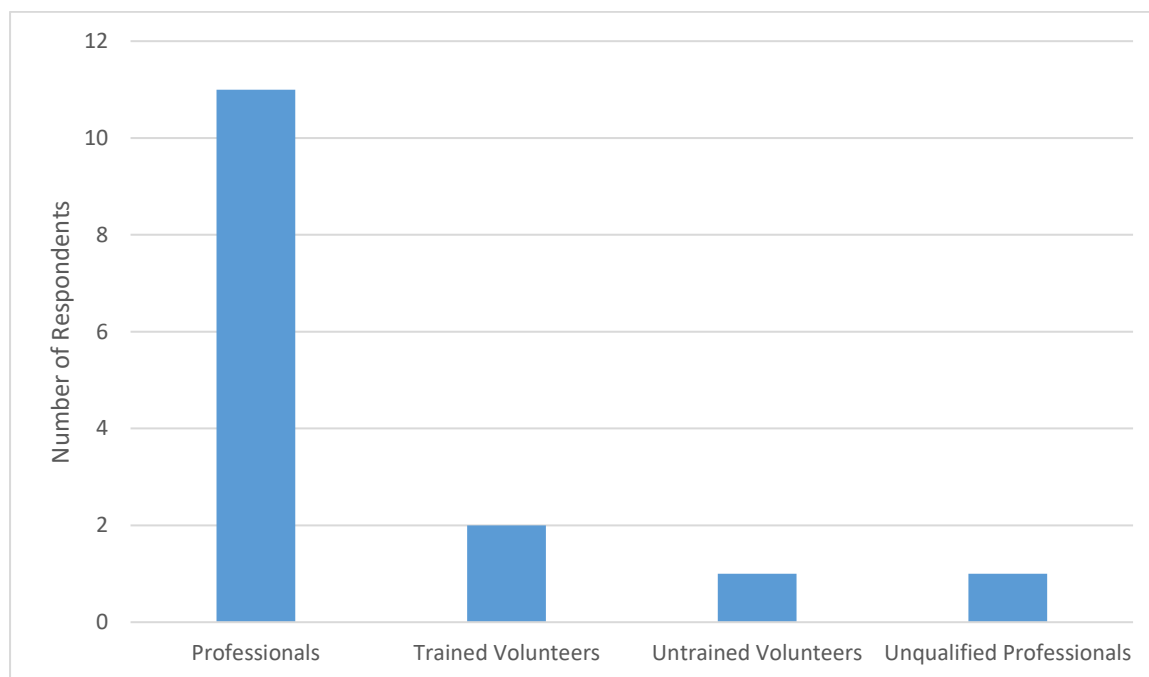
Spain: Professionals; Untrained volunteers

Serbia: Professionals

Denmark: Professionals

Turkey: Professionals, Trained Volunteers

Summary



D2. What framework, if any, underpins the teaching of adult numeracy in your jurisdiction?

Belgium: Jurisdictional framework

Liechtenstein: No framework. Other [The teaching and the employment of professionals are contractually agreed]

Switzerland: No framework; Other [There is only a general "Framework" for adult education: the SVEB Certificate]

