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# Measuring Young People's Literacy and Numeracy Competences Required in the Workplace and Everyday Life

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July 2023



***Uwezo Uganda's work is supported by:***

Echidna Giving, Wellspring Philanthropic Fund (WPF) and a consortium of other funders including the Lego Foundation, Porticus, Co-Impact, Imaginable Futures, FCDO and GPE/KIX who fund some of our work through other organisations and initiatives such as RELI Africa, ALiVE/Zizi Afrique Foundation & PAL Network

***To cite this report***

Uwezo Uganda (2023) *Measuring Young People's Literacy and Numeracy Competences Required in the Workplace and Everyday Life*. Kampala: Uwezo Uganda

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## Acknowledgements

Uwezo Uganda in 2019 worked in collaboration with Oxford Policy Management (OPM), under the Strengthening Education Systems for Improved Learning (SESIL) programme, to develop and pilot an approach to measuring the everyday functional adult reading, writing and mathematical skills of young people. The SESIL programme was supported by the UK's Aid programme and by Uganda's Ministry of Education and Sports. The focus of the pilot assessment was to develop and refine an approach of generating evidence about the long- term influence of school-based learning and other influences on adult functional literacy and numeracy. The pilot assessment was partially modelled on the approach and tools that had been developed to assess everyday literacy and numeracy skills among young women in Mozambique by Muva, a female economic empowerment programme.

In November-December 2022, following a successful pilot assessment in Wakiso District, this assessment was scaled up in four other districts in order to generate evidence on young people's literacy and numeracy competencies required for work and in everyday life in Uganda.

We appreciate the oversight and support rendered by Dr Mary Goretti Nakabugo the Executive Director of Uwezo Uganda, and other staff of Uwezo Uganda in undertaking this scaled up assessment. We are grateful to Faridah Nassereka of Uwezo Uganda, who oversaw the assessment tools development, training, data collection and report writing. Other Uwezo staff, including Judith Nyakaisiki, Azamu Mulikiriza and Vicent Kalibala, supported the assessment process in various ways. A team of dedicated trainers Simon Peter Olinga and Godfrey Sendyose supported the training of trainers and volunteers, deployment of computer-assisted personal interviewing (CAPI) and provided feedback on report drafts.

Thanks goes to Assoc. Prof. Yovani A. Moses Lubaale for supporting data collection, processing, analysis and the pilot report writing process, and to Dr James Urwick and Ms Jane Yoyeta for supporting the report editing and its quality assurance. To the Executive Directors of the partner organisations and staff in the four districts that coordinated all the assessment activities at district level, we are most grateful for their support.

We are deeply indebted to the team of volunteers who visited the households to assess the young people, to the heads of households for their cooperation and to the local council leaders in the sampled enumeration areas (EAs) who facilitated an easy village level entry for this assessment.

We are grateful for the review and guidance we received from the Uwezo Uganda Technical Advisory Committee members including Dr Albert Byamugisha, Mr Baguma Filbert Bates, Dr Ssekamatte Ssebuliba John, Mr Patrick Kaboyo, Dr Grace K Baguma, Dr Reg Allen, Prof Leon Tickly, Dr Jacqui O'Riordan, and Dr Yusuf Nsubuga.

Finally, we greatly appreciate the support we continue to receive from the Ministry of Education and Sports (MoES), our Board and funders.

## Abbreviations

BTVET	Business, technical and vocational education and training
CAPI	Computer Assisted Personal Interview (software)
EA	Enumeration Area
EFA	Education for All
GER	Gross enrolment rate
Pre-L1	Literacy Pre-level 1
L1	Literacy Level 1
L2	Literacy Level 2
L3	Literacy Level 3
L4	Literacy Level 4
Pre-N1	Numeracy Pre-Level 1
N1	Numeracy Level 1
N2	Numeracy Level 2
N3	Numeracy Level 3
OECD	Organisation for Economic Cooperation and Development
OPM	Oxford Policy Management
SESIL	Strengthening Educational Systems for Improved Learning
SMS	Short messaging service
UNESCO	United Nations Educational, Cultural and Scientific Organisation

## Executive Summary

This study measures and analyses the functional literacy and numeracy of young people who were above the intended age for primary education, being aged 14-20. Attention is given to the skills that are important for everyday life as well as the labour market. Not many other assessments with this scope have been attempted in developing countries: but the design has been influenced by an assessment of young women in Mozambique (Allen, Bischler and Jasper 2018). A pilot study in Wakiso District (Uwezo Uganda 2020) was used to develop the design and tools for this assessment. We consider how far young people are equipped for viable livelihoods and civic responsibilities.

The conceptual framework is influenced by the ideas of Wyn and White (1997), Banerji and others (2010) and Filmer and Fox (2014) on the varied trajectories of young people as they leave school and enter the labour market. Palmer and others (2007) draw attention to the ‘transformative context’ of opportunities in vocational training (both formal and informal) and post-basic education, which have many limitations in Uganda and other low-income countries. Our research questions, therefore, are concerned with the literacy and numeracy competences that young people possess, how these relate to their occupational status, educational attainment and other characteristics, and the priorities for service provision to improve their prospects in life.

The assessment was conducted in four districts, each representing one of the major regions of Uganda. Within each of these, a three-stage sample of young people was selected, giving a national total of 1,667 and approximately equal components in each district. The sampling targeted 15 enumeration areas (EAs) per district, 20 households per EA and a maximum of two young people per household. The sample had varied occupational statuses but 72% were students of one sort or another. A wide range of educational levels had been reached, either in the past or currently, but 62% had reached the upper primary level and 28% the lower secondary level. To carry out the assessment, we were assisted by a team of 30 volunteers per district, recruited by civil society organisations. We provided training for the preparatory activities and for supervision in each district, as well as training of the volunteers.

Young people were assessed through a series of practical exercises with different levels of difficulty, being groups of realistic tasks. Completion of a personal information form was used as an initial selection task for literacy and thereafter the candidates were selectively assigned to other exercises and gradually placed at one of five levels of literacy. The exercises (in order of difficulty) were concerned with comprehension of contrasting texts, a loan application, interpretation of public notices, and interpretation of workplace signs and symbols. Young people were then assigned, according to literacy level, to different numeracy exercises and gradually placed at one of four levels of numeracy. The numeracy exercises (in order of difficulty) were concerned with workplace calculations, tasks with time and quantities, and recognition of numbers and shapes.

Through the series of exercises, the young people were placed at one of five levels of literacy (Literacy Pre-Level 1 to Level 4) and one of four levels of numeracy (Numeracy Pre-Level 1 to Level 3). The conduct of the exercises was supportive but there was an element of timing. Relevant background information was also obtained on each person and his or her household. The data was recorded in Computer Assisted Personal Interview (CAPI) software. The assessment process was monitored at EA level and the whole data set was reviewed later by independent analysts.

At the national level, the final literacy placements were bimodal, with 56.7% at Literacy Pre-Level 1 (Pre-L1) and 26.2% at Literacy Level 2 (L2). At the district level, Mukono had generally higher levels of literacy, 48.4% of the sample being at L2 or above, while Ntungamo was in an intermediate position.

The proportion of young people at L2 or above (37% for the whole sample) was used to illustrate the relationships of literacy with various background characteristics. The main variations that were discovered related to occupational status and to educational level reached. The proportion was highest for those who were both students and employed (73% at L2 or above) and lowest for those who were unemployed (13%). In relation to educational level, the proportion was highest for those with some upper secondary or tertiary education (78%): but for those who had not gone beyond upper primary education, it was only 21%. This last figure is very concerning, showing that, in spite of their attendance at primary school, most of them could not work with short, unambiguous texts in English.

The proportion at L2 and above did increase with age up to 19 but did not vary much by gender. Comparisons for those with disabilities suggest that literacy levels are adversely affected by hearing impairments but only slightly by mobility and memory difficulties that were measured. Extreme poverty was an important factor, however: for those whose household head had no telephone, the proportion at L2 or above was only 19%.

In contrast with the literacy placements, the final numeracy placements were unimodal, with 73.2% of the national sample at Numeracy level 1 (N1) and roughly equal proportions at N2 and Pre-N1. The variation by district was less than for literacy, but again Mukono was in the leading position, with a higher proportion at N2 and a lower proportion at Pre-N1 than the others. Ntungamo had slightly better outcomes than Apac and Bugiri. But N1 was the median level in all the selected districts.

As with literacy, the proportion of young people at N2 or above (14% for the whole sample) was used for further analysis in relation to background characteristics. The proportion was highest for the few who were both students and self-employed (44% at N2 or above) but was only 18% for other students. Where a comparison was made by educational level reached, only a minority of those with some secondary education were placed at N2 or above (40% for upper secondary or tertiary and 31% for lower secondary). These findings have serious implications for the employability and productivity of those who are currently in secondary education.

The proportion at N2 or above increased by age within the sample, but more for men than for women up to age 19. No major variations relating to disabilities were found. Having a female household head seemed to confer an advantage for numeracy in Mukono District but a disadvantage in Ntungamo District. For those whose household head had no telephone, the proportion at N2 or above was only 7%.

The literacy and numeracy placements were moderately correlated (Spearman's  $Rho = 0.528$ ): but 65% of those placed at Literacy Levels 2-4 were placed only at Level 1 in numeracy. This suggests that the teaching of mathematics in upper primary education had not been very effective, even for the more literate students.

The main conclusion from the assessment is that, for a large proportion of young people, attendance at primary school has not developed sufficient literacy and numeracy skills for work and everyday life. The findings show the urgent need for reform of, and investment in, basic education. To improve the prospects for those who have already completed basic education, access to vocational training, combined with further teaching of foundational skills, is important. Further research could illustrate the current availability of such opportunities and how far young people aged 14-20 are participating.

## Key Findings

1. Young people demonstrate varied but generally low levels of literacy in English as required for everyday life and in the workplace:
  - a. More than half of those assessed were placed at Literacy Pre-Level 1, being unable to identify common workplace signs and symbols
  - b. About one-quarter were at Literacy Level 2, able to read and interpret public notices
  - c. Only about one in ten were at Literacy Level 3 or above, able to work with a loan application form.
2. Young people demonstrate generally low levels of numeracy as required for everyday life and in the workplace:
  - a. Nearly three-quarters of those assessed were placed at Numeracy Level 1, being able to recognise shapes, numbers, money and place values, but unable to perform routine tasks with time and quantities.
  - b. Only 12.7 per cent were at Numeracy Level 2, able to perform the tasks with time and quantities, and only 1.3 per cent were at Numeracy Level 3, able to complete basic workplace calculations.
3. The skill levels (in literacy and numeracy) of young people are considerably higher in Mukono District than in the other selected districts, while Ntungamo District occupies an intermediate position between Mukono and the other two districts. Nearly half of the sample in Mukono were placed at Literacy Level 2 or above.
4. The skill levels of young people vary according to their occupational status. The proportion at Literacy Level 2 or above was highest for those who were both students and employed, while the proportion at Numeracy Level 2 or above was highest for those who were both students and self-employed (a very small group). Both in literacy and in numeracy, the proportions at Level 2 or above were higher for students than for non-students and lowest for the unemployed.
5. The skill levels of young people vary according to the level of education that they have reached, in the past or currently. More than three-quarters of those who had reached the lower secondary level or above were at Literacy Level 2 or above, while the proportion for those with only a primary education was far lower. However, the proportion of those with some secondary education who were at Numeracy Level 2 or above was below 50 per cent, although higher than for those with only a primary education.
6. The skill levels vary according to the poverty level of the household. For young people whose household head did not have a telephone, the proportions at Literacy Level 2 or above and Numeracy Level 2 or above were less than half of the proportions for other young people.
7. The gender of the young person, the gender of the household head, and the disabilities of young people that were reported, do not account for large variations in literacy and numeracy levels.

## Section 1. Introduction

### 1.1. Background to the Study

Understanding the effect of literacy and numeracy skill test scores on labour market outcomes, especially on everyday activities among young people in Uganda, is still a big challenge. Education, whether formal or informal, is provided with the purpose of ensuring lifelong learning and to ensure that skills gained yield economic and social gains. Studies have revealed that education affects people's lives in ways that go far beyond what can be measured by labour market earnings and economic growth (Grotlüschen, Desjardins and Huacong 2020). Further still, education contributes to a wide range of social outcomes such as better health, higher levels of civic and social engagement, as well as addressing other socially relevant domains of concern, such as crime, anti-social behaviour and poverty. The many adverse effects on young people, caused by the COVID-19 pandemic, demonstrated the need to take a more holistic approach towards education and learning rather than merely emphasising skills for employability (UNESCO 2021).

With a limited number of assessments focusing on measurement of functional literacy and numeracy, the need to enhance efforts towards measuring the longer-term outcomes of school attendance is clear. Chapter 6 of the EFA Global Monitoring Report of 2006 (UNESCO 2006) provides a useful summary of how the concept of functionality in literacy and numeracy has evolved significantly over the past 40 years. In the 1970's UNESCO defined literacy indirectly by associating skill with years of formal education. More specifically, individuals were judged to be functionally literate if they had attended four years of education and to be fully literate if they had attended nine years of education. UNESCO also relied on self-reports of literacy and upon the administration of a simple reading passage in the context of population censuses. All of these were unreliable assumptions.

While numerous studies have revealed persistent gaps in learning outcomes (Wane and Martin 2013; Uwezo 2019; Uwezo 2021, Bashir et al. 2018), this study provides evidence about how the outcomes of schooling influence readiness for the workplace and everyday life. In 2019, Uwezo Uganda conducted a pilot study in collaboration with Oxford Policy Management (OPM) and Strengthening Education Systems for Improved Learning (SESIL) to pilot an approach for measuring functional abilities of young people in literacy and numeracy (Uwezo 2020). The pilot assessment was partially modelled on the approach and tools developed to assess functionality among young adults in Mozambique on the female economic empowerment programme (Allen, Bischler and Jasper 2018). This study used the tested pilot methodology and tools to scale up the study in four districts, each representing one of the four major regions of Uganda.

### 1.2 Objectives of the Study

The objectives of the assessment on functional reading, writing and mathematical abilities of young people, conducted in November-December 2022, was to provide evidence about young people's skill levels and their relationships with educational attainment and other factors in Uganda. Building on the experience of a pilot assessment completed in 2019 (Uwezo 2020), the study was focused on young people aged 14-20 years old on the assumption that many of them would be in secondary school and others already in the world of work.

The assessment is designed to provide evidence about the literacy and numeracy outcomes of primary education as young people move towards the labour market and adulthood. How far are



they equipped for employment or self-employment, for viable livelihoods and civic responsibilities? How could further opportunities for education or training assist them?

### 1.3. Conceptual Framework

Questions on whether expenditure on basic schooling and literacy would translate into a better and more productive workforce have been raised (McGrath et al 1995; Uwezo 2020) and it has been argued that, if effective, schools lay the foundational skills for productivity and creativity among workers including the youth (Banerji et al, 2010). Research reveals that the quality of schooling however is crucial and that a few years of low-quality basic education do not enhance productivity if students never master even basic literacy and numeracy (Filmer and Fox 2014). However, many young people in developing countries do not continue their formal education beyond the upper primary and lower-secondary levels (Bashir et al, 2018). For example, Uganda's gross enrolment rate (GER) for secondary education (both upper and lower) was estimated as 25% in 2017 (Ministry of Education and Sports 2019).

Dedicated efforts through investing in improving the quality of education is necessary for raising labour productivity and earning capacity for young people in developing countries (OECD 2017a). Undertaking the assessment of young people's literacy and numeracy competences required in the workplace and in everyday life enables evaluation of the long-term outcomes of the investments in education. A study by Filmer and Fox (2014) reveal that low educational achievement and limited skills contribute to difficult transitions into work and limited employment mobility among African youth since education and skills open pathways into productive employment.

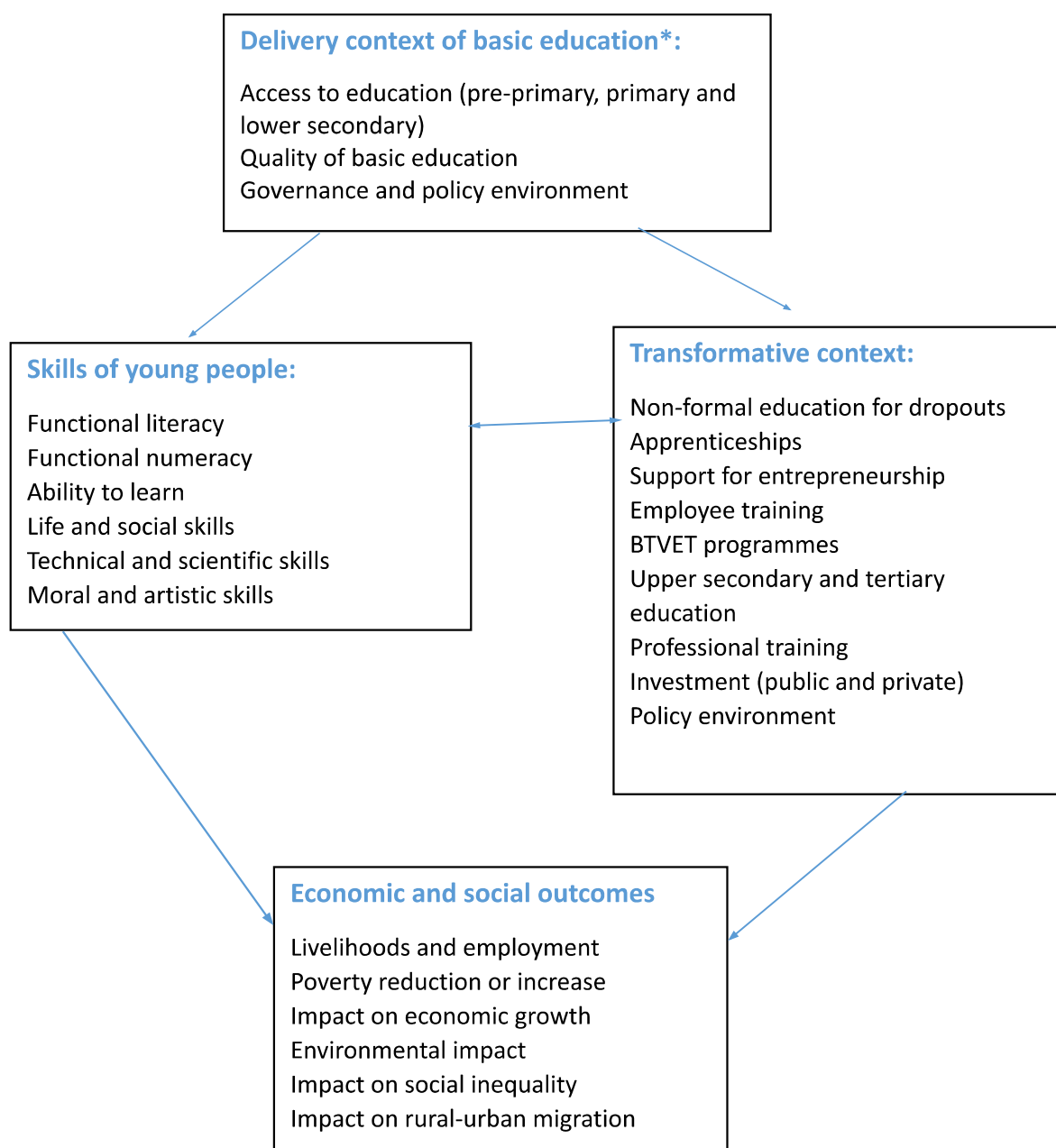
In this study, reference is further made to the measurement of learning outcomes and influence of post-school contexts on young people in the workplace and everyday life which Banerji et al. (2010) have identified as essential for policies targeted towards improving education systems and helping to ensure maximum value from educational investments. It is however revealed that, regardless of the assessments of learning that have been conducted, mostly to measure basic reading and mathematics skills, success in these assessments may not be sufficient for young populations and the youth to navigate the day-to-day challenges and manage the world of work (Banerji et al. 2010). Filmer and Fox (2014), reveal that the poor quality of education received by young people means that schooling has relatively small effects on productivity, earnings, and poverty reduction. This implies that provision of quality basic education would significantly contribute to enhancing key competencies crucial for everyday life and the world of work for young people.

