

“What am I doing here?” Perspectives of Zimbabwean adult learners on the relevance of adult numeracy to their needs and aspirations

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Abstract

Many adult learning centres in England provide numeracy (or mathematics) education to adults in all sectors of society, including migrants from countries across the world. This study takes one group of migrants – those from Zimbabwe – and explores the relevance of adult numeracy education to the needs and aspirations of Zimbabwean adult learners in England. The accounts, beliefs and attitudes expressed by learners and their teachers were collected through questionnaires, focus groups and in-depth interviews. The study found that most of the learner participants did not feel that they needed to improve their numeracy skills for everyday life and work, and had undertaken their adult numeracy learning in order to enter higher education or professional career pathways. They felt that their prior learning of mathematics in Zimbabwe had been higher than their Level 2 adult numeracy programmes and therefore felt that their prior learning had not been recognised or valued. Tutor participants were in agreement with learner participants concerning high levels of prior learning experience. Furthermore, the study found that teaching and learning approaches commonly offered in England, such as the use of games, did not meet the expectations of adult Zimbabwean learners, who considered them childish. The study also found that the current emphasis on ‘real-life’ contexts for adult numeracy learning and assessment presented challenges to Zimbabwean learners. Many of these contexts were based on British culture and were unfamiliar to the learners. They expressed a preference for what they called ‘academic’ (or pure) mathematics, which they had studied in Zimbabwe, and some participating learners suggested that the focus on British contexts represented cultural imperialism in requiring them to conform to the norms of British culture.

Keywords: adult numeracy, migrant learners, prior learning, international qualifications, real-life context

Introduction

Recent decades have seen an increased focus on adult numeracyⁱ education in England both from researchers and policy developers (BSA, 1997; Carpentieri, Lister & Frumkin, 2010). Factors driving this have included international assessments such as PIACC, and the requirement for numeracy skills to participate in higher education and employment (Felstead, Gallie, Green, & Zhou, 2007). A series of initiatives over the last two decades have led to the introduction of qualifications in Adult Numeracy and Functional Skills Mathematics at a range of levels up to Level 2, the standard normally expected from young people completing schooling at the age of 16. Programmes leading to these qualifications have been offered in a variety of adult education settings in England, such as colleges, adult community education centres, workplaces and prisons.

The aim of this paper is to explore the experiences of Zimbabwean migrant adult learners enrolled on such programmes in England, and in particular, the relevance of the classes to their needs and aspirations, in light of recognition of their prior learning, qualifications and experience.

Since the year 2000, many Zimbabweans have migrated to other countries, including the United Kingdom, due to the deteriorating social and economic situation. Political oppression, shortage of basic commodities such as food, caused by the compulsory Land Reform and Resettlement Programme, eroded the livelihoods of many people. The result was a massive exodus of people at all levels of social stratum in pursuit of better life opportunities (Bloch, 2005). Most of those who came to the United Kingdom sought to regularise their stay by applying for asylum in order to have access to education and employment opportunities.

Many Zimbabwean migrants entered the education system for various reasons that included taking advantage of free adult education in England, upgrading their professional qualifications to align them with the requirements in England and to support changes in their career paths. The large numbers of Zimbabwean migrants to England justified our focus on this migrant population in this research.

Moreover, the main author of this paper, Norman Maphosa, is a Zimbabwean migrant himself and shares similar experiences with this study population. Maphosa was born, educated, trained and worked as a mathematics teacher in Zimbabwe. Maphosa came to England in 2006 to study for an MPhil after which, due to the same social and political reasons that prevailed in Zimbabwe, he sought asylum and continued with education to acquire a doctorate degree in education. Maphosa has worked as an adult numeracy tutor in England since 2012.

The primary research questions driving the study were:

- What prior learning and experience do Zimbabwean adult learners bring into their adult numeracy classes?
- Do Zimbabwean adult learners find their adult numeracy programmes relevant to their needs and aspirations?

Background: Mathematics and Adult Numeracy Education in Zimbabwe and England

Mathematics Education in Zimbabwe: the legacy for migrants

Migrants from Zimbabwe to England are a diverse group, and include professionals, refugees and asylum seekers whose academic prior achievement can vary from primary education level to postgraduate level. According to Bloch (2005), 97% of 500 Zimbabwean adult participants had formal qualifications above average compared to a similar British population and other migrant groups. English is a second language for most Zimbabwean migrants; the most common first languages being Shona and Ndebele.

Zimbabwe is a former British colony, previously known as Rhodesia until independence in 1980. Formal education only started with the advent of colonialism and the arrival of Christian missionaries. These two phenomena shaped the history and development of both formal education and cultural identity of the Zimbabwean people. The colonial education policies were largely shaped and constrained by the values and assumptions of a white settler elite determined to maintain a socio-economic and political dominance over other ethnic groups in the country (Hungwe, 1994).

Ajayi, Goma, & Johnson (1996) argue that colonial education caused the colonised to lose self-respect as the colonised people's heritage was deliberately excluded in the curriculum to maintain dominance and create a receptive indigenous society with a new identity. In Zimbabwe, the colonial education system was formulated and structured around the nineteenth century British middle-class education system (Shizha, 2006). Shizha further argues that the imposed hegemonic culture disrupted the values of pre-colonial indigenous knowledge and learning that reflected the social and cultural needs of the community.