Greece: National framework

United Kingdom: No answer given

Ireland: Local framework

Austria: National framework

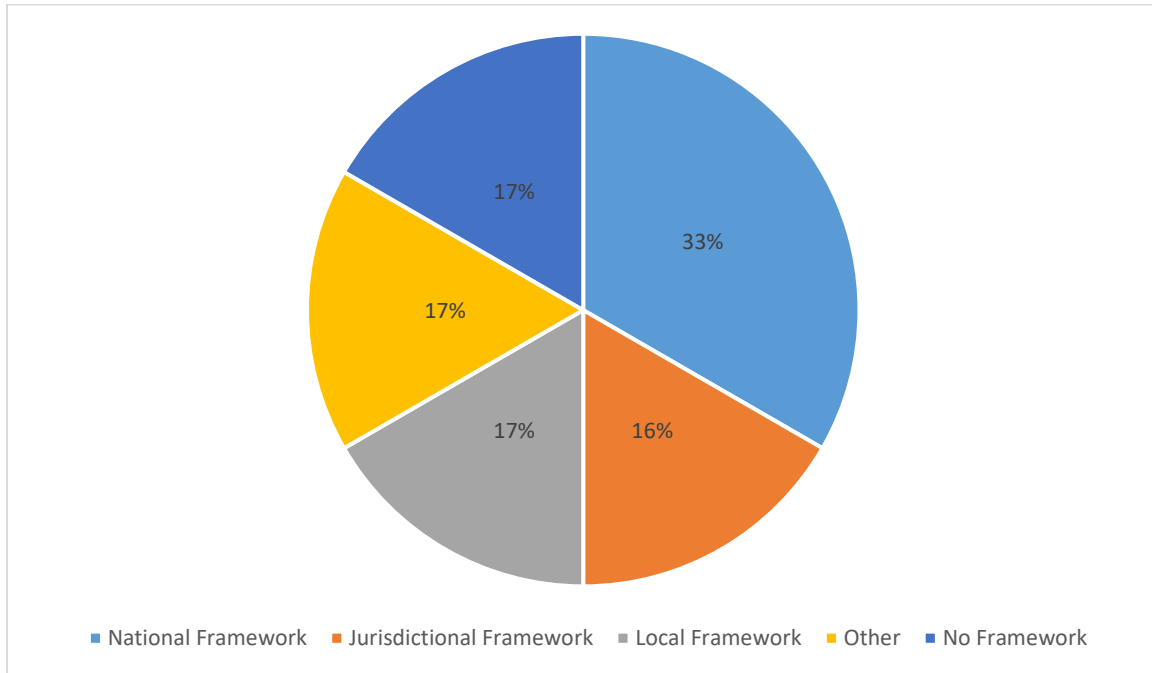
Finland: National framework; Local framework

Spain: Jurisdictional framework

Serbia: National framework

Denmark: National framework

Summary



D3. How often do teachers or volunteers receive professional development for teaching numeracy?

Belgium: Occasionally (once or twice a year)

Liechtenstein: Rarely (less than once a year)

Switzerland: Rarely (less than once a year)

Greece: Never

United Kingdom: No answer given

Ireland: Occasionally (once or twice a year)

Austria: Very regularly (More than twice a year)

Finland: Rarely (less than once a year)

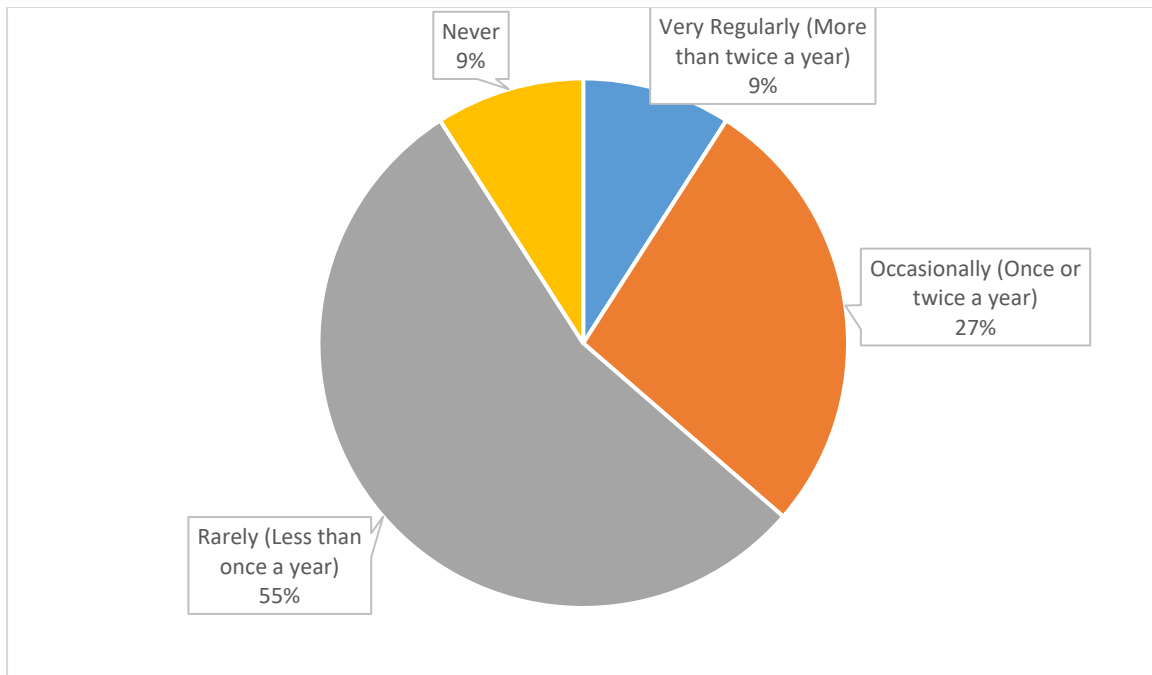
Spain: Rarely (less than once a year)

Serbia: Rarely (less than once a year)

Denmark: Rarely (less than once a year)

Turkey: Occasionally (once or twice a year)

Summary



D4 Please describe the professional development opportunities available to teachers or volunteers in your jurisdiction. In your description, please refer to the courses available, the content taught, the aims of the course and the structure of the courses.

Belgium: Different organisations offer courses for professionals. Teachers also receive professional support by colleagues, co-ordinators etc. Professional development is more than just courses!

Liechtenstein: At the moment we don't run a course in numeracy.

Switzerland: SVEB has developed a training for trainers in numeracy. There is material available but the course is currently not offered. Information about the training: <https://alice.ch/de/sveb/projekte/kursleiterausbildung-alltagmathematik/>. The training for trainers of "Everyday Mathematical Competences in Everyday Life and Work" is aimed at adult educators who would like to develop a new offer in the field of everyday mathematics for adults within the framework of courses for labour market integration, integration and German for second language speakers. The course promotes the methodological competencies needed for successful and motivating teaching of everyday mathematics to adults (mainly vulnerable target groups). Manual for providers of training of trainers (German, 2012):

https://alice.ch/fileadmin/Dokumente/Grundkompetenzen/Alltagmathe_Handbuch.pdf

Greece: N/A

United Kingdom: No answer given

Ireland: Waterford Institute of Technology offer Numeracy as part of their Level 6 Higher Certificate in Arts in Literacy Development – www.wit.ie. NALA provides unaccredited national and local training in addition to an annual Numeracy conference – www.nala.ie

Austria: Basic Training (Contexts and Backgrounds of Basic Education; Pedagogical Conditions; Learning Processes; Political Education / Political Conditions; Counseling; Learning Areas of Basic Education Methodology/Didactics/Materials for German/ languages or Reading and Writing, Mathematics and ICT

Duration and requirements: Presence attendance: 160 hours; Teaching internship with pre- and post-meetings (30 hours); Self-study and written coursework; Total workload approx. 300 hours Completed with certificate. Materials for German / Languages or Reading and Writing, Mathematics and ICT). Further education in intercultural competence, digital competence, and so on

Finland: National Agency for Education offers in service training courses and allocates state funding for education institutes and universities who will provide the courses.

Spain: There are almost no training available

Serbia: Obuke za stucno usavrsavanje nastavnika koji rade sa odraslima [Translation: Vocational training for teachers working with adults]

Denmark: No response offered.

D5. Do these professional development courses contain digital components?

Belgium: I don't know.

Liechtenstein: Yes

Switzerland: No

Greece: I don't know

United Kingdom: No answer given

Ireland: Yes

Austria: Yes

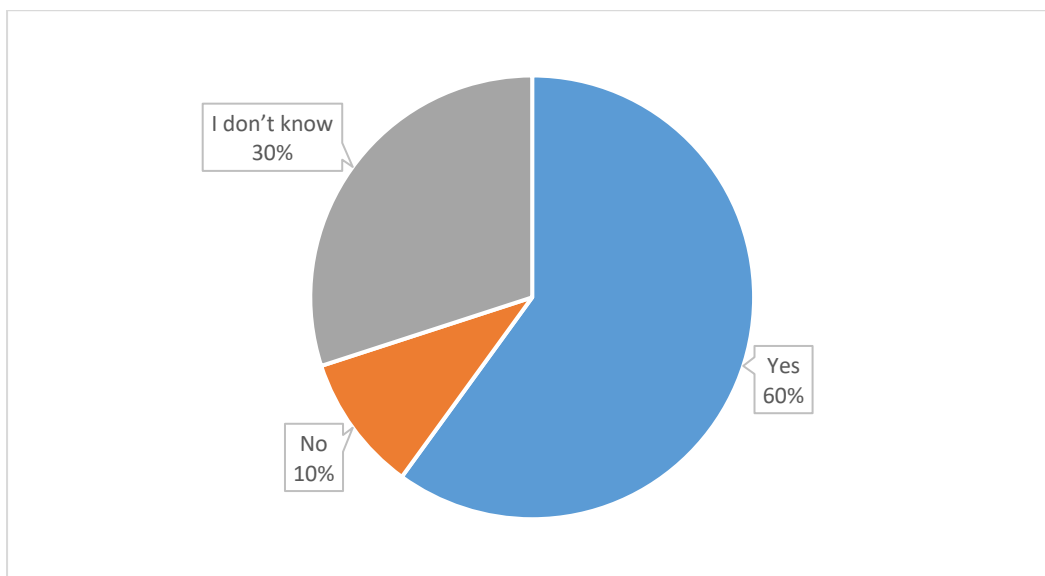
Finland: Yes

Spain: I don't know

Serbia: Yes

Denmark: Yes

Summary



Section E

E1. Which age category are courses for developing adult numeracy skills aimed at in your jurisdiction?

Belgium: Adults (age 25 – 65)

Liechtenstein: No answer given

Switzerland: Adults (age 25 – 65)

Greece: Adults (age 25 – 65)

United Kingdom: No answer given

Ireland: Adults (age 25 – 65)

Austria: No answer given

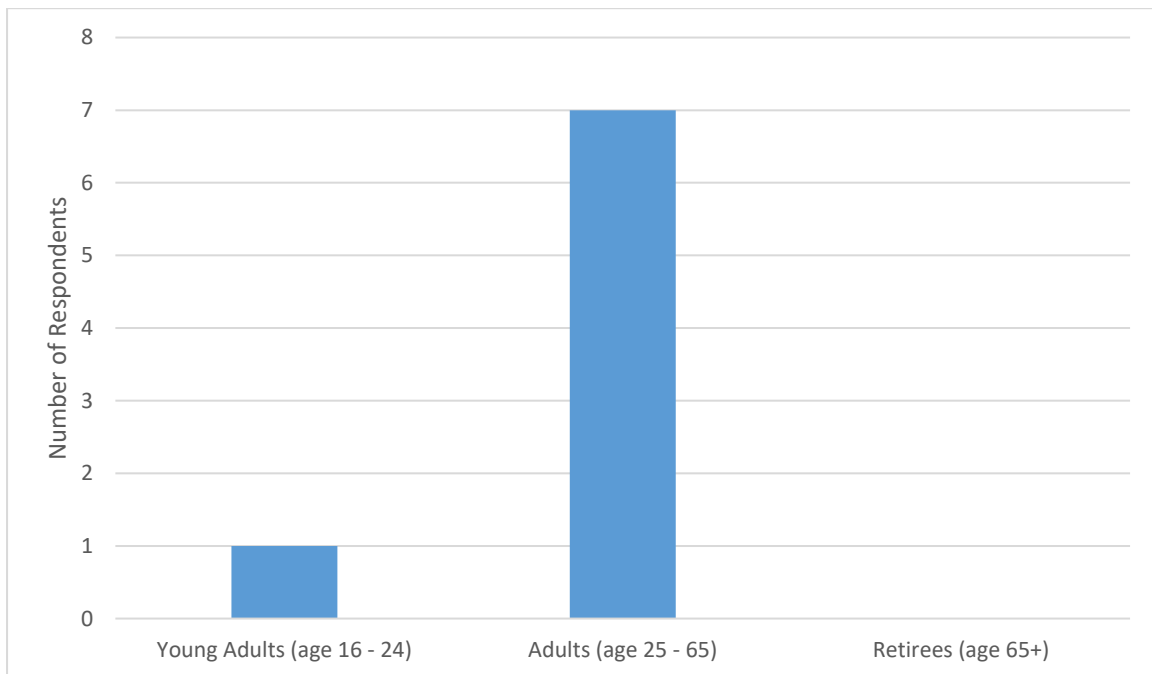
Finland: Adults (age 25 – 65) [Our agency covers all mentioned age categories. Many students with the need of numeracy education are older persons, housewives and also newly arrived young migrants with limited or no schooling].

Spain: Adults (age 25 – 65)

Serbia: Young adults (age 16 – 24).

Denmark: Adults (age 25 – 65)

Summary



E2. What characterises low levels of numeracy in your jurisdiction? Can you describe a person who would fit in this category?

Belgium: If you're not able to properly function and participate in our society <https://issuu.com/weekvandegeletterdheid/docs/troef-issuu>

Liechtenstein: No answer given

Switzerland: There are no levels defined.

Greece: Somebody who haven't finish the compulsory education. This person can use the four mathematical operations but he/she doesn't know the mathematics of the next educational level (geometry equations, discrimination of numbers etc.)

United Kingdom: We describe numeracy as the confidence and competence to use maths in day to day life. As such someone with low levels of numeracy can be characterised as lacking both numerical skills and confidence (both the belief that they are capable and the willingness to try).