In addition to the quality of the basic education that young people have received, an important part of their context is the opportunities for post-primary education and training and for non-formal education. Palmer et al. (2007) refer to this as the 'transformative context' of the links between education and livelihoods and contrast it with the 'delivery context' of basic education (see Figure 1.1). The transformative context depends on initiatives both by governments and by employers. This study helps to provide insights on the available support for young people in Uganda. The outcomes of schooling and influence of post school contexts in this assessment is measured by zeroing down to identifying and assessing everyday numeracy and literacy abilities/skills required in the workplace that young people possess in both the formal and informal sectors as indicated in Figure 1.1. These essential domains are viewed with different lenses as a set of knowledge/skills mostly in formal settings and as a social practice that is context dependent (Openjuru et al. 2016). Existing research (Parsons and Bynner 1997) reveals that, in as much as competences in literacy are crucial for the workplace and day to day undertakings, poor numeracy skills reduce employability and on-the-job progress and affect economic wellbeing. Whereas literacy and numeracy skills are crucial in the world of work and in everyday life of young people, additional productivity enhancing skills are



identified as being key and these include higher-order cognitive skills, such as problem solving and critical analysis (Filmer and Fox 2014; Mayo 2016).

**Figure 1.1 Links between basic education and livelihoods in Uganda**



\*The description of contexts is based on Palmer et al. (2007).

For this study, employment, either formal or informal, among young people is viewed as an end in itself, providing people with a sense of self-worth and identity and a major income source as described by Blattman and Ralston (2015). Since many young people are unable to proceed beyond primary education level, many engage in low-skilled employment, in informal or formal settings, in order to earn a living and meet their basic needs. Whereas possessing the right skills for the job is an important driver for job satisfaction (OECD 2017a) and for progressing on the job and earning, evidence shows that a low level of marketable skills among youths is a widely recognised barrier to employment in many developing countries (Chakravarty et al. 2016). Similarly, transitioning from school to work as well as between sectors of employment is found to be difficult for young Africans,

since they lack the skills and knowledge to translate their education into productive employment (Filmer and Fox 2014) and receive too little support for this process.

Young people often lack such skills that employers need and that are relevant for the world of work even when the young people venture into self-employment. Lewin (2008) argues that competitiveness, especially in high value-added and knowledge-based sectors of the economy, depends on knowledge, skills, and competencies associated with abstract reasoning, analysis, language and communication skills among others. Young people without such skills often find themselves unemployed or/and underpaid when they get work opportunities, with women in the lower age ranges (12-24) having higher unemployment rates than men (Bandiera et al. 2020). The argument raised for policies that focus on improving skills and employability and better management of youth skills that lead to economic benefits and increase the wellbeing of youth identified by OECD (2017b) is therefore significant for this assessment.

## 1.4. Research Questions

The assessment is intended to address the following questions:

- a. What literacy and numeracy competences required in the workplace and in everyday life do young people aged 14-20 years possess?
- b. What is the relationship between young people's literacy and numeracy competences required in the workplace and in everyday life and their occupational status, educational attainment and other relevant factors?
- c. What are the priorities for services and interventions to enable young people to acquire skills that are required in the workplace and everyday life in Uganda?

## Section 2. Methodology

### 2.1 Introduction

The Uwezo young people assessment study 2022 adapted the approach that was used during the pilot in 2019, with the expansion of the sample from one district to four districts. The assessment targeted young people aged 14-20 years in the selected households in Apac, Bugiri, Mukono and Ntungamo districts. Young people aged 14-20 years were assessed on their functional abilities related to everyday tasks that involve literacy and numeracy. The survey adopted Uwezo's household-based approach.

### 2.2 Sampling

Four districts were randomly selected, one representing each of the four statistical regions in Uganda. These were Apac District (Northern Region), Bugiri District (Eastern Region), Mukono District (Central Region) and Ntungamo District (Western Region). From each district, 15 enumeration areas (EAs) were selected with probabilities proportional to size. Altogether, the assessment was conducted in 60 enumeration areas (EAs), comprehensive listing of all households in the 60 EAs was done and from the lists, 20 households in each EA that had young people in the target age group (age 14-20) were randomly selected using a table of random numbers. In total 1,200 households were sampled for the assessment as well as an additional five reserve households per EA

to manage the anticipated inaccessibility of young people due to household mobility challenges considering that the assessment was conducted towards the end of year December festivities.

From each of the 1,200 households selected, the target was to assess a maximum of two eligible young people within the ages of 14-20 years found in a single household. The decision to assess a maximum of two per household was informed by statistical considerations and by the pilot study experience. In a household that had more than two young people aged 14-20 years, a random sampling was done with consideration of gender and where only two young people existed regardless of the gender, both were recorded for assessment. Where only one existed, he or she was recorded.

## **2.3 Sample Size and Response Rate**

The number of households targeted was 20 per EA, 300 households per district and 1,200 households across all four districts. The overall response rate for the households and EAs reached was 100%. Bugiri district had the largest household size at 7.1 people per household and Mukono had the lowest 5.91 people per household. Whereas the assessment targeted 2400 young people aged 14-20 years, those whose details were initially recorded for the age group were 2,166. Of these, 1,818 were recorded as eligible for assessment after the limit of two per household had been applied. Of those recorded as eligible, 1,667 were actually assessed, yielding a response rate of 91.7%. An average of 1.39 persons per household were assessed.

## **2.4 Item Development**

Following the successful pilot in 2019, the study adopted the tools for the large-scale assessment. In summary, this assessment focused on measuring workplace competencies needed for successful participation of young people in the world of work and in everyday lives. The focus of developing reading and writing tasks, was placed on those that measure functional skills, including reading and interpreting workplace signs and symbols, reading public notices, reading and interpretation of official forms and writing with conceptual meaning. For the numerical tasks, emphasis was placed on those that measured functionality including the ability to deal with basic numbers, time and quantities as well as basic workplace calculations. Specifically, the procedures for measuring reading, writing and numerical skills involved the tasks listed below, with functions as shown. The literacy tasks were used to place people at one of five levels: Pre-literacy (PL) and Literacy Levels 1-4 (L1-L4). The numeracy tasks were used to place the same people at one of four levels: Pre-numeracy (PN) and Numeracy Levels 1-3 (N1-N3). The sequence of tasks is explained in Section 2.5.

- a) Literacy tasks:
  - Completion in writing of a personal information form (initial selection task)
  - Reading an official loan application form, and writing a meaningful paragraph based on information provided in the form (intermediate and L3 placement task)
  - Reading of two contrasting texts and writing of answers to show understanding of conceptual meaning in unfamiliar text (L4 placement task)
  - Reading and interpretation of public notices (L2 placement task)
  - Interpretation of workplace signs and symbols (L1 placement task)
- b) Numerical tasks:
  - Working with time and quantities (intermediate and N2 placement task)
  - Basic workplace calculations (N3 placement task)
  - Using basic numeracy skills such as recognition of shapes, putting numbers in order, recognising place value and basic money values (N1 placement task)

## 2.4 Training for the Assessment

Uwezo uses a cascading approach to training for its assessments. There were three different trainings targeting different categories of people for conducting the young people assessment. These included the training for pre-assessment activities, training of trainers, and the training for volunteers.

### 2.4.1 Training on Pre-Assessment Undertakings

Uwezo identifies and works with a district-based organisation to coordinate key undertakings at the district level before, during and after the assessment. The pre-assessment training focused on equipping the district teams with knowledge to conduct the mobilisation, household listing and volunteer recruitment activities and how to collect the relevant pre-assessment information using Kobo Collect. The training, which was both theoretical and practical, also focused on explaining the purpose and procedure of the survey.

### 2.4.2 Training of Trainers

Identified trainers from the Uwezo Uganda existing pool of trainers underwent a three-day training in which they were equipped with skills of training volunteers on how to conduct the assessment. Using both a theoretical and practice-based approach, the training focused on enabling trainers to have a detailed understanding of the purpose for the assessment, the assessment procedure, the literacy and numeracy tools, how to administer them as guided by the flow charts and how to facilitate the volunteers training.

### 2.4.3. Training of Volunteers

A total of 120 volunteers (30 per district) recruited in every district were taken through the procedures for conducting the assessment. To ensure the volunteers were well equipped to conduct the assessment, three days of robust training with hands-on field practice were organised in each district.

## 2.5 Assessment Procedure

The process of administering the assessment was an iterative, adaptive and supportive process using structured performance tasks where the volunteer kept adjusting the level of the task at each stage, based on the information gathered about the young people's abilities, in order to reach a decision on their performance on the literacy and numeracy tasks with sufficient precision. Timing for some of the tasks was done during the assessment to ensure appropriateness of managing the tasks especially within the everyday context. For example, the young people had to complete the start task of filling in a personal information from within 10 minutes (without any or with minimal support) to be regarded as able to perform the task with ease. However where additional time was taken, this was also captured in CAPI on how long the respondent had taken performing the task.

The assessment approach required that when the young person was taken through a task, a level of support appropriate to their ability was given.<sup>1</sup> After this the volunteer would be guided by CAPI

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<sup>1</sup> The supportive and adaptive approach required that the trained volunteers conduct the assessment with consideration of creating a supportive and encouraging environment rather than directly guiding the young people to the correct response. This often involved rephrasing statements, guiding the young people with an explanation for unknown terms, giving hints at a minimal level and answering trivial clarification answers.

prompts to decide about the young person's performance in the tasks and whether further tasks were to be given. Ultimately the volunteer would then follow the set of pre-determined decisions to make a judgement and know whether for the reading/writing tasks the young person was at any one of the five literacy levels (from Level Pre-literacy level1 to Literacy level 5) and one of 4 numeracy levels (from Pre-numeracy level1 to Level 3). Sections 2.5.1 and 2.5.2 below, provide further details.

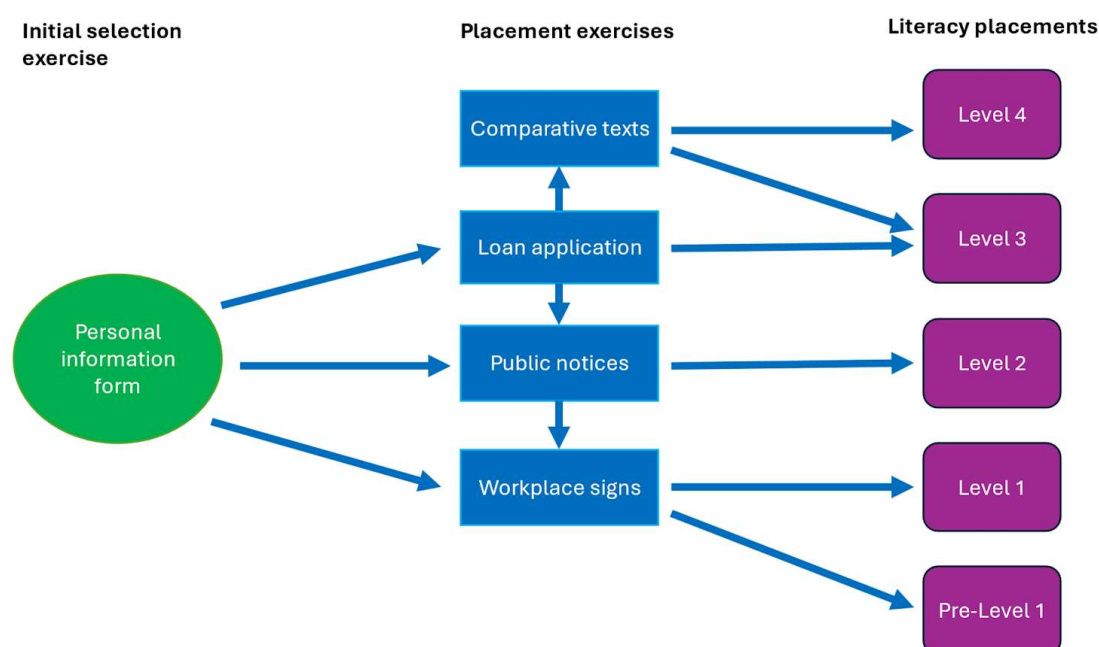
In the sequence of assessment, literacy tasks were administered before the numeracy tasks. The young people's literacy level achieved was used as a determinant for which tasks to start with for the numeracy assessment, whereby the young person assessed would either be given higher- or lower-level tasks depending on the level achieved in literacy. The flow charts below (Figures 2.1 and 2.2) guided the administration of the reading, writing and numeracy tasks.

### 2.5.1 The Literacy Assessment Flow Chart and Specification of Skills by Literacy Level

Figure 2.1 below is a flow chart for assessing and grading young people's functional literacy skills and demonstrates the adaptive process that was followed to make judgements and decisions on the young person's abilities to engage with everyday and workplace reading and writing tasks.

The different tasks involved completing a personal information form, reading and interpreting workplace signs and symbols, reading and interpreting public notices, reading and giving written interpretation of an official form, and reading and writing showing understanding of conceptual meaning in unfamiliar text. Using these tasks, the volunteers made judgements, as guided by prompts in CAPI, on the level at which the young person should be placed. Table 2.1 outlines the particular literacy levels and the expected competences required at that level of literacy.

**Figure 2.1: Flow chart for assessing functional literacy**



**Table 2.1. Literacy levels and required abilities**

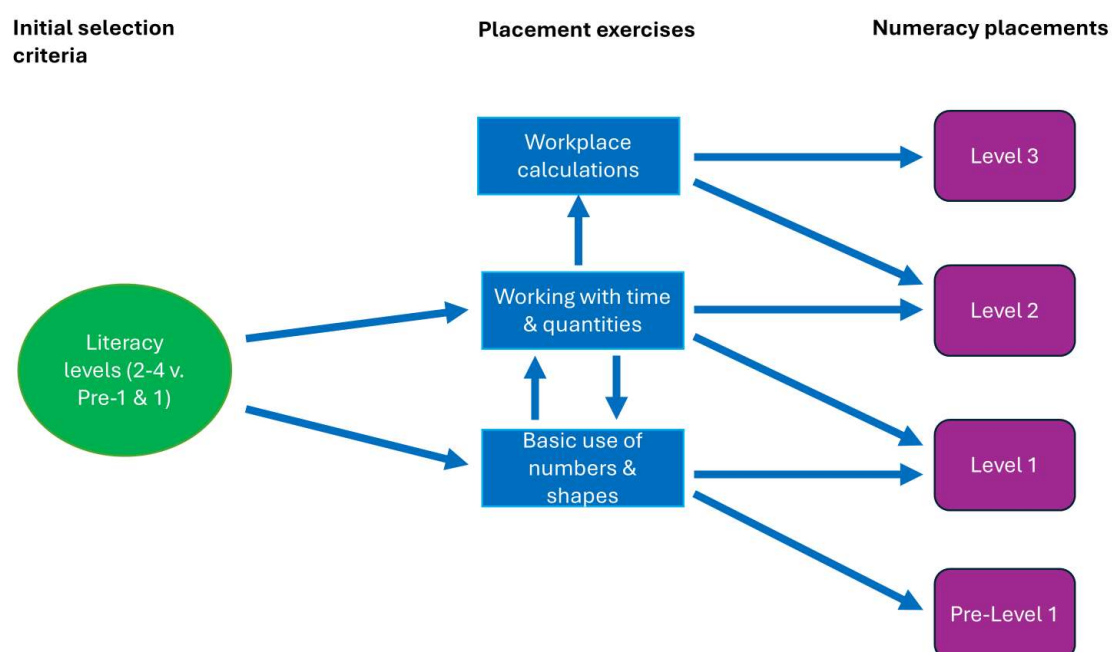
Literacy level	Demonstrated competencies required for the literacy level
Pre-Level 1	A young person recognises a small number of very familiar whole words in print, recognises the meaning of some common signs and symbols supported by visuals, interprets/locates an extremely familiar piece of information in a short simple text or images.
Level 1	A young person recognises high frequency words, common phrases, common signs and symbols; locates one or two pieces of information from a simple text (including SMS), diagram, table, reads word by word; sounds out letters/syllables to decode unfamiliar words.
Level 2	A young person locates, selects and interprets information, identifies main ideas and can compare and contrast information from short, unambiguous texts, including simple non-linear texts, advertisements, tables, diagrams and application forms; reads by words and phrases, uses common patterns in language to identify unknown words.
Level 3	A young person understands many types of familiar texts of moderate complexity requiring integration of ideas and pieces of information and some inference; reads familiar texts fluently, uses a range of strategies including cross-checks on syntactic and semantic sense to identify meaning of unknown words.
Level 4	A young person understands many types and lengths of familiar and unfamiliar complex texts involving abstract ideas, using inference and interpretation to identify the relationship between concepts and information; reads texts fluently with a broad range of strategies to understand complex unknown words and phrases.

### 2.5.2. The Numeracy Assessment Flow Chart and Specification of Skills by Numeracy Level

To assess numeracy, the start was determined by the young person's level of achievement in the reading and writing tasks. Those who had been placed at Literacy Level 1 or Pre-Level 1 were directly given lower-level tasks for numeracy (basic numbers and shapes) while those placed at Literacy Levels 2-4 were assigned to medium-level numeracy tasks (on time and quantities). Based on how he or she performed, the young person was then placed at a numeracy level or given another set of tasks at a higher or a lower level, as shown in Figure 2. No set of tasks could be attempted twice, however.



**Figure 2.2: Flow chart for assessing functional numeracy**



**Table 2.2. Numeracy levels and required abilities**

Numeracy Level	Demonstrated competences required for the numeracy level
Pre-Level 1	In extremely familiar contexts, a young person recognises whole numbers up to 10 including 0, may recognise whole numbers up to 100; recognises common notes and coins; may recognise oral ordinal numbers.
Level 1	In highly familiar contexts a young person can use place value in whole numbers into 100s; add/subtract whole numbers and familiar monetary amounts; identify simple symbols and pictorial representations in highly familiar diagrams; use language of shape, size, colour such as straight, curved, square, circle, triangle.
Level 2	In familiar contexts, a young person is able to work out time and quantities through identification, interpretation and use of whole numbers, including numbers into the 1000s, money and simple, everyday fractions, decimals and percentages, e.g. $\frac{1}{4}$ , $\frac{1}{10}$ , 50%, 25% or 0.25. He/she is also able to use dates and digital times and a limited range of familiar and predictable calculations with the four operations (+, −, ×, ÷), with division and multiplication related to small whole number values.
Level 3	Working with basic workplace calculations in a range of familiar contexts, a young person interprets, understands and uses: <ul style="list-style-type: none"> <li>• whole numbers and familiar or routine fractions and percentages</li> <li>• rates in familiar or routine situations</li> <li>• familiar and routine length, mass, volume/capacity and simple area measures in metric units</li> <li>• familiar and routine data, tables, graphs and charts, and common chance events</li> <li>• formal and informal symbolism relevant to the level</li> <li>• fractions and percentages, including their equivalent values</li> <li>• statistical data in tables/spreadsheets, graphs, simple measures of spread and common chance</li> </ul>

## 2.6. Data Processing and Management

The assessment was implemented via a Computer Assisted Personal Interview (CAPI) programme designed using Kobo Collect via smartphones. A questionnaire was loaded that encompassed background information and the literacy and numeracy tasks. Similarly, guidelines for scoring of the young people were pre-entered and included in the scripted tool. On a daily basis, data collected was uploaded and reviewed for completeness and accuracy. Other control measures were put in place during the programming of the tool to ensure data quality. Supervisors, allocated to each EA on a daily basis, supported and monitored the data collection process and guided the volunteers as a quality assurance measure.

## 2.7. Description of the Sample

The sample consists of 1,667 young people aged 14-20, with approximately equal components in the four districts chosen. Because the assessment was carried out in households, the sample represents, primarily, young people who are living at home. To some extent those who were usually away for education, training or employment are under-represented, even though some were captured because the assessment was done in a school holiday period (December 2022).

More than three-quarters of the young people were in full-time education. Table 2.3 shows their distribution by occupational status, where both study and employment are considered. The largest proportion (72.8%) were just studying, but a few students were also employed or self-employed (5.3% of the sample). Of those who were not studying, most were unemployed (22.2% of the sample) and relatively few were self-employed (3.2% of the sample). These proportions did not vary much by district, except that Bugiri had a lower proportion of students and a larger proportion of self-employed.

**Table 2.3. Distribution of the sample by occupational status**

Occupational status	Frequency	Percentage
Student and employed	40	2.4
Student and self-employed	9	0.5
Student only	1,164	69.8
Employed	31	1.9
Self-employed	53	3.2
Unemployed	370	22.2
<b>Total</b>	<b>1,667</b>	<b>100.0</b>

The educational levels of the whole sample were obtained by combining the current grade levels of the students and the highest-grade levels reached by those who had left school. To provide a summary, the grade levels reached are grouped in educational cycles, as shown in Table 2.4. In the last category, the upper secondary and tertiary cycles are combined because very few members of the sample were in tertiary education. The modal cycle reached is upper primary but there is a wide range of educational attainment.



**Table 2.4. Distribution of the sample by educational cycle reached and by gender**

Frequency (percentage)

Educational cycle reached	Gender:		
	Male	Female	Total
No schooling	3 (0.4%)	6 (0.7%)	9 (0.5%)
Lower primary	63 (8.2%)	52 (5.8%)	115 (6.9%)
Upper primary	492 (63.6%)	535 (59.8%)	1,027 (61.6%)
Lower secondary	188 (24.3%)	270 (30.2%)	458 (27.5%)
Upper sec. or tertiary	27 (3.5%)	31 (3.5%)	58 (3.5%)
Total	773 (100.0%)	894 (100.0%)	1,667 (100.0%)

Young women slightly outnumber young men in the sample, at 53.6% overall, the difference being greatest in Mukono (57.8% female) and Apac (54.3% female). It may be inferred that young men were rather more likely to be away from home as students or short-term employees. The female majority is also larger among those who had reached the secondary or tertiary level of education than among those with just a primary education (see Table Y). But the distributions of men and women in the sample by occupational status are almost exactly the same.

## Section 3. Findings on Literacy Skills

### 3.1. The Sequence of Performance Tasks for Literacy Assessment

Performance in a series of practical tasks, relevant to adult life, enabled the assessment team to place young people at one of five levels of literacy. The sequence of tasks varied according to performance at each stage, as the flow chart for literacy (page 8 above) indicates. Here we comment briefly on the performance at each stage and then consider the final placements in more detail.

### 3.2. The Initial Selection Task: Personal Information Form

The start activity for every assessed young person required them to fill a personal information form provided by the assessor.

The majority of the young people 50.3%, (N=839) were unable to fill the personal information form correctly hence given lower-level tasks which required them to read and interpret common workplace signs and symbols. Another 34.1 (N=569) were able to complete the form, though with additional prompting or explanation, compared to only 15.5% (N=259) who completed the form with ease and required no support.

### 3.3. The Intermediate and Placement Tasks

Depending on how the young people performed on the start task (filling the personal information form), decisions were made by the assessors guided by pre-entered options in CAPI on which additional tasks had to be given to the young people. Placement at the lowest level (Level 1) required

interpretation of common workplace signs and symbols. Level 2 required reading and interpreting of public notices. Level 3 required reading and interpreting a loan application form, including the writing of a short paragraph to indicate reasoning and understanding. At the highest level (Level 4) the task required reading and comparing two contrasting texts and writing to show understanding of conceptual meaning. This was given to those who were more successful in the task of reading and interpreting an official form easily.

### **3.4. Performance at Literacy Level 4 (ability to read and write showing contextual meaning in unfamiliar texts)**

Among the young people who filled the official form with ease and wrote a paragraph, 84, i.e. 32.4%, of these progressed to the higher level 4 (perform tasks related to writing and reading of two contrasting texts and writing of answers to show understanding of conceptual meaning in unfamiliar text). Out of these, 35.7% were able to complete this higher-level task easily and these were graded at reading literacy level 4 the highest level that could be achieved in literacy. However, those who performed the task with difficulty and required support, these were regarded competent at the lower level (literacy level 3). At Literacy level 4, more males (50%) than females (26%) demonstrated ability to perform these tasks related to writing and reading of two contrasting texts and writing of answers to show understanding of conceptual meaning in unfamiliar text.

### **3.5. Performance at Literacy Level 3 (reading and interpreting an official form, writing a paragraph)**

Young people who were placed at Literacy Level 3 were those who were able to read and interpret a loan application form with support and were unable to proceed with higher level tasks as well as those who performed higher level tasks (L4) with difficulty. Of those who attempted the work with the official form, 32% were able to answer all the questions promptly in less than 10 minutes, while 44.0% were able to complete the task having taken between 10-15 minutes. The remaining 24% struggled to complete the work with the form and were given lower-level tasks of reading and interpreting public notices (Literacy Level 2). Comparison by district indicates that Mukono (36.7%) and Apac (36.0%) had the highest proportions of young people who demonstrated ability to fill the official form with ease while Bugiri had the lowest proportion. A comparison by gender shows almost equal proportions (32.1% for men and 32.7% for women) being able to read and interpret the official form successfully.

### **3.6. Performance at Literacy Level 2 (reading and interpreting public notices)**

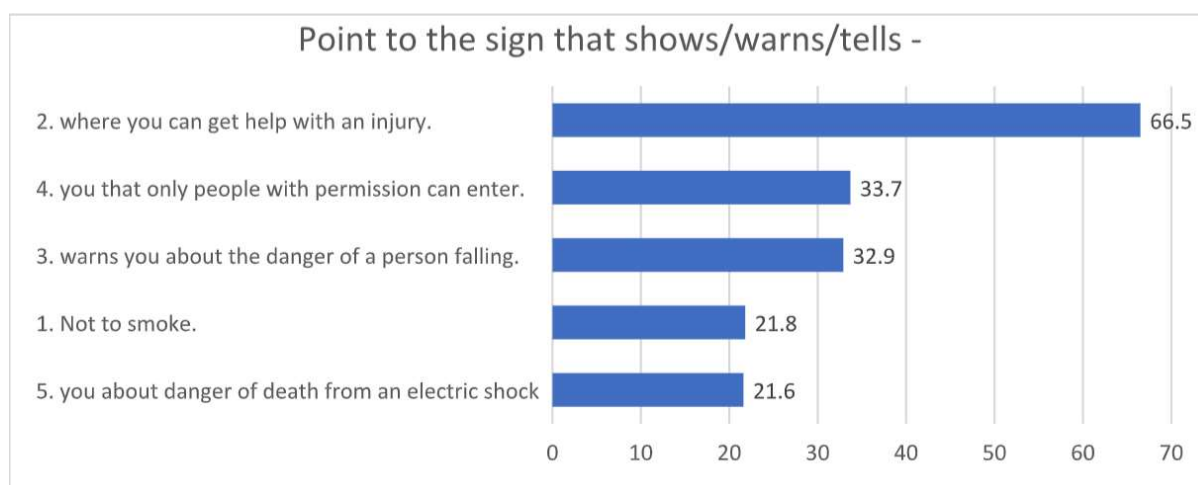
Performance at reading level 2 depicts ability to read and interpret public notices making sense of the notices. To be categorised as level 2, a young person could have filled the start form with some few difficulties and hence supported or read and interpreted an official form with difficulty and further performed the Level 1 tasks (read and interpret public notices) with ease. Overall a total of 437 young people were placed at Literacy Level 2.

### **3.7. Performance at Literacy Level 1 (ability to read and interpret workplace signs and symbols)**

Young people who had difficulty filling the personal information form and those who attempted the higher-level task related to reading and interpreting a public notice with difficulty were tasked to read and interpret workplace signs and symbols. The results depicting how the young people performed are presented in Figure 3.1 below. A majority of the young people (66.5%) that attempted

this task identified the symbol for help when injured, while 21.6% identified the symbol of danger from an electric shock.

**Figure 3.1. Proportions of young people interpreting workplace signs and symbols correctly**



n = 1,052

### 3.8. Pre-Level 1 in Literacy

Literacy Pre-Level 1 was the lowest literacy level, where young people that had difficulty reading and interpreting workplace signs and symbols or recognised just a few of the symbols and needed support were placed. A majority of the young people assessed (56.7%) were placed at this level.

### 3.9. Internal Consistency of the Literacy Tasks

Table 3.1 provides a summary of the outcomes of each literacy task. Because the various tasks required different ranges of skill and related to different contexts of work and daily life, it was to be expected that there would be some inconsistency of outcomes. But in general, the level of internal consistency of the whole process was encouraging and the combination of tasks was effective in placing people at the five levels of literacy.

As we have seen the initial selection task (a personal information form) assigned 839 people to be considered for Pre-level 1 or Level 1, 569 to be considered for Level 2 and 259 to be considered for Levels 3 or 4. Of these predictions, 1,387 (83%) were correct in terms of the final placements.

Of those sent to the public notices task, 213 (33%) were relegated to the workplace signs task. Of those sent to the loan application form, a total of 134 (52%) were relegated to the public notices task (20 of these via the comparative texts task). By implication, the initial selections were rather optimistic, but the later tasks provided a corrective measure.

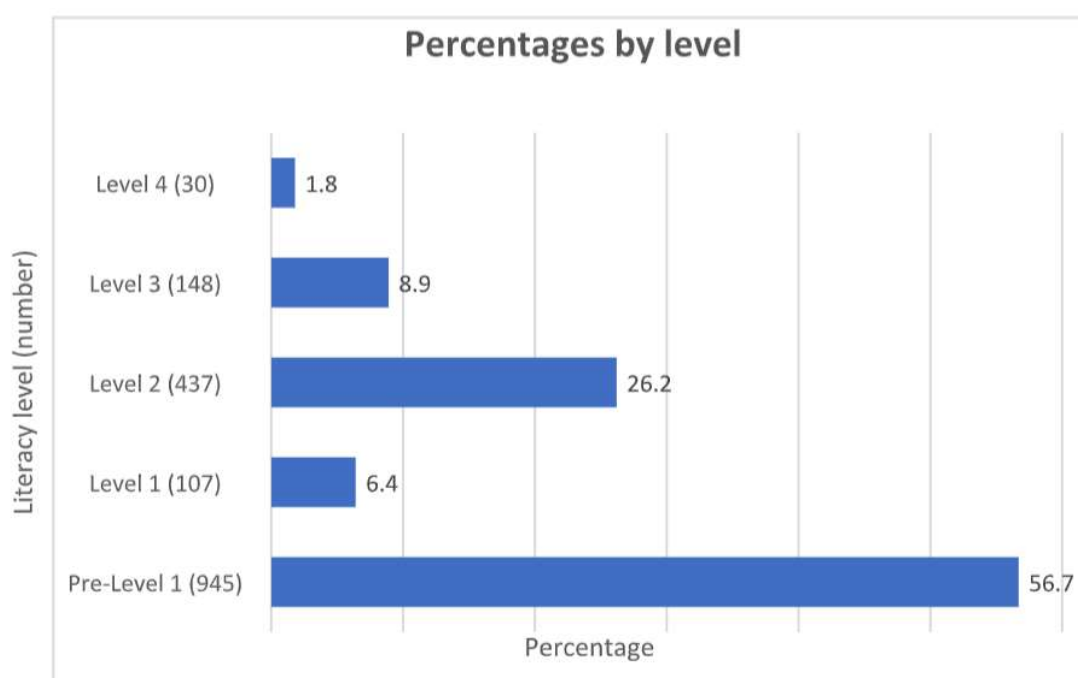
**Table 3.1. Summary of performance on literacy tasks**

Task	Performance classification	Destination	Frequency	Percentage
Personal information form (initial selection task)	1. Completed form with ease	Loan application task	259	15
	2. Completed form with help	Public notices task	569	26
	3. Unable to complete form	Workplace signs task	839	50
	Total		1,167	100
Loan application (intermediate and L3 placement task)	1. Completed easily in 10 minutes	Comprehension of text task	84	32
	2. Completed in 15 minutes	Placement at L3	114	44
	3. Clear difficulties in completing	Public notices task	61	24
	Total		259	100
Comprehension of text (L4 placement task)	1. Completed with ease	Placement at L4	30	36
	2. Completed partially with support	Placement at L3	34	40
	3. Unable to complete	Public notices task	20	24
	Total		84	100
Public notices (L2 placement task)	1. Answers all or most questions correctly	Placement at L2	437	67
	2. Clear difficulties in answering	Workplace signs task	213	33
	Total		650	100
Workplace signs task (L1 placement task)	1. At least 4 out of 5 answered correctly	Placement at L1	107	10
	2. Less than 4 answered correctly	Placement at PL	945	90
	Total		1,052	100

### 3.10. The Final Literacy Placements

For the national level, based on the four districts, the numbers and proportions of young people placed at the various literacy levels are shown in Figure 3.2.

**Figure 3.2. Numbers and proportions by literacy level: national summary**



The distribution is bimodal, with just over half of the national sample at Pre-Level 1 and about one-quarter at Level 2. We should bear in mind that the higher levels are slightly under-represented in the sample. Nevertheless, the high rate of illiteracy is concerning, given that most of the sample had reached at least the upper primary level of schooling.

The distribution of the placements in the four district components of the sample is shown in Table 3.2.

**Table 3.2. Literacy placements by district: numbers and proportions**

Literacy level	District (region):			
	Apac (Northern)	Bugiri (Eastern)	Mukono (Central)	Ntungamo (Western)
<b>Level 4</b>	5 (1.2%)	5 (1.2%)	15 (3.6%)	5 (1.1%)
<b>Level 3</b>	27 (6.7%)	26 (6.4%)	52 (12.5%)	43 (9.8%)
<b>Level 2</b>	96 (23.7%)	81 (19.9%)	134 (32.3%)	126 (28.7%)
<b>Level 1</b>	23 (5.7%)	25 (6.1%)	29 (7.0%)	30 (6.8%)
<b>Pre-Level 1</b>	254 (62.7%)	271 (66.4%)	185 (44.6%)	235 (53.5%)
<b>Total</b>	405 (100.0%)	408 (100.0%)	415 (100.0%)	439 (100.0%)

The table shows that the placements in Apac and Bugiri Districts have quite similar distributions. Mukono District, and to a lesser extent Ntungamo District, have larger proportions at Level 2 and above. These differences correspond to regional differences in wealth and in educational participation. Mukono is also urbanised and close to the national capital.

### 3.11. The Relationship of Literacy with Young People's Characteristics

A simple way to illustrate the relationship of young people's literacy with relevant individual and social characteristics is to present the proportions who were placed at Literacy Level 2 or above, as opposed to those placed at Level 1 or below, for relevant groups. This contrast is chosen because those at Level 2 or above are better placed to obtain employment and long-term livelihoods. We shall first consider associations with age, gender and disability and then with occupational, educational and household characteristics.

Table 3.3 shows the percentages at Level 2 or above by age and by gender, rounded to whole numbers. Both the age groups and the gender groups were well represented in the sample at national level, the smallest cell value being 23.

**Table 3.3. Percentages at Literacy Level 2 or above, by age and by gender**

Age	Men		Women		Total	
	Percentage	Count	Percentage	Count	Percentage	Count
14	22	187	23	240	23	427
15	29	126	34	154	32	280
16	42	131	41	143	41	274
17	46	92	48	113	47	205
18	51	98	49	103	50	201
19	57	65	48	67	52	132
20	38	74	31	74	35	148
All ages	38	773	36	894	37	1,167

As the table shows, literacy increases with age up to the age of 19, both for men and for women. This pattern is likely to show the effect of attending school, the upper primary grades, on which more evidence will be shown. Overall, the difference between the sexes is not large.

Table 3.4 shows the percentages at Level 2 and above for four different kinds of disability as identified through the Washington Questions in the survey, and for people with disabilities in general, in comparison with those who were not affected by them.

**Table 3.4. Percentages at Literacy Level 2 or above by disabilities**

Type of disability	Whether affected	Percentage	Count
Vision difficulty	Yes	42	85
	No	37	1,582
Hearing difficulty	Yes	27	55
	No	37	1,612
Mobility difficulty	Yes	33	66
	No	37	1,601
Memory or concentration difficulty	Yes	31	164
	No	38	1,503
Disability in general	Yes	34	284
	No	38	1,383

The table suggests that the literacy level is considerably affected by hearing difficulties but only slightly by mobility and memory difficulties, while those with visual impairments have a higher percentage than those with normal sight. It is worth noting that none of the young people with either a hearing disability or with difficulty concentrating or remembering were able to reach Literacy Level 4. Disabled people in general have a slightly lower percentage at Level 2 or above than those with no disability. The assessment, however, could not include those who had extreme speech or hearing difficulties or were in residential institutions.

A potentially important factor in literacy is occupational status, and the relationship is illustrated by Table 3.5.