There existed two separate education systems; the European Education system for the white community, and the African Education system for the Black community (Hungwe, 1994, Morris 1963). The colonial government claimed justification for separate education systems based on the perceived 'primitive' nature of the social background of the black child compared to the white child's background (UNESCO 1964).

The education provided for most black children was intended to create a strong labour force for the industrial and farming sectors. Although the church appeared sympathetic to the cause of indigenous people by providing formal education and building schools for black children, it too acted as a vehicle for colonialism (Dirks, 2006; Shizha, 2011). Basic mathematics was adapted from the British curriculum, and one peculiar feature before the 1970s was the use of British units of measurement such as miles, feet and inches; and British currency such as pounds and shillings. Many black African children were educated only to primary level in this era.

As the economy of Rhodesia developed, the need arose for a more skilled workforce, which forced the government to improve the quality and level of education for black children (Wilks et al, 1977; Hungwe, 1994). International examinations were then introduced in the African curriculum with Oxford and Cambridge University curricula and examinations adopted in secondary schools (Nyoni, 2012). The standard of education in Rhodesia became one of the highest in Africa until Zimbabwe's independence in 1980.

Over the first decade of Zimbabwe's independence, reforms in the education system focused on the principle of 'Education for all', adopted at independence (Kanyongo, 2005). Woolman (2001) argues that one of the greatest challenges faced by modern Africa is the reform of inherited educational systems that largely functioned to maintain the colonial order of dependency and elitism. The challenges involved reconstruction of the curriculum to reflect indigenous traditions, values, beliefs and knowledge systems at the same time integrating the demands of modernisation.

Major reforms included the amalgamation of the two separate education systems that were present before independence, and significant increases in the number of schools and colleges. There was a shortage of qualified teachers, especially for mathematics and science subjects, and to accommodate the expanded education program, the government introduced a low-cost teacher training scheme.

However, the mathematics curriculum remained greatly unchanged despite these reforms following Zimbabwe's independence (Nyaumwe, Bhunu, & Makonye, 2007). The Zimbabwe school mathematics curriculum (like other core subjects), has remained a close match to that of England (Chakanyuka, Chung, & Stevenson, 2009). Of particular interest to the study presented here, many school children gained qualifications at O-Level, very similar in scope and content to the GCSE qualifications still current in England today.

Post-Colonial Theory and Mathematics Education

Post-colonial theory considers how European nations conquered and controlled other cultures and how the former colonial societies have since resisted and responded to colonial legacy (Ashcroft,

Griffiths, & Tiffin, 2002). Colonialism involves domination and subjugation of one group of people by another more powerful nation. The meaning of 'colonialism' is unsettled and discursive, depending on the time, place and situation referred to in history (Ashcroft, Griffiths, & Tiffin, 2002; Kohn, 2012). The aim of colonialism is to occupy lands, exploit resources, and set up means of control of the occupied territory through military conquest and suppression of indigenous culture (Childs & Williams, 1997; Said, 1993). Thus, colonialism was not only a military conquest but also a cultural conquest establishing social reforms that suit the aspirations of the coloniser.

To this end, education and educational curricula played a pivotal role in ensuring effective and continued suppression of indigenous culture which was pushed to the peripheries of power (Nkosi, 2002, Fanon, 1961). Ashcroft et al (2002) indicate that one of the main features of colonial oppression was control over language.

Mathematics was long considered to be universal and culturally neutral. The argument was that mathematical statements are true the world over, for example, $2+1=3$ irrespective of culture. However, mathematical ideas were gradually recognised to be humanly constructed and therefore have a cultural history (Bishop 1990). Other cultures have their own mathematics, sometimes referred to as 'ethno-mathematics'.

Bishop (1990) argues that modern mathematics is a result of western cultural history and hence refers to it as 'western mathematics'; as opposed to other lesser-known mathematics developed by other cultures. To the colonized societies, 'the western mathematics curriculum was abstract, irrelevant, selective and elitist – governed by structures like the Cambridge Overseas Certificate, and culturally laden to a very high degree' (Bishop, 1990, p. 55). Hence, like language, mathematics could become a strong weapon of cultural colonisation as it affected the daily lives of all indigenous people who had to come to terms with such measures as the western calendar, time, distance and money.

The study of post-colonialism considers how the former colonial societies have since resisted and responded to colonial legacy (Ashcroft, Griffiths, & Tiffin, 2002). It focuses on the history of colonialism and its continued effect on the de-colonized societies and their identity.

Coloniality refers to the continuity of colonial forms of domination after the end of colonial administrations, produced by colonial cultures and structures in the modern-colonial capitalist world-system (Grosfoguel, 2005, p. 287)

According to Said (1978), knowledge and power were the basic tools that made colonialism possible and sustainable. During colonialism, what counted as knowledge was what was seen as such in the eyes of the coloniser, and that had to be instilled into the minds of the colonised through carefully tailored education systems.

Migrants from formerly colonized countries may find that they are still disadvantaged by these lingering hegemonies. Pitman & Vidovich (2013) point out that educational institutions tend to privilege particular forms of accredited learning over that gained through experience. Miller (2008) notes that migrant professionals in England have their expectations dashed when their qualifications and work experience gained in their home countries are not recognised as legitimate by employers and accreditation bodies.

Mathematics and Numeracy Qualifications in England and Zimbabwe

In this section we briefly outline some of the numeracy and mathematics qualifications for adult learners in England, and their relationship to those in Zimbabwe. We ask the reader to bear with us, since a comparison of these qualifications is pertinent to the findings of this study.