Ireland: Low levels of numeracy would be determined by initial numeracy assessment where a person may be assessed at having skills at Level 1 or 2 on the NFQ. Typically a person who has little knowledge of mathematical concepts other than addition, subtraction, multiplication and division would be categorised as having low levels of numeracy.

Austria: Recognise simple mathematical situations in the environment and describe in your own words.

Finland: No answer given

Spain: It's any person who can't manage basic mathematical operations on everyday life. This is mostly adults that for any reason haven't complete mandatory education.

Serbia: Ne zadovoljava ishode učenja definisane u okviru kurikuluma matematičke pismenosti Funkcionalnog osnovnog obrazovanja odraslih [Translation: Does not meet the learning outcomes defined in the Mathematical Literacy Curriculum for Functional Elementary Adult Education]

Denmark: No response offered

E3. What characterises average levels of numeracy in your jurisdiction? Can you describe a person who would fit in this category?

Belgium: If you're not able to properly function and participate in our society when your situation changes (partner dies, children being born, change of job etc.)

Liechtenstein: No answer given

Switzerland: No answer given

Greece: Somebody who can discriminate the numbers but he/she can't read graphs, use inequalities or solve equations of second degree.

United Kingdom: We describe numeracy as the confidence and competence to use maths in day to day life. As such, someone with average levels of numeracy can be characterised as lacking either numerical skills or confidence. In terms of confidence this could be attributed to the belief they are capable and/or their willingness to try. Among the learners we have worked with face to face, the largest proportion who would fit this category have a relatively higher level of skill but lack confidence.

Ireland: Average levels of numeracy would be determined by initial assessment where a person may be assessed at having numeracy skills at Levels 3 or 4 on the NFQ. A person at this level would have knowledge of addition, subtraction, multiplication, division, fractions, percentages, basic algebra and geometry.

Austria: No answer given

Finland: Depending on their background schooling also the newly arrived migrants, migrants who have been longer time in Finnish school system etc.

Spain: It's any person who can manage basic mathematical operations in everyday life.

Serbia: Ima zadovoljavajuću numeričku pismenost da sa uspehom prevaziđe svakodnevne situacije koje zahtevaju analizu i obradu numeričkih informacija [Translation: has satisfactory numerical literacy to successfully overcome everyday situations that require analysis and processing of numerical information]

Denmark: No response offered

E4. What characterises high levels of numeracy in your jurisdiction? Can you describe a person who would fit in this category?

Belgium: You are able to properly function and participate in our society.

Liechtenstein: No answer given

Switzerland: No answer given

Greece: A person who has finished school and succeeded to the national examinations for the university.

United Kingdom: We describe numeracy as the confidence and competence to use maths in day to day life. As such, someone with high levels of numeracy can be characterised as having both numerical skills and confidence (both the belief that they are capable and the willingness to try).

Ireland: A person who has knowledge, competence and understanding of a wide range of mathematical concepts including data handling, ratios, equations, etc.

Austria: A person with a compulsory school diploma who attends secondary school or begins vocational training.

Duration and requirements: Presence attendance: 160 hours; Teaching internship with pre- and post-meetings (30 hours); Self-study and written coursework; Total workload approx. 300 hours Completed with certificate. Materials for German / Languages or Reading and Writing, Mathematics and ICT). Further education in intercultural competence, digital competence, and so on

Finland: Second generation migrants, students with migrant backgrounds who have been in Finnish school system longer time.

Spain: Any person that is autonomous and do not need help with their mathematical skills.

Serbia: Nepoznato [Translation: Unknown]

Denmark: No response offered

E5. What anxieties are demonstrated by those who have low levels of numeracy skills in your jurisdiction?

Belgium: Low self-esteem and low confidence in society, in others, in politics and fear for financial consequences etc.

Liechtenstein: No answer given

Switzerland: No answer given

Greece: Those people are afraid of mathematics and they believe they won't be able to learn.

United Kingdom: As part of our psychometric attitudinal assessment (for which we have over 70,000 respondents) we test for maths anxiety by asking respondents to agree/disagree with the following statements; my mind goes blank when faced with a maths problem; I avoid situations that involve maths; maths makes me feel uneasy. How they respond to these three questions is averaged out to give us a compound measure of "confidence with numbers". A person with low levels of numeracy is significantly more likely to strongly agree/agree with the three statements.

Ireland: Adults generally exhibit less anxiety toward the lack of numeracy skills than the lack of literacy skills.

Austria: Shame, fear of failing, money problems

Finland: Lack of possibilities for further studies and work life

Spain: For example they won't go to the bank alone

Serbia: Tipične za sve druge oblike nedostatka obrazovanja - nesnalaženje u svakodnevnom životu, osećaj bespomoćnosti, otuđenosti, odbačenosti, nedostatak samopoštovanja... [Translation: Typical of all other forms of lack of education - lack of daily life, feeling helpless, alienated, rejected, lacking self-esteem etc.]

Denmark: No response offered

E6. What anxieties are demonstrated by those who have average levels of numeracy skills in your jurisdiction?

Belgium: Fear of change in your support network of situation

Liechtenstein: No answer given

Switzerland: No answer given

Greece: They are afraid of upper level mathematics.

United Kingdom: As part of our psychometric attitudinal assessment (for which we have over 70,000 respondents) we test for maths anxiety by asking respondents to agree/disagree with the following statements; my mind goes blank when faced with a maths problem; I avoid situations that involve maths; maths makes me feel uneasy. How they respond to these three questions is averaged out to give us a compound measure of confidence with numbers. A person with average levels of numeracy is significantly less likely to strongly agree or strongly disagree with the three statements

Ireland: No answer given

Austria: Shame and test anxiety

Finland: Lack of possibilities for further studies and work life [partly]

Spain: Could be that they fear mathematics when signing to a course, for example

Serbia: Nepoznato [Translation: Unknown]

Denmark: No response offered

E7. What anxieties are demonstrated by those who have high levels of numeracy skills in your jurisdiction?

Belgium: No answer given.

Liechtenstein: No answer given

Switzerland: No answer given

Greece: No answer given

United Kingdom: As part of our psychometric attitudinal assessment (for which we have over 70,000 respondents) we test for maths anxiety by asking respondents to agree/disagree with the following statements; my mind goes blank when faced with a maths problem; I avoid situations that involve maths; maths makes me feel uneasy. How they respond to these three questions is averaged out to give us a compound measure of confidence with numbers. A person with low levels of numeracy is significantly more likely to strongly disagree/disagree with the three statements. There is one exception here, although the frequency is far lower than among people with low numeracy skills people with high numeracy levels still report that they go blank when faced with a maths problem (either marking agree or neutral).

Ireland: No answer given

Austria: Afraid to apply the knowledge correctly

Finland: Depending on the situation, some difficulties to get job.

Spain: They have no anxieties

Serbia: Nepoznato [Translation: Unknown]

Denmark: No response offered

Section F

For each of the following definitions of numeracy, please state whether the working definition of numeracy in your jurisdiction is in agreement with the definition provided.

Definition	BE	LI	SW	GR	UK	IRE	AU	FI	SP	SE	
We would wish 'numerate' to imply the possession of two attributes. The first of these is an 'at-homeness' with numbers and an ability to make use of mathematical skills which enable an individual to cope with the practical mathematical demands of his everyday life. The second is ability to have some appreciation and understanding of information which is presented in mathematical terms, for instance in graphs, charts or tables or by reference to percentage increase or decrease.	SA	SA	SA	A	D	A	SA	SA	SA	N	D
Numeracy is the ability to access, use, interpret, and communicate mathematical information and ideas, to engage in and manage mathematical demands of a range of situations in adult life.	SA	A	SA	A	D	SA	SA	SA	SA	SA	SA
Numeracy is defined as a word to represent the mirror image of literacy	SD	N	A	N	SD	D	D	D	SD	D	N
Numeracy is an individual's capacity to formulate, employ, and interpret mathematics in a variety of contexts. It includes and Skills reasoning mathematically and using mathematical concepts, procedures, facts, and tools to describe, explain, and predict phenomena. It assists individuals to recognise the role that mathematics plays in the world and to make the well-founded judgments and decisions needed by constructive, engaged and reflective citizens.	SD	N	A	N	D	D	N	A	SA	D	A
Numeracy in the 21st century emphasises the role of mathematical knowledge, dispositions, tools and critical orientation in solving problems in real world contexts.	N	D	N	A	D	SA	SD	A	SA	D	SA
To be numerate is to use mathematics effectively to meet the general demands of life at home, in paid work, and for participation in community and civic life	N	A	A	SA	N	SA	SA	A	SA	SA	SA

If your working definition is not in agreement with any of the above, please provide your jurisdiction's working definition.