**Table 3.5. Percentages at Literacy Level 2 or above, by occupational status**

Occupational status	Percentage	Count
Student and employed	73	40
Student and self-employed	67	9
Student only	44	1,164
Employed	19	31
Self-employed	34	53
Unemployed	13	370
Total	37	1,667

Of the few who were both studying and employed (40 individuals), 73% were at Level 2 or above and these were followed by those who were studying and self-employed (67%). Some of the first group may have been undergoing training with sponsorship by an employer. Those who were not studying, in general, were much less likely than the students to be at Level 2 or above (Table 3.6). The unemployed (370 individuals) were the least likely of all (Table 3.5).

Comparison of the proportions by level of education provides further insight. Table 3.6 shows the proportions for the five education levels or cycles that were used in describing the sample. These were levels that the young people were either attending currently or had reached in the past.

**Table 3.6. Percentages at Literacy Level 2 and above, by education level reached**

Education level reached	Percentage	Count
Upper secondary or tertiary	78	58
Lower secondary	76	458
Upper primary	21	1,027
Lower primary	5	115
No schooling	0	9
All levels	37	1,667

Table 3.6 shows the dramatic difference between those who had reached the secondary level or above and those who had not. Many who had reached the upper primary cycle, and mostly, lower primary education had not developed the intended level of literacy: a finding consistent with Uwezo evidence on children's basic reading levels.

The survey accompanying this assessment provides some limited evidence about characteristics of household heads that are, potentially, associated with literacy. The assessors recorded the gender of

the household head and whether he or she had a telephone number. Non-possession of a phone is a simple indicator of poverty and 299 young people (18% of the sample) had household heads with no phone. Table 3.7 shows the association of literacy levels with these two factors, sub-dividing gender by district.

**Table 3.7. Percentages at Literacy Level 2 or above, by household head's gender and possession of a telephone number**

Characteristic of household head		Percentage	Count
<b>(1) Gender, by district</b>			
Apac	Female	32	76
	Male	30	329
Bugiri	Female	27	101
	Male	30	307
Mukono	Female	49	210
	Male	48	205
Ntungamo	Female	38	104
	Male	40	335
All	Female	40	491
	Male	38	1,176
Total		37	1,667
<b>(2) Possession of a telephone</b>			
Has a phone number		41	1,368
Has no phone number		19	299
Total		37	1,667

Generally, there's little difference in literacy levels by gender of the household head across districts. In the case of possession of a phone number, however, the association of poverty with a low level of literacy is clear and as expected: where there was no phone, only 19% of the young people were placed at Level 2 or above. Household factors have been assessed more extensively in Uwezo assessments of children's learning (e.g., Uwezo 2019).

In summary, the evidence shows that young people's literacy level is strongly related to student status (e.g. employment status), educational level reached, age within the group (14-20) and the standard of living of their household. But the literacy level is not strongly related to the gender of the young person or that of the household head. It is moderately affected by hearing and memory difficulties.

## Section 4. Findings on Numeracy Skills

### 4.1. The Sequence of Performance Tasks for Numeracy Assessment

There was no initial selection task for the numeracy assessment but instead the sample was differentiated according to the literacy placements. Those who were at Level 2 or above in literacy were assigned to a moderately challenging numeracy exercise (in the use of time and quantities) while those who were at Level 1 or below were given a simpler exercise (in the use of basic numbers



and shapes). After that, young people were assigned to other tasks and were placed, progressively, on one of four levels of numeracy, as indicated in the numeracy flow chart (Figure 2.2).

The intermediate and placement test for numeracy consisted of three sets of tasks corresponding to Numeracy Levels 3, 2 and 1 as described in the methodology (Section 2). In this discussion the most advanced (Level 3) test will be described as ‘workplace calculations’, the Level 2 test as ‘use of time and quantities’ and the Level 1 test as ‘use of basic numbers and shapes’. Attempts at the Level 2 test had four possible outcomes: referral to the Level 3 test, placement at Level 2, referral to the Level 1 test, or placement at Level 1 if the person had already passed the Level 1 test. Attempts at the Level 3 test had two possible outcomes: placement at Level 3 or placement at Level 2. Attempts at the Level 1 test had three possible outcomes: referral to the Level 2 test if not attempted before, placement at Level 1 or placement at Pre-level 1. However, the Level 1 placement could be based either on a medium performance, or on a high performance if the person had not been successful in the time and quantities test.

## 4.2. The Flows and Internal Consistency of the Numeracy Tasks

Table 4.1 provides an overview of the initial allocations by literacy level and the performance outcomes on each of the numeracy tests. Only 37% of the sample was initially sent to the test on time and quantities, and the rest to the use of basic numbers and shapes. Furthermore, of those who attempted the time and quantities test at any point, 75% were either relegated to the use of basic numbers and shapes or placed directly at Level 1. It is clear that, for this population, placement at Level 2 or above in literacy is not a good predictor of placements at Level 2 or above in numeracy (which only account for 14% of the sample).

A large proportion of the sample (62%) attempted the time and quantities test at some point. But, of these, only 23% achieved a satisfactory result leading to placement at Level 2 or (via the workplace calculations) at Level 3. For the future, the validity of the procedure could be improved by using simple arithmetic for an initial selection test and then proceeding with a wider range of tasks in the placement tests. Nevertheless, the time and quantities tasks were realistic for everyday life and the results are meaningful.

**Table 4.1. Summary of flows and outcomes of numeracy tasks**

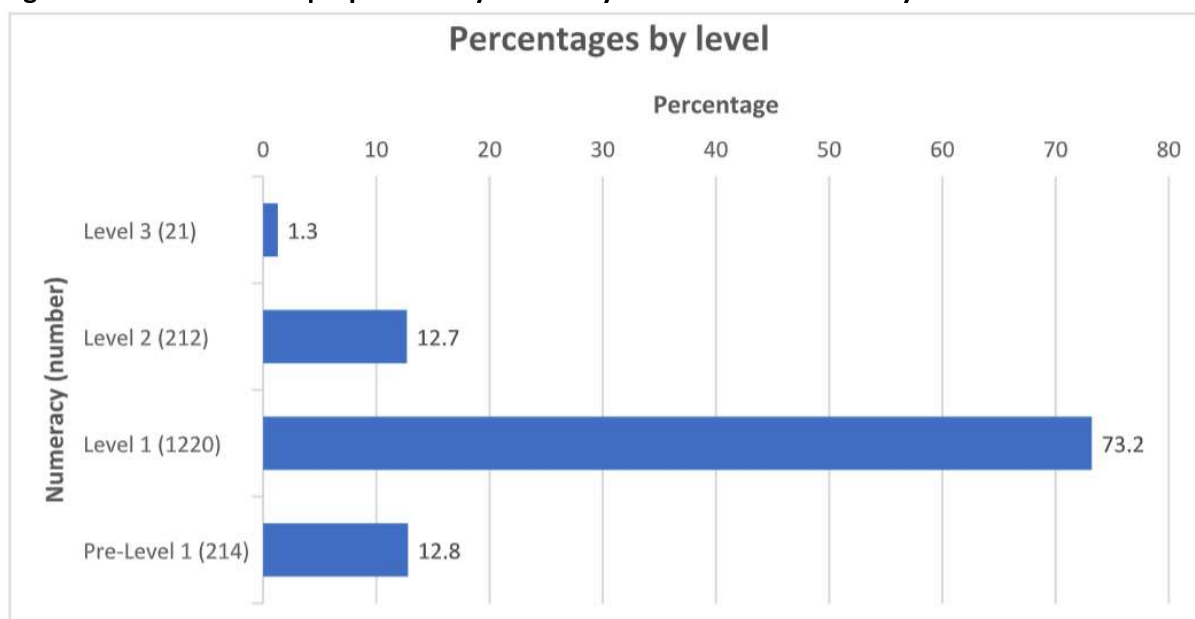
Entry point/test	Performance classification	Destination	Frequency	Percentage
Literacy placement (for initial selection)	Level 2-4	Time & quantities test	615	37
	Pre-level 1 or Level 1	Basic numbers & shapes test	1,052	63
	Total		1,667	100
Time & quantities (intermediate & Level 2 placement test)	High	Workplace calculations test	36	4
	Medium	Placement at Level 2	197	19
	Low	Basic numbers & shapes test	597	58
	Low	Placement at Level 1 (if basic numbers & shapes already done)	196	19

Entry point/test	Performance classification	Destination	Frequency	Percentage
	Total		1,026	100
Workplace calculations (Level 3 placement test)	Satisfactory	Placement at Level 3	21	58
	Unsatisfactory	Placement at Level 2	15	42
	Total		36	100
Basic numbers and shapes (intermediate & Level 1 placement test)	High	Time & quantities test (if not yet attempted)	215	15
	High	Placement at Level 1 (if time & quantities already attempted)	402	28
	Medium	Placement at Level 1	622	43
	Low	Placement at Pre-level 1	214	15
	Total		1,453	100

### 4.3. The Final Numeracy Placements

Figure 4.1 shows the national summary of the numeracy placements (frequencies and percentages). A comparison of this with Figure 3.2 for literacy shows that less than half as many young people were placed at Level 2 or above in numeracy as in literacy. It should be borne in mind that high achievers, such as tertiary level students living outside the home, are under-represented in the sample, but even with their inclusion the difference would be large. It underlines the limitations of primary education outcomes in numeracy.

**Figure 4.1. Numbers and proportions by numeracy level: national summary**



On the other hand, the sample produced a better performance with basic numbers and shapes (Numeracy Level 1) than it did with the reading of workplace signs and symbols (Literacy Level 1). As a result, Level 1 was the modal placement for numeracy, whereas Pre-level 1 was the modal placement for literacy. The survival requirements of everyday life in a context of poverty may help to explain this difference, as well as the greater effect of maturation on numeracy than on literacy: but further research would be needed to explore these hypotheses.