The National Qualifications Framework allows the levels of different types of qualification in England to be compared. Although the Framework goes up to Level 7 (doctoral level), here we are interested in Level 2, the target level for 16-year-olds completing compulsory schooling.

A Level 2 qualification in Mathematics is a gatekeeper for access to many university courses and professional careers. For 16-year-olds in England, the usual Level 2 qualification is the General Certificate in Secondary Education (GCSE). However, for adult learners, alternative mathematics/ numeracy qualifications have been developed over the last couple of decades, including the National Certificate in Adult Numeracy, and the subsequent Functional Skills Mathematics qualifications. Like GCSE Mathematics, these qualifications could/can also be taken at Level 2, but the content is different, focusing on the mathematics regarded as useful for everyday life and work, and covering very little algebra and geometry.

The Department for Education originally hoped that these might be regarded by industry and higher education institutions as equivalent to GCSE Mathematics, whilst providing a more relevant and accessible route for adult learners. There is an ongoing reform process of Functional Skills in mathematics and English which aims to ensure that these qualifications meet employer and higher education needs in terms of the knowledge and skills that learners achieve (Beach, 2019, Ofqual, 2019). However, there are signs that participation in Functional Skills Mathematics courses has declined between 2015 and 2018 and that government policy is becoming less supportive of Functional Skills Mathematics (Dalby & Noyes, 2020). In practice, most universities and professional career paths still demand the more traditional GCSE Mathematics.

In Zimbabwe, the equivalent qualification is ‘O-Level’ (Ordinary Level) Mathematics. According to its awarding body, Cambridge Assessment (formerly UCLES), this qualification should be regarded as equal in status to GCSE Mathematics (Cambridge Assessment 2020). The Zimbabwe School Examinations Council (ZIMSEC), the successor to (UCLES) in Zimbabwe, continues to assess the relevance of mathematics skills taught within the O-Level curriculum to the requirements of the world of work (Matorevhu, 2020). It is also worth noting that ‘O-Level’ was the name of the forerunner of GCSEs in England; when the name was updated in England, it was retained for international qualifications. We therefore conclude that to consider the Zimbabwean ‘O-Level’ qualification as inferior to the British GCSE qualification would be unsustainable.

Methodology

To learn about the experiences and beliefs of Zimbabwean adult numeracy learners, a mixed method approach was adopted. An exploratory focus group and a questionnaire survey were used to obtain a broad picture, followed by interviews to obtain richer, more in-depth, and more open-ended accounts (Denzin & Lincoln, 1998; Bernard, 2000). Adult numeracy tutors with Zimbabwean students in their classes were also interviewed, thus providing an opportunity for triangulation. With an interpretivist perspective underpinning this research, an inductive approach was taken to identify patterns observed from the data for analysis and to construct a meaningful account of the lived experiences of the participants (Strauss & Corbin, 1998, Charmaz, 2006).

The participants: Learners and Tutors

Learner participants for the initial focus groups were recruited from the migrant community in which the main researcher was working as an adult numeracy tutor.

To identify potential learner participants for the questionnaire survey, fourteen Further Education colleges, six community centres and seven churches in England were approached by a letter requesting permission to conduct researchⁱⁱ. One hundred fifty-two email addresses of potential participants were collected through "snowballing" (Noy, 2008), of whom 101 took part in this phase of the research. These included adult learners studying numeracy at all levels from Entry 1 to Level 2.

Purposive sampling was used to recruit learner participants for the in-depth interviews; invitations were sent to those participants who had provided full responses to all or most questionnaire items. Seven learner-participants in total took part in the in-depth interviews; all were black Zimbabwean learners aged nineteen years and older.

Five adult numeracy tutors were recruited for the in-depth interviews from an adult education service in a large city in the North of England. Tutor participants were selected firstly from institutions that had current Zimbabwean numeracy learners in their classes followed by those who had once taught Zimbabwean learners. Four of the tutor-participants were white British, three males and one female; the other tutor was female of Indian origin.

A table summarising participant profiles can be found in Appendix A.

Data Collection

The first phase of data collection involved an exploratory focus group of six adult numeracy learners, which was then used to inform the questionnaire survey. Participants were asked to freely discuss their experiences and opinions about their experiences enrolling on adult numeracy course in England, and their discussion was recorded and transcribed for analysis.

Following transcription, the focus group data was used as a basis for drawing up a questionnaire, which consisted of mostly closed-ended questions and a few open-ended questions (Gillham 2008). The questionnaire was piloted through the focus group participants, and modified accordingly. It was then distributed by a Smart-Survey link to 152 adult numeracy learners, of whom 101 responded. A copy of the questionnaire can be found in Appendix B.

The second phase of data collection involved individual in-depth semi-structured interviews of seven learner and five tutor participants. Learner interviews took place at participants' homes in order to offer a comfortable environment to participants. Again, each interview was audio-recorded for transcription and analysis.

Data analysis

Data collected during the focus group was transcribed and coded to identify emerging themes to inform the questionnaire design. The coding was also used as a basis for thematic analysis in the second phase of the study.

The questionnaire data was analysed using the online Smart-Survey software programme.

Data collected during the in-depth interviews was transcribed and coded using the same codes that were used for the focus group interview and the questionnaire data while also allowing new codes to emerge. Frequency and co-location of key words and phrases and ideas were used to identify the most commonly occurring themes, and a Venn diagram was used to map code overlap across emergent themes (Dawson, 2011).

Findings

Inductive analysis of all data strands resulted in a broad range of insights into the experiences of adult Zimbabweans learning numeracy in England. Full findings are presented elsewhere (Maphosa 2018), but here we particularly focus on the extent to which the learners found their numeracy classes relevant to their prior achievements and their future aspirations.

Reasons and goals for enrolling on adult numeracy courses

One of the research aims was to find out why Zimbabwean adult learners enrolled on adult numeracy courses and whether these courses met their expectations and goals. The questionnaire asked participants about their reasons for enrolling on adult numeracy courses, using a Likert scale to rate the importance of a range of possible reasons. The results are summarised in Figure 1 below.

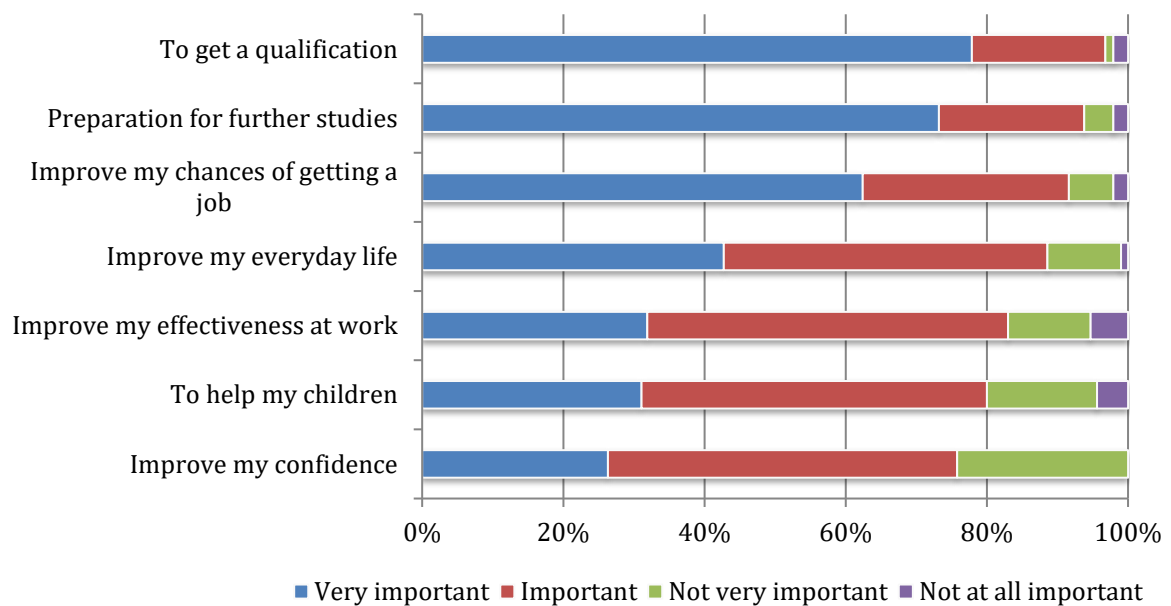


Figure 1. Frequency rating of reasons respondent enrolled on an adult numeracy course

Figure 1 shows the frequency and percentage of responses arranged in descending order of importance to the adult learners. Gaining qualifications, and being admitted to further educational opportunities and careers were rated highest, and it is notable that improvements to effectiveness in everyday life and work were not widely considered to be so important.

The need to further their education and get a qualification was further confirmed as important by learner participants during focus group and in-depth interviews. It is again worth noting that the need to improve effectiveness in everyday life and work were not spontaneously mentioned by any of the interview participants in their open-ended interview responses. However, some participants did consider helping their children to be an important factor in deciding to enrol on adult numeracy courses.

Farai. ...but it's like some of the adults do mathematics in order to help their children and children do not have to think of all these complicated situations. May be what is important for me is to be able to work with numbers like multiplication so I can help my kids with maths.

Florence Yes, they [numeracy skills] do help because if you are in a situation that you cannot help your children it's not good... but if you can then you find that you are really supportive.

Prior learning experience and qualifications

Participants reported mixed experiences of education in Zimbabwe. Some interview participants reported that not everyone had access to schooling, and that this was often dependent on the family's socio-economic status.

Gloria Yes when I was going to school... it would depend on the child's background; some parents were not able to send their children to school because they had not had enough money

Maria It depends on whether the parents could afford sending their children to school or not

Conversely, other participants had had access to full schooling, and a wide range of qualifications, up to degree level. Questionnaire respondents were also asked to indicate the highest qualifications they had achieved in Zimbabwe.

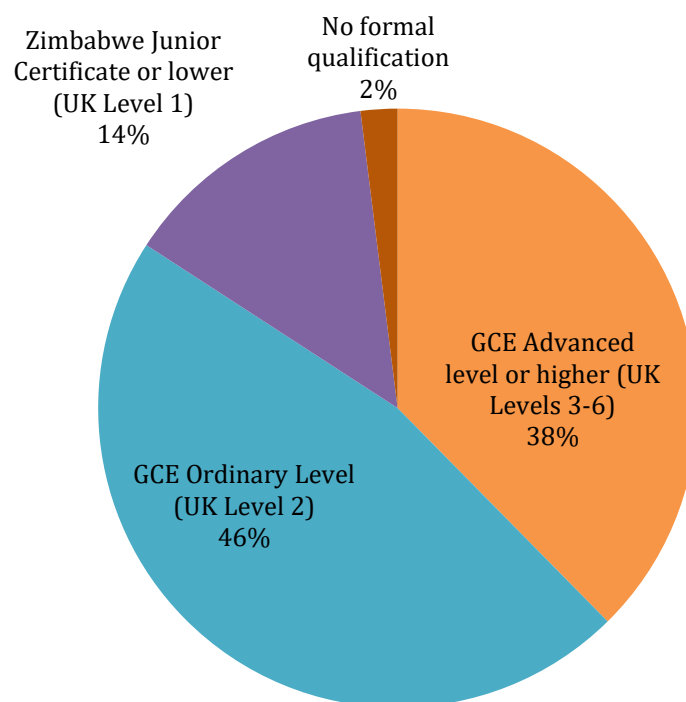


Figure 2 Highest educational qualification achieved in Zimbabwe

The majority in this participant cohort, 84%, had qualifications at GCE Ordinary level and above at the time they enrolled on adult numeracy courses. This finding is important as arguably, a GCE Ordinary level is equivalent to a GCSE qualification in England, as discussed above. However, some respondents expressed dissatisfaction with the manner in which their qualifications were not given credit for entry into higher education, and instead they were required to undertake a further qualification as a pre-requisite:

Farai Yah for example people come here with high levels of mathematics but they are placed in level 1 or level 2, then they are like 'What am I doing here?'

Bongi But sometimes if you check, whether you have done 'A' level or 'O' levels or whatever, when you come here they will tell you that you did not do this here...

The opinions of tutor participants concurred with those of learner participants on the high level of prior educational experience possessed by Zimbabwean adult learners.

Isaac ...generally Zimbabwean learners have been enrolled in higher levels, level 1 and 2 or GCSE as opposed to entry levels...

Sahida ...the men that I have taught showed that they had gone through the schooling system in Zimbabwe, but when they came here, they were expected to do Level 2 English and maths, not that they really needed them, but it was something they had to do to access higher education courses. Because they had done the English and maths back home.

However, it should also be noted that some participants did feel that further numeracy learning was valuable for them, for example:

Florence When I wanted to go to university, I realised that my level of mathematics was really low and I could not meet the entry requirements for university. I decided to start at a lower level because I had last attended school long ago and I had not done GCSE level mathematics, so I couldn't do any higher education with the levels I had.

Phillis ...yes because I could not have been able to enrol at university or manage to get a maths qualification after years of trying and failing to pass maths. I could have tried because I really wanted to get a maths qualification, now wherever I go I am able to say that I have an equivalent of O level maths, I am happy.

'Watered down' mathematics

Participants reported that they found mathematics to be a difficult subject to learn, both in Zimbabwe and in England. However, participants considered the mathematics they were learning in the English numeracy classes to be easier than the mathematics they had learned at school in Zimbabwe. This was reported by almost all learner participants irrespective of age, prior qualifications or gender. For example, according to Phillis:

Phillis ...when I wanted to do my Masters in social care, I could not enrol because they wanted mathematics. To be frank I was not good in maths but I found that there was a shortcut to doing maths rather than going to do a full course in mathematics. Numeracy was easy; I did it over summer...it was an easier version of mathematics... which I found easy.

Many of the participants used their experience of O-Level mathematics in Zimbabwe as a point of reference to declare their background knowledge of mathematics, and to which they compared their learning in England. In particular they compared the topics covered at O-Level in Zimbabwe with those included in (or excluded from) the English Adult Numeracy Core Curriculum. For example, Phillis went on to explain that she found the numeracy content very easy because it did not cover algebraic equations and other of the more difficult topics covered at O-Level. Similarly, Dade suggested that adult numeracy is 'watered down' mathematics

Dade Yeah, yeah, I think there is too much watering down of their maths, as I was saying, back home it was purely academic with formulas

The use by participants of dichotomous perspectives of 'easy' and 'difficult' when describing their numeracy learning experiences is of interest here. Further analysis of the participants experiences of teaching and learning enabled us to unpack these terms. As reported in the remainder of this section, some participants associated the difficulty with the mathematical subject content; and others with the teaching and assessment methods used both in Zimbabwean mathematics classes and adult numeracy classes in England.

Teaching and learning approaches in Zimbabwe and England

To most learner participants, the teaching approaches used in numeracy classes in England were new and unfamiliar. Interaction in numeracy classes was reported to have presented many new learning experiences especially with regards to collaborative learning, where the learners were expected to work in groups and also to take responsibility for their own learning. The traditional rote learning model they expected, based on their experience of mathematics classes in Zimbabwe, was absent in these adult numeracy classes.

One of the teaching and learning approaches critically reported by most participants was the use of games during numeracy sessions, often regarded as 'good practice' in English classrooms (for example Steeds, 2001). Learner participants reported that games as a learning strategy were not appealing to them and viewed by some as childish, for example:

Dade The approaches were good but at times you know, as an adult learner there are some things like games...games are good but as an adult some of these games are childish... I don't know how they can be changed because you don't want to feel like you are in primary school or something.

Dade goes on to compare such approaches to the 'academic' style of learning she experienced in Zimbabwe, focusing on the apparent conflict between her heritage culture and host culture:

Dade Students were comparing methods... they were showing how they do things in their countries in a different way. On how they did their maths at home, I mean...where you play a game and you are supposed to learn from that, we never used games. Our learning of maths was purely academic, the teacher will come and teach and expect you to learn that. And this was common to all foreign students, they did not use, I mean games were a new thing to them. We did not use games.

Another area which learner participants found problematic was the contextualisation of the numeracy subject content, in which they found themselves having to contend with unfamiliar contexts, for example, cooking a turkey for Christmas dinner:

Tayina Last year when I was doing Level 1 we were taught how to cook eh...what do they call this they cook for Christmas?

Group A turkey!

Tayina Yes a turkey, and when we asked why we were doing this in a maths class, our tutor told us that it is because there are measurements, there is hours and minutes for cooking.

A turkey is not a common dish in Zimbabwe, so talking about the method of cooking a turkey seems to have instilled anxiety on learners like Tayina and may have distorted the actual learning of numeracy. Even the concept of a turkey itself seems to be unfamiliar to Tayina as she refers to it as "this they cook for Christmas". The problem of contextualization was not confined to unfamiliar situations but also came up as an issue with other seemingly common contexts like travelling on a holiday.

Tayina And we were taught about going on holiday and when we asked why, he said because there are miles to travel and there are heights...

Farai Trying to make you understand...

Tayina But in Zimbabwe I think that was taught in geography.

Tutor participant Regina defends the use of such contexts, arguing that it is driven by the demands of the examination:

Regina I can use examples from other cultures like recipes and so on yes, but that will not come in the examinations because examinations are British based.

Regina argues that using English contexts for numeracy teaching contributes towards familiarising migrant learners with the culture of their new country. This argument is acknowledged by the learner participants, but not uncritically. For example, learner Tayina indicates feelings of cultural imposition on the learners:

Tayina Here they educate you to know how they live in this country, which if you leave this country to another country you look like somebody who is not educated...

It is generally assumed that the teaching and learning approaches commonly offered in adult numeracy classrooms, such as the use of games and practical or ‘real-life’ contexts, will make mathematical learning more accessible. However, for the Zimbabwean migrant learners in this study, these approaches actually seemed to present barriers. In one particularly illuminating comment, Bernard suggests that his prior mathematical learning in Zimbabwe was actually needed to help him overcome these barriers:

Bernard The methods some of them are difficult to follow especially ... that is why it was a little bit difficult for me... Because of my background and knowledge may be on the field of mathematics, it could make it easier to follow it along. Yes, I found it easier because O-Level is difficult, that is what I found here, this Level 2 was a little bit easier than the O-Level that I did.

Discussion: a post-colonial legacy

The data presented above illustrate a number of recurrent and inter-relating themes. In our discussion, we argue that the participants have been subject to colonialist hegemonies both in Zimbabwe and in England. Their Zimbabwean schooling and qualifications were originally imposed on them by the British education system, with some of the participants receiving an inferior education. Later, for those that did receive a better education, their prior learning and qualifications were not sufficiently recognised and acknowledged when they entered adult education in England.

Thus, it seems, the post-colonial cultural legacy continues to impact on the Zimbabwean migrants’ mathematical attainment and accreditation in a number of ways, which we explore in the remainder of this article.

‘You did not do this here’: non-recognition of prior learning in Zimbabwe

The survey of Zimbabwean adult numeracy learners in England showed that the majority of respondents were studying numeracy in order to gain a qualification leading to better employment or educational opportunities.

On starting to study for English adult numeracy qualifications, many participating learners found that they were being expected to study mathematics at a lower level than they had previously studied in Zimbabwe, and to embrace a mathematics ‘skills deficit’ that had apparently been imposed on them. They considered the numeracy they were studying in England to be a ‘watered down’ version of mathematics. These perceptions were echoed by the accounts given by tutors, who reported that their Zimbabwean learners often had good levels of mathematical skills from the outset. The learners also found some of the learning approaches used in English classrooms, such as games, trivialising and childish – and this has a further irony since some learner participants expressed a preference for the rote-learning originally introduced to Rhodesia by the British colonisers.

In their original schooling in Zimbabwe (or Rhodesia for older participants), participants had been obliged to engage with a curriculum imposed upon them, either by their colonial rulers, or as a hegemonic legacy of those rulers. As argued by Said (1978), what counted as knowledge during colonialism was that which was seen as such in the eyes of the colonizer.

For some of the participants, particularly those who had been at school prior to independence in 1980, this took the form of a lower tier education system, and some of the participants had not had the opportunity to gain a mathematics qualification in Zimbabwe.

However, most of the participating Zimbabwean learners studied a curriculum originally based on the English education system, often using textbooks published by English publishers, and leading to O-Level qualifications claimed to be equivalent to the English GCSE qualifications (Cambridge Assessment 2020). Thus, a significant proportion already had a GCE O-level mathematics qualification gained in Zimbabwe that was at the same or a higher level than the qualification they were studying for in England (National Certificate in Adult Numeracy or Functional Skills Mathematics at Level 1 or 2). Participants reported that their qualifications from Zimbabwe were not accepted by employers and educational institutions in England. They were told, 'you did not do this here'. It appears that the post-colonial hegemony continues, in regarding qualifications gained in former colonies as inferior to those gained in England.

Indeed, several participants in this research had professional qualifications ranging from diplomas to degree level which they felt were under-recognized. Doyle (2009) reports on wasted skills and enforced dependence among Zimbabwean asylum seekers in the UK. The assessment of Zimbabwean qualifications as inferior or inadequate may be perceived as some form of colonial legacy intended to place the subjects of a former colony in their rightful place as 'inferior others' (Ashcroft, Griffiths, & Tiffin, 2002).

'Here they educate you to know how they live in this country'

The emphasis on functional skills and contextualised questions – a keystone of adult skills policies in England (Wolf, 2011; Ofqual, 2015) – also caused difficulties for them. Firstly, the wordiness of questions made the problems harder for those with English as a second language; secondly, many of the contexts, such as cooking a turkey for Christmas, seemed unfamiliar and irrelevant to the Zimbabwean learners, who preferred the 'academic' or 'pure' mathematics they had studied in Zimbabwe.

For many of the participants, the notion that functional skills mathematics will help them to be functional in work, society and their everyday lives was not seen as applicable. For the majority, this was not their goal in learning numeracy – and indeed, some of them had been working as professionals for many years in Zimbabwe. McGrath, Madziva and Thondhlana (2017) noted that the experience of some migrant Zimbabwean professionals had made them more multi-skilled than their typical English counterparts.

Furthermore, to be functional within the context of British society could be perceived as cultural dominance by the host society over the migrant learner whose long-term goal may be beyond life in England. The participants in this study perceived the functional skills curriculum to be non-academic and a barrier to their academic progress. Some tutor participants argued that the use of British context is justified because the migrant graduates will function within the British society. However, learner participants disagreed with this notion and argued that even basing numeracy tasks on career jobs is not viable as learners in a class will normally have different career paths and experiences.

The vocationalisation of adult numeracy and functional skills mathematics with the view of satisfying the needs of the employer, may be seen as comparable with the vocationalisation of the African Education system in Rhodesia (Zimbabwe) was aimed at training the African people for service to their colonial master (Chakamba, 2013). Chakamba describes how the vocational route in colonial Zimbabwe was a practical biased curriculum meant for the majority who were declared unsuitable for the academic route. Considering that the long-term goal expressed by most of the learner participants was to progress to higher education, their interpretation of vocational education may differ from that intended by curriculum developers, particularly as adult numeracy and functional skills mathematics qualifications are often not accepted for entrance to higher academic studies.

Implications for policy and practice

This research suggests that many Zimbabwean adults have a unique historical background that strongly influences their experiences and perceptions of education and mathematical learning. Our findings thus have a number of implications both for classroom practice and for the acknowledgement of migrant learners' prior skills and qualifications.

We encourage teachers of adult numeracy to learn more about the background and history of their learners from the outset, and to consider the diversity of life experiences within the classroom to select appropriate teaching and learning approaches.

While we do not want to discourage the use of games and similar activities for learning, these should be used with discretion and cultural sensitivity, selecting activities that take cognizance of age and background of learners (Koivisto & Malik, 2020). One example is digital games, which can enhance motivation and engagement (Olaguro et al 2019, Hamari, Koivisto and Sarsa, 2014).

We encourage the use of critical pedagogies by tutors that allow learners to freely question certain ideologies and practices which they consider culturally oppressive in the classroom. Such an approach would allow learners to steer the learning experiences towards their own life experiences and reduce feelings of cultural imposition.

Lastly, we would like to see employers and institutions of higher education better equipped to assess the value of qualifications gained in other countries, and to acknowledge and recognise them appropriately. Where prior qualifications are considered to be insufficient or outdated, it is not necessarily appropriate to relegate the learner to a lower level of learning, but to provide more tailored routes to update knowledge or 'bridge' a skills gap (Robinson et al, 2019, Ofqual, 2019).

Conclusion

Our data and analysis in this article suggest that the majority of Zimbabwean adult numeracy learners participating in the study did not feel that they needed to improve their numeracy skills for everyday life and work. Instead, they had undertaken their adult numeracy learning in order to enter higher education or professional career pathways. They felt that their prior learning of mathematics in Zimbabwe had been higher than their Level 2 adult numeracy programmes and therefore felt that this prior achievement had not been recognised or valued.

Some teaching and learning approaches commonly used for adult learning in England, such as the use of games, were considered childish by adult Zimbabwean learners. The study also found that the current emphasis on 'real-life' contexts for adult numeracy learning and assessment presented challenges to Zimbabwean learners. Many of these contexts were based on British culture and were unfamiliar to the learners. They expressed a preference for what they called 'academic' (or pure) mathematics, which they had studied in Zimbabwe, and some suggested that the focus on British contexts represented cultural imperialism in requiring them to conform to the norms of British culture.

We have argued that the post-colonial legacy of the British rule in Rhodesia has not only impacted historically on the participants' learning experiences, but it is still actively presenting barriers to them in their new lives in England. We call for greater cultural sensitivity and acknowledgement of these issues by education providers, in order to develop learning experiences which better meet the needs of migrant learners, from Zimbabwe and from other countries around the world.

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Notes

- i The terminology surrounding mathematics/ numeracy education for adults is complex and contested. For convenience, the term "adult numeracy" throughout this article refers to mathematics education for adult learners up to Level 2, the target level for 16 year-olds completing compulsory schooling in England.
- ii All phases of this research received ethical approval from the University of Bolton.

Appendix

In-depth interviews: learner participant description

Pseudonym	gender	language group	Profession/occupation in:	
			Zimbabwe	England
Dade	F	Ndebele	secretary	nurse
Florence	F	Ndebele	unemployed	student
Maria	F	Shona	secretary	nurse
Phillis	F	Shona	secretary	social worker
Brenda	F	Ndebele	teacher	social Worker
Gloria	F	Ndebele	unemployed	carer
Bernard	M	Ndebele	mechanic	housing officer

In-depth interviews: tutor participant description

Pseudonym	gender	First language	Occupation/Position
Thomas	M	English	Adult numeracy and mathematics tutor
Isaac	M	English	Adult numeracy and mathematics tutor
Sahida	F	Urdu	Adult numeracy tutor and line manager
Regina	F	English	Adult numeracy and Family learning tutor
Nick	M	English	Adult numeracy tutor and curriculum manager

QUESTIONNAIRE

Experience with learning Numeracy (Mathematics) in England

Please answer the following questions.