Belgium: Geletterdheid omschrijven we als de competenties om informatie te verwerven, te verwerken en gericht te gebruiken. Dit betekent met:

1. taal,
2. cijfers en grafische gegevens kunnen omgaan,
3. en gebruik kunnen maken van ICT.

Geletterd zijn is belangrijk om zelfstandig te functioneren en participeren in de samenleving en nodig om zich persoonlijk te kunnen ontwikkelen en bij te kunnen leren.

[Translation: We describe literacy as the competencies to acquire, process and use information in a targeted way. This means with:

1. language,
2. being able to handle figures and graphic data,
3. and being able to use ICT.

Being literate is important in order to function independently and participate in society and is necessary to be able to develop and learn personally.]

Liechtenstein: N/A

Switzerland: The above answers don't correspond our "jurisdiction", as there is no definition. They correspond SVEB's opinion.

Greece: N/A

United Kingdom: Although many of the above definitions come close – they all fail to significantly account for attitudes as a key strand of numeracy levels. Instead, we propose: In one sentence: Having the confidence and competence to use numbers and data to make good decisions in daily life. In a bit more detail: Numeracy represents an individual's capacity, both in terms of attitudes and skills, to identify and understand the role that mathematics plays in the world, to make well-founded judgements, and to use and engage with mathematics in ways that meet the needs of that individual's life as a citizen. It implies the essential skills needed for solving problems, processing information, making decisions and interpreting data. Being numerate is about appreciating number relationships and interpreting answers, and not just about doing calculations. Put simply it is having the confidence and competence to use numbers in day to day life.

Ireland: N/A

Austria: N/A

Finland: N/A

Spain: N/A

Serbia: N/A

Denmark: N/A

Section G

G1. What kind of international co-operation or support (e.g. declaration, international organisation, framework) would be helpful to improve numeracy education in your jurisdiction?

Belgium: To create awareness about the topic

Liechtenstein: No answer given

Switzerland: A common European framework defining levels of numeracy and thus serving as an instrument for communication would help

Greece: A general framework

United Kingdom: There are a number of issues and areas where international support would be hugely beneficial in improving numeracy standards:

1. An agreed international definition of numeracy that views skills and attitudes as two equal components of a person's numeracy level.
2. Awareness raising campaigns that highlight the problem of poor numeracy across Europe.
3. Making the distinction between mathematics as an academic discipline and numeracy as an everyday skillset.
4. A shift away from traditional numeracy skills education – although for those with very low numeracy it is important to “teach” the core principles of numeracy, this is not true for the vast majority of adult learners. Most adult learners struggle with the application of skills into the real world (i.e. they have low confidence), and as such the focus of their training/upskilling should be on real world support.

Ireland: The development of an international organisation to focus on raising awareness of numeracy needs, how numeracy is applied to everyday life, promote numeracy programmes and lobby for increased funding for numeracy upskilling across EU member countries.

Austria: The European Union should pay attention to this issue and provide it financially.

Finland: International MOOC course on teaching initial numeracy.

Spain: We believe that direct communication and dissemination of the existing mechanism of numeracy and basic skill there already exist at European level should be connected with the local, regional and national level.

Serbia: Framework

Denmark: No response offered

G2. What kind of international co-operation or support (e.g. exchange of practice, on-line professional development, lesson materials etc.) would be helpful to improve numeracy education practices in your jurisdiction?

Belgium: Exchange of practice, lesson material, more scientific research about adult numeracy

Liechtenstein: We don't really have a lot of experience in this field. During the last few years we focussed on literacy.

Switzerland: Online professional development would help. However, this should be of very high quality and clearly show which benefit it would bring.

Greece: Exchange of practice and online professional development

United Kingdom: In terms of exchange of practice it would be really useful if in addition to existing numeracy measures attitudes were also measured. This would start interesting research into the different practices in each country and what impact they have having on numeracy skills and attitudes. It would also be useful for there to be a more consistent measure of numeracy across Europe, providing a basis for learning resources and lesson materials to be developed against. Leading on from a definition that includes both attitudes and skills there also

needs to be an assessment designed to measure both. The National Numeracy Challenge – www.nnchallenge.org.uk – is our tool to measure both skills and attitudes. Learners are given a breakdown of their strengths and weaknesses across different areas of numeracy and are then provided with a wide range of learning resources targeted at their specific level within each of these areas.

Ireland: The development of a community of practice where practitioners can share best practice across jurisdictions

Austria: Possibility for international exchange of adult educators.

Finland: Support materials regarding assessment and teaching methods.

Spain: There is need of more training in specific adult education for teacher as well as volunteers

Serbia: All those mentioned [Exchange of practice, online professional development; lesson materials]

Denmark: No response offered

G3. What are the main obstacles in your jurisdiction to improve or expand numeracy education?

Belgium: The lack of awareness and reach the target group

Liechtenstein: The lack of awareness

Switzerland: Lack of political will; no common definition and understanding of numeracy; lack of awareness of the “problem” of a low level of numeracy skills; lack of functioning training for trainers.

Greece: The low level of appreciation for adults education in general

United Kingdom: Functional numeracy is assumed but not tested. In so many contexts, the problem of poor numeracy is simply not ‘outed’. The assumption is that most people get by fine, and the underlying impact of low numeracy is not considered. Banks and the financial sector – not to mention politicians and the media – assume a reasonable level of numerical understanding by their customers and the general public. Hidden behind mathematics Numeracy has tended to be merged with literacy or subsumed within school maths, even though the issues – and therefore potential solutions – are fundamentally different. To start with, numeracy does not equal maths. Mathematicians would recognise that, but the school curriculum in England seems not to. There is a distinction that is not currently being made between an education for (a few) mathematicians and a numeracy education (for all). Hidden behind literacy – ‘literacy and numeracy’ So often within discussions of literacy and numeracy, the two are written and spoken of in combination as if they are a single skill, with literacy frequently used as a proxy for both. Within further, adult and community education there are very few numeracy specialists. Often vocational tutors are asked to teach both subjects and if a specialist tutor is employed, more often than not their specialism will be in literacy. But the subjects are different and require different teaching approaches and skills. Developing the skills to interpret and use the English language, which is complex and irregular, is cognitively taxing but almost everyone accepts the need to read, write and communicate to be successful. In contrast, ‘maths anxiety’, combined with a lack of clarity about what is really essential inhibits students and creates cultural barriers to engaging with numbers and data. Qualifications but not underlying skills As the OECD has repeatedly pointed out, the education and skills system in the UK has become adept at generating qualifications – but without securing the implied underlying improvement in skills. For example: ‘At every qualification level, low basic skills are more common...in England than in many other countries. This means that despite the rapid expansion of educational opportunities, and a relatively well qualified cohort of young adults, the basic skills of this cohort have remained weak.’ – Building Skills for All: A Review of England OECD 2016. All-consuming focus on the education system The attention of politicians, the media and sometimes – it has to be said – employers has been concentrated on ‘fixing’ maths in schools and colleges, on improving the maths of the future workforce rather than addressing the numeracy shortcomings of the existing adult workforce. To drive productivity in the coming decade, we need to pay serious attention to developing the numeracy skills of those already at work – some of whom will be at work for another 40 years or more. Although there is now support across the political spectrum for extending maths education among young people and preventing early drop-out, there is one very significant hurdle. Current (high) cost assumption prevents scale The current model for improving numeracy assumes a cost

per learner based on comparatively intense, normally face-to face, skills-based teaching. For example, a European Social Fund/Skills Funding Agency project in the South East Local Enterprise Partnership provides £2.16m to fund work with 2,620 people, a cost of £824 per learner. The Skills Funding Agency spends around £250m per year on Functional Skills numeracy qualifications, at a standard cost of £724 per qualification. This approach lacks both scale (fewer than 350,000 adults per year) and the potential to deliver scale (at this rate, the theoretical cost to support adults with primary school level numeracy – 50% of the UK population - would be £12.3 billion) and there is no evidence that it is working across the population or reaching those who would benefit most. Indeed, recent numeracy surveys and analysis point in the opposite direction. Attitudes: 'I can't do maths' Alongside all these hurdles goes the problem of attitudes: the social acceptability of saying 'I can't do maths', the belief that maths doesn't really matter that much, that it is an obscure subject often feared and best avoided.

Ireland: Lack of resources are always an issue. Raising awareness of the need to upskill the population's numeracy skills and a change in attitude to maths and numeracy in general

Austria: School-system, pressure on those affected by society, shame, lack of financial support for learners.

Finland: The autonomy of universities i.e. we don't have any special training for teaching literacy/numeracy/basic skills for adults, and the in-service training is optional, and the education providers aren't so willing to send the teachers to training etc.

Spain: The absence of science base training for educators and volunteers

Serbia: Seldom and low-quality professional development of trainers working with adults.

Denmark: No response offered

Turkey: Bias towards the difficulty of mathematics, the ongoing pandemic process