As with literacy, we now consider placements for the four district components of the sample, as shown in Table 4.2.

**Table 4.2. Numeracy placements by district: numbers and proportions**

Literacy level	District (region):			
	Apac (Northern)	Bugiri (Eastern)	Mukono (Central)	Ntungamo (Western)
<b>Level 3</b>	1 (0.2%)	4 (1.0%)	9 (2.2)	7 (1.6%)
<b>Level 2</b>	33 (8.1%)	20 (4.9%)	96 (23.1%)	63 (14.4%)
<b>Level 1</b>	310 (76.5%)	305 (74.8%)	295 (71.1%)	310 (70.6%)
<b>Pre-Level 1</b>	61 (15.1%)	79 (19.4%)	15 (3.6%)	59 (13.4%)
<b>Total</b>	405 (100.0%)	408 (100.0%)	415 (100.0%)	439 (100.0%)

As with literacy levels, the placements in Apac and Bugiri Districts have similar distributions. Mukono District, and to a lesser extent Ntungamo District, have larger proportions at Level 2 and smaller proportions at Pre-Level 1. However, the proportions at Level 3 are very small for all districts.

#### 4.4. The Relationship of Numeracy with Young People's Characteristics

As with literacy, we use the proportion of young people placed at Level 2 and above as a convenient indicator of variations in numeracy according to individual and social characteristics of young people., using the national sample.

**Table 4.3. Percentages at Numeracy Level 2 or above, by age and by gender**

Age	Men		Women		Total	
	Percentage	Count	Percentage	Count	Percentage	Count
14	9	187	8	240	8	427
15	9	126	16	154	13	280
16	15	131	13	143	14	274
17	20	92	18	113	19	205
18	27	98	16	103	21	201
19	23	65	15	67	19	132
20	12	74	12	74	12	148
All ages	15	773	13	894	14	1,167

The proportions of young people at Level 2 and above are generally below 20%, the only exceptions being young men aged 17-19. Numeracy does tend to improve between the ages of 14 and 18. But those in the cohort aged 20 had poor outcomes, as they did in literacy also, and that anomaly merits further analysis.

We then consider the variations in numeracy proportions at Level 2 and above according to different types of disability. Table 4.4 shows that such variations are generally small and unimportant across all the types of disability that were measured. Even those with a memory difficulty performed only slightly below their non-disabled peers.

**Table 4.4. Percentages at Numeracy Level 2 or above by disabilities**

Type of disability	Whether affected	Percentage	Count
Vision difficulty	Yes	14	85
	No	14	1,582
Hearing difficulty	Yes	15	55
	No	14	1,612
Mobility difficulty	Yes	14	66
	No	14	1,601
Memory or concentration difficulty	Yes	13	164
	No	14	1,503
Disability in general	Yes	14	284
	No	14	1,383

We now consider two factors that have greater explanatory power: occupational status and education level reached.

Table 4.5 shows the variations by occupational status, using the same six categories as for literacy.

**Table 4.5. Percentage at Numeracy Level 2 or above, by occupational status**

Occupational status	Percentage	Count
Student and employed	18	40
Student and self-employed	44	9
Student only	18	1,164
Employed	7	31
Self-employed	4	53
Unemployed	3	370
Total	14	1,667

The pattern that emerges is different from that which applies to literacy (Table 3.5). The highest achieving group is those who were both students and self-employed (although they were very few). The need for business accounting by the self-employed (even if rudimentary) may have been a factor. Numeracy achievement is similar for those who are students and employed and for those who are students only. But it is generally higher for students than for non-students, very few of the latter being at Level 2 or above.

The variations by education level are shown in Table 4.6. It shows that numeracy achievement consistently improves with the level of education but not to the same extent as literacy achievement. Even among those who had reached the upper secondary or tertiary level, only a minority (40%) were placed at Level 2 or above. This prompts questions about how students manage to progress to the upper secondary level with such weak numeracy skills and how this affects their employability.

**Table 4.6. Percentage at Numeracy Level 2 or above, by education level**

Education level reached	Percentage	Count
Upper secondary or tertiary	40	58
Lower secondary	31	458
Upper primary	7	1,027
Lower primary	3	115
No schooling	0	9
All levels	14	1,667

As with literacy, the proportions are compared for young people with female and male household heads, sub-divided by district, and according to whether the household head had a telephone or not. The findings are shown in Table 4.7.

From the first part of the table it is evident that, within Mukono and Ntungamo Districts, numeracy levels vary according to the gender of the household head, but in different directions. In Mukono District having a female household head seems to confer an advantage, while in Ntungamo District the advantage is with those who have male household head. The difference is consistent with the idea that, in the highly urbanised environment of Mukono, single women have more opportunities to be financially self-supporting than in a largely rural district such as Ntungamo.

**Table 4.7. Percentages at Numeracy Level 2 or above, by household head's gender and district and by possession of a telephone number**

Characteristic of household head		Percentage	Count
<b>(3) Gender, by district</b>			
Apac	Female	9	76
	Male	8	329
Bugiri	Female	6	101
	Male	6	307
Mukono	Female	28	210
	Male	23	205
Ntungamo	Female	13	104
	Male	17	335
All	Female	17	491
	Male	13	1,176
Total		14	1,667
<b>(4) Possession of a telephone</b>			
Has a phone number		16	1,368
Has no phone number		7	299
Total		14	1,667

The second part of the table simply shows the difference at national level, associated with possession of a telephone by the household head – lack of a telephone being a marker of poverty. The numeracy outcomes are well below average for young people living in poor households. This factor tends to interact with unemployment and a low level of education.

This brief overview of variations in placement at the higher levels of numeracy suggests that, in this population, numeracy is moderately related to student status, the educational level reached and the standard of living of the household. But advantages in these three factors do not necessarily result in a high level of numeracy. Level 1 remains the median level in all the selected districts.

## Section 5. The Relationship Between the Literacy and Numeracy Placements

The definitions of levels for literacy and numeracy used in this study only have an approximate equivalence in relation to the expectations of school curricula and the needs of daily life and have not been cross-validated with reference to measures of intelligence. Nevertheless, the cross-tabulation of the placements, shown in Table 5.1, reinforces the general impression that the higher levels of literacy had been achieved by more young people than those of numeracy. At the lowest levels, however, numeracy fared a little better than literacy, Level 1 being the modal level for numeracy whereas Pre-Level 1 was modal for literacy.

The two types of skill do not predict each other very strongly in this population, the rank-order correlation (Spearman's Rho) having only the moderate value of 0.528. The yellow shading in Table 5.1 shows that a large proportion of those placed at Level 2 or above in literacy (65%) were only placed at Level 1 in numeracy. However, only a very small proportion (9%) of those at Level 2 or above in numeracy were below Level 2 in literacy. This suggests that the schools attended had been less successful with basic mathematics than with basic English, as more than 90% of the sample had progressed beyond the lower primary level of schooling

**Table 5.1. Cross-tabulation of the literacy and numeracy placements**

Literacy levels	Numeracy levels:				
	Pre-N1	N1	N2	N3	Total
Pre-L1	213	721	11	0	945
L1	1	97	8	1	107
L2	0	306	124	7	437
L3	0	88	55	5	148
L4	0	8	14	8	30
Total	214	1,220	212	21	1,667

**Notes:**

- Spearman's Rho = 0.528 ( $P < .001$ )
- Yellow shading indicates young people who were placed at Level 2 or above in literacy only or in numeracy only.

An implication of the relative weakness of numeracy skills is that they deserve high priority in any ‘transformative’ programmes that seek to improve the employability of young people, such as vocational training courses and apprenticeships.

## **Section 6. Conclusions and Recommendations**

Evidence generated from the assessment of young peoples’ literacy and numeracy skills required in everyday life and in the workplace reveals low functional abilities of young people in tasks related to reading, writing and numeracy. The findings further show that a majority of young people are placed in the lower literacy and numeracy levels, representing weak functional skills.

The findings reveal longer-term outcomes of school-based learning in relation to the skills possessed by young people for work and day-to-day living. Significant numbers of young people are falling short of literacy and numeracy skills required for work and in everyday life. Such low functional abilities demonstrate the dire need for the national authorities to reflect on systemic changes to ensure that school-based learning and non-formal learning opportunities prepare young people for the world of work and everyday life.

The findings show that, for many young people, primary education has failed to develop effective foundational skills. As they are beyond primary school age, improved opportunities for them depend on the availability of vocational education and training, ranging from formal courses to informal apprenticeship. Such training opportunities can incorporate, or be combined with, further teaching of foundational skills (adult basic education). Age-appropriate opportunities of this kind may well be more motivating than repeating grades in primary school. ‘Transformative’ opportunities of this kind (Palmer et al. 2007) have to compensate for the shortcomings of basic education provision.

Further research could help to show how far young people aged 16-20 are actually engaged in vocational training, as opposed to formal, general education, and what opportunities exist locally for them to enter such training and at the same time improve their literacy and numeracy skills.

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***Uwezo Uganda's work is supported by:***

Echidna Giving, Wellspring Philanthropic Fund (WPF) and a consortium of other funders including the Lego Foundation, Porticus, Co-Impact, Imaginable Futures, FCDO and GPE/KIX who fund some of our work through other organisations and initiatives such as RELI Africa, ALiVE/Zizi Afrique Foundation & PAL Network

***To cite this report***

Uwezo Uganda (2023) *Measuring Young People's Literacy and Numeracy Competences Required in the Workplace and Everyday Life*. Kampala: Uwezo Uganda

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