1. Gender (please tick) Male Female

2. What is your age range?

18 – 25

26 – 35

36 – 45

46 – 55

56 +

3. Employment status

Employed

Unemployed

Looking for work

Unpaid work

Retired

Other

If "Other" please write in here

4. What is the highest educational qualification you obtained in Zimbabwe?

- None
- Grade 7 (Standard 6) or below
- Zimbabwe Junior Certificate (ZJC)
- Form 4 ("O" Level)
- Form 6 ("A" Level)
- National Certificate
- National Diploma
- Higher National Diploma
- First degree
- Master's degree
- Doctorate

5. What would you say are the reasons you were not able to further your education in Zimbabwe? (Please tick all that apply).

- No money to pay for my education
- Because I was a girl
- Because I was a boy
- Education was not important in my family
- Schools were far from my home
- It was the time of war in Zimbabwe
- Other

If "Other" please write in here

6. At what age did you leave full-time education? (Please write **N/A** if not applicable)

7. What is the highest educational qualification you have obtained in England?

- None
- GCSE or below
- A level
- Certificate
- Diploma
- Higher Diploma
- First Degree
- Master's degree
- Doctorate

8. What is the highest Adult Education numeracy course that you have completed in England?

- None
- Entry level 1
- Entry level 2
- Entry level 3
- Level 1
- Level 2

9. On which adult numeracy (mathematics) course are you currently enrolled?

- None
- Entry level 1
- Entry level 2
- Entry level 3
- Level 1
- Level 2

10. Please rate the items below in terms of their importance as reasons for your enrolment on an adult numeracy (mathematics) course.

	Very important	Important	Not very important	Not at all important
Preparation for further studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improve my effectiveness at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improve my chances of getting a job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To help my children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To get a qualification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improve my everyday life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improve my confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Help me fit in with life in England	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For personal interest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A requirement by my employer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If "Other" please write in here

11. How would you rate your progress in the learning of adult numeracy (mathematics) in England?

- | | |
|---------------|--------------------------|
| Very good | <input type="checkbox"/> |
| Good | <input type="checkbox"/> |
| Average | <input type="checkbox"/> |
| Below average | <input type="checkbox"/> |
| Poor | <input type="checkbox"/> |

12. In what ways would you say the learning of numeracy in England differs from the way numeracy is learnt in Zimbabwe?

13. Which of the following factors if any, would you say were a challenge in your learning of mathematics in Zimbabwe?

- | | |
|--|--------------------------|
| English language | <input type="checkbox"/> |
| Ways in which it was taught | <input type="checkbox"/> |
| Shortage of textbooks and other learning materials | <input type="checkbox"/> |
| The attitude of teachers | <input type="checkbox"/> |
| I just didn't like mathematics | <input type="checkbox"/> |
| None | <input type="checkbox"/> |

14. Which of the following factors if any, would you say are or were a challenge in your learning of adult numeracy in England?

- English language
- Ways in which it is taught
- Shortage of textbooks and other learning materials
- The attitude of teachers
- I just don't like mathematics
- None

15. What would say are the learning barriers during an adult numeracy (mathematics) lesson in England? (Please tick all that apply).

- The use of English language
- Teacher accent
- Teaching methods
- Learning with people from different cultures
- Use of computer based methods
- Teacher attitude
- Attitude of other learners
- Mixed class (E3s in the same class with L1s)
- Other

If "Other" please write in here

16. Which of the following do you find most useful to you in the learning of adult numeracy (mathematics)?

- Working through problems in pairs
- Working through problems in small groups
- Working through problems alone
- Working through problems on a computer
- Other

If "Other" please write in here

17. Please rate the items below in terms of your experience learning adult numeracy (mathematics) in Zimbabwe.

	Strongly agree	Agree	Disagree	Strongly disagree
Memorizing of (e.g. times tables and formulae) was important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computers were not used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learning aids e.g. sticks, stones were used to help in learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There were shortages of textbooks and other learning materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Girls always performed better than boys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Methods used were better than those used in England	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. Please rate the items below in terms of your experience learning adult numeracy (mathematics) in England.

	Strongly agree	Agree	Disagree	Strongly disagree
Memorizing of (e.g. times tables and Formulae) are important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computers are used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learning aids e.g. counters, shape models games etc. are used to help in learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There are shortages of textbooks and other learning materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Females always perform better than males	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Methods used are better than those which were used in Zimbabwe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Which of the following mathematics topics do you find most difficult? (Please tick all that apply).

- Fractions
- Multiplication
- Division
- Ratios
- Metric units
- Other

If "Other" please write in here

20. How would you rate your experience with learning numeracy (mathematics) in England?

Very satisfactory

Satisfactory

Unsatisfactory

Very unsatisfactory

21. What changes do you think could be made in order to improve the teaching and learning of adult numeracy (mathematics) in England?

Increase the time allocated for numeracy

Avoid mixed level classes

Include life examples from other cultures

Other

If "Other" please write in here

22. What other comments would you like to make?

Please write in here

Thank you very much for taking time to complete this questionnaire