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EDUCATIONAL PLANNING

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THE IMPROVEMENT OF EDUCATION

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FROM THE EDITORS

This issue of Educational Planning includes significant topics such as the impact of pandemic on education, food nutrition effect on student achievement, and the educational planning concept of allowing the learners lead.

In the first article, Douse and Uys explored the learning concept of allowing the learners lead by conducting a study involving students and educators in the United Kingdom, Australia and Bangladesh. The tentative conclusions and implications are that the allowing learners lead concept has educational merits. However, it may not be practical under current institutional restrictions. The authors are keen that their provisional findings should be tested by educational planners and researchers in other educational situations across the world.

In the second article, Akinola, Afolabi, Afolabi and Dike examined the impact of COVID-19 pandemic on teacher education programs in Nigeria and justified the inevitable need for integrating technology into teacher programs. It also identified the challenges of technology utilization in teacher education programs in that critical moment.

The third article also relates to educational practices and preparations during the pandemic period. Christian, Lampley and Lampley claimed that the global COVID-19 pandemic invited first-year teachers to a unique lens of university and local school learning experiences during their transition from student teaching to full time positions. In concluding their study, they recommended the identification of guidance for educator preparation programs to include trauma-informed practices in the course contents.

The study by Maleta, Lora-Kayambazinthu, Kambewa and Chigeda assessed the effect of early nutrition supplementation on children's reading ability in Malawi. The findings of the study confirmed that early nutrition supplementation explains variations in the children's reading performance. The policy implication from the findings calls for the domestication of reading curricula and leveraging the children's nutrition to sustain reading gains.

The articles selected for publication in this issue have displayed educational planning issues worldwide, from the United Kingdom to Australia, Bangladesh, Nigeria, Malawi and the United States. Because of the difference in culture, these planning issues have their unique characteristics posing different challenges to educational planners. We all can learn from how these planning problems are handled from a global perspective.

Editor: Tak Cheung Chan

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August, 2023

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EDUCATION 2040: CURRICULAR, PEDAGOGIC, STRUCTURAL AND OTHER IMPLICATIONS OF LETTING THE LEARNERS LEAD

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ABSTRACT

Contemporary technology, along with the tangible/virtual duality of present-day learner consciousness, are, in the authors' opinion, necessitating and enabling a fundamental educational transformation. A central feature of this development will be 'letting the learners lead', including (from secondary onwards) their identification of the content of their curriculum. This paper considers how this pedagogical innovation might operate in practice.

Nine United Kingdom (specifically South Wales) senior secondary students were invited to decide what they would "like to learn in the coming academic year". The group then explored how their agreed set of subjects (including, for instance, Sign Language; History of Coal Mining in My Locality; Mental Health and Me; Being Ready for the Next Pandemic; Pantomime...) might best be learned. These approaches and findings were shared with, understood by, and generally supported by a group of upper secondary school students in Australia and, to a lesser extent, by another group in Bangladesh. Dialogue with a small number of professors and other United Kingdom professionals also took place.

The tentative conclusions and implications are that (a) university entrance requirements are predominantly aimed at student selection rather than at covering necessary pre-tertiary knowledge; (b) if, somehow, the competitive element – including the allocation of grades – could be eliminated, then giving learners the opportunity to shape their curricula becomes feasible; (c) letting the learners lead is seen (by a sample of them) as realistic and (with some reservations) desirable; (d) much of this learning would involve on-line research through the confident utilisation of familiar devices and systems (i.e. how 'non-school' information is now acquired); (e) there would also be on-line and face-to-face discussions with experts and practitioners; (f) teachers, with radically restructured roles, could offer valuable coordination and encouragement; and (g) the school as 'place' (as opposed to 'process') may wither away as the transformation proceeds. The authors are keen that their provisional findings should be tested by educational planners and researchers in other educational situations across the world.

INTRODUCTION

Made necessary and feasible by information and communications technology, reflecting the duality (tangible and virtual) of contemporary consciousness, and exacerbated by COVID, education is beginning to undergo a fundamental transformation (Douse & Uys, 2020a). This revolution is epitomised by the notion of 'letting the learners lead' (Douse, 2021), from the secondary stage onwards, with significant implications for curriculum (Douse & Uys, 2018a), digital age consciousness and online learning (Douse & Uys, 2019a), pedagogy (Douse & Uys, 2018b), the

teacher (Douse, 2022), educational technology (Uys & Douse, 2022), educational planning (Douse & Uys, 2020b), educational psychology (Douse & Uys, 2018c), education and equity (Douse & Uys, 2019b), and other aspects and components of evolving education worldwide.

This study's purpose is to explore what form those implications – notably that of letting the learners lead – might take. It is based upon our encouraging a group of senior secondary age learners to discuss what they might choose to learn, were the opportunity for them to make such decisions available. Would these young people wish and be able to break away from current perspectives and agree upon alternative curriculum content? Would this have 'face validity' or would it appear unworkably radical and who would be entitled to judge? What would other senior secondary learners far beyond South Wales think of these efforts and of their outcomes?

The lead author who has dedicated himself to facilitating genuine learner-led discussions without consciously imposing his own views upon the participants believes that, in comparable conditions and given similar challenges, groups of learners of similar ages and stages might well have responded in parallel ways. It is hoped that other educational planners and researchers will test that belief in various environments across the world.

BACKGROUND

Giving learners increased control over what and how they learn is a longstanding educational objective, albeit varying widely in intention and detail. For example, within the intellectual ferment at the turn of the 20th century, and inspired by educational thinkers such as Maria Montessori and John Dewey, Helen Parkhurst (1922) created the Dalton Plan aimed inter alia at “promoting each student's independence and dependability... pupils work at their own pace, and receive individual help from the teacher when necessary. The underlying aim is to achieve the highest mental, moral, physical and spiritual development of the pupil” (p. 5-6). This Dalton Plan, with various refinements, is still practised in a small number of schools across a large number of countries.

Several recent initiatives directly involve learners in deciding upon what is to be learned and on driving the curriculum. For example, Hamilton (2018) vividly describes an initiative wherein 180 fifth and sixth graders at a Philadelphia, USA school “defined their own curriculum for the remainder of the school year” establishing that “students can learn by reflecting on themselves and by reflecting with their peers” (p.2), with teachers creating structures for students to research and discover... students want to explore questions and topics they care about and see as important”. In this instance, they came up with: War, Civil Rights, Freedom, and Changes Over Time.

Even more recently, Shelby Scoffield (2023) invited her sophomore students to tell her “what they needed to do to demonstrate mastery of the California State English Language Arts standards... create their own six category rubric, each with criteria that could be classified into four levels of proficiency: advanced, proficient, basic, and not yet... (then) create a project that demonstrated mastery of each of the standards listed in the rubric” (p.1). Scoffield reports that “students were engaged and enjoyed the learning process... student scores exceeded expectations... I have learned to get rid of assignments to focus on how I can help students master the standards in ways that will fully engage them in the process” (p.2).

More generally, Anderson (2016) reports that “in elementary schools, we train kids to be teacher-pleasers. In middle school, we teach them how to jump through hoops to get grades, and by high school, they have learned how to simply comply to get by” (p.3-4). To combat this, he advocates student ownership of work, extending to helping them learn how to choose well. This goes further than the very many – and often successful – initiatives in student-centred learning (O’Neill & McMahon, 2005), wherein the curriculum is geared, by teachers and others, to respond to their notions of the needs, interests and aspirations of the learners, involving “self-directed learning (with) learning outcomes focusing on what the student will be able to do rather than on the content covered by teachers” (p.2).

Not every call for wider and improved participation in curriculum development activities advocates a role for learners. For instance, one comprehensive investigation (Mkandawire *et al*, 2019) concludes that “all key stakeholders including student teachers, practicing teachers, curriculum specialists and those aspiring to be teachers... curriculum specialists as leaders of curriculum development and review” are the right people to ensure how curricula should “be changing to address the fast changes in human evolutionary and revolutionary developments” (p.8). In their defence, they cite Paulo Freire’s (2014) call for the general public’s participation in curriculum choice and review “so that education is designed to optimally serve the core interest of the general public” (pp. 17-19). We see it, reflecting the dynamics of this digital age, as properly and, indeed, inevitably serving the interests and aspirations of the learners, and as defined by them. That being the focus of this research.

METHODOLOGY

Nine secondary students, four boys and five girls, aged 16 (and in two instances 17) years, in attendance at nine different schools in and around Cardiff (extending to Pontypridd, Aberdare and Brecon) all within South Wales in the United Kingdom, volunteered to take part in discussions addressing *if it were up to me, what would I like to learn in the coming academic year*. This is an approach successfully applied by the lead author, in various settings, for over half a century, for example in Douse, 1972.

The outcomes of these discussions were then supplemented by separate meetings between the lead author and four senior university faculty members – one in each of medicine, engineering, law and accountancy – addressing *what a student needed to ‘know, understand or be able to do’ before commencing a first or bachelor’s degree* in that subject. At least one of the nine students attended those four discussions which took place at Cardiff University (two), University of South Wales Treforest, and Cardiff Metropolitan University. The group of nine students had an opportunity to review a draft of this paper – a few minor suggestions were made and each of these was accepted by the authors and incorporated. This entire process took place between April and August 2022: lockdown had ended but the restrictions of – and online possibilities evolving during – the COVID months were in all participants’ minds.

In November 2022, this process was described to a class of senior secondary students at an independent school in Australia, who were invited to determine what they would *like to learn in the coming academic year*. They were then given the South Wales group’s subject list and an open discussion then took place. A similar activity took place at a secondary school in Bangladesh in December 2022, involving eighteen Year 11 students. These two ‘validation exercises’ each occupied

a double lesson (some ninety minutes) and, in terms of depth of treatment, was far less thorough than the original South Wales discussions and visits, which occupied some twenty hours for each young learner spread over some six weeks (excluding the subsequent meetings with professionals plus a final get-together in August).

‘WHAT WE WOULD WISH TO LEARN’ – AND HOW?

After much discussion (and some healthy disagreement), the group of learners reached a ‘working consensus’ on what they would like to learn during the coming academic year, leaving aside the requirements of universities, professional bodies and employers for particular competencies as demonstrated by examination results (as addressed below). Not all of the learners wished to study all of the agreed ‘subjects’ but there was general agreement that this set comprised a workable menu from which each individual might choose at least seven. For present purposes, that was regarded as a reasonable compromise and the group then addressed how each of the ‘subjects’ might best be learned, as now summarised.

Many early contributions to the discussion were grounded in the current context of General Certificate of Secondary Education (GCSE) subjects including the need to study a language. The possibility of that language being Welsh was attractive to three of the group (one presently attending a Welsh-language school) but others resisted, sometimes strongly. Once **Sign Language** was mentioned, there was almost immediate approval and the discussion moved on to how best proficiency might be acquired. Deaf students (and, in one case, a family member) could readily be identified and it was agreed that one or more of these could be met with at the outset, and then this group could practice together – making use of available online guides – and reaching competence in terms of being able to communicate to a high level. After some discussion it was unanimously agreed that the standard should be British (as opposed to Welsh) sign language and that specialised societies could be approached for advice, support and standardised assessment.

There was also an initial belief that learners of this age should study some history, narrowing in discussion to local history, and eventually focussing on *History of Coal Mining in my Locality*. While there are no longer any working pits in this region, there are mining museums and records of all kinds ranging from video clips and films to memoirs and novels. Former (albeit aging) miners could be met, along with historians of Welsh mining, and, perhaps working in small groups, histories of particular mines, of the miners’ union, and of the industry generally, could be developed. All group members were quite excited by this possibility and (as with one or two other hypothetical subjects) were keen to commence their research straightway!

While possibly talking about their own challenges, all group members knew ‘someone’ suffering from depression or related conditions. It was agreed that this subject should be entitled *Mental Health and Me* and no-one opposed this being on the subject list. Where there was division was in relation to how this could be studied in a practically effective way: a ‘good young and sympathetic teacher’ might suffice, some felt, while others believed that a ‘series of sessions with a professional’ would be needed. Given guidance and a reading list, including online sources, might, some considered, be the way to go about it. This matter was never entirely resolved.

In relation to mental health, and to some other subjects, the issue of extracurricular activities was raised: ‘the school’ is a focus for sport and a range of interests such as music, drama, debating and service clubs including mountain rescue and ecological organisations. Rather surprisingly

(to the authors) there was some feeling that the school was not always the right centre for these activities: “If you want to play football, join a local junior team... for music, there are church choirs and choral societies... join the scouts and guides if you want to... if you’re serious about chess, you’ll be welcome at the local club”. Limited funding and possibly a decline in teacher morale may well have reduced the school’s role in activities outside the classroom. Nevertheless, this is a major factor in what a traditional UK school may offer and it requires further research.

As already mentioned, COVID-19 was still very much in evidence as these discussions were taking place. There was a recognition that the United Kingdom, and the rest of the world had been caught unprepared and that an important and interesting area of learning would be *Being Ready for the next Pandemic*. There was a belief that, after meeting some health professionals, the group could plan an investigation: as with many ‘subjects’, initial sources of information – articles – organisations and experts – are readily available on the internet and all group members are adept at handling this form of research. What might evolve could be a ‘report, agreed by all of us, to be submitted to local MPs including the Health Minister’.

A love of and an interest in household pets was common amongst the participating students and this led to a wish to learn about a particular breed of dog (a minority preferred cats) and it was agreed that this should be *Border Collies* (very common in Wales, traditionally a working sheepdog but now also a family pet). The intention would be to know about them – the history of the breed, numbers and geographical spread, performance in shows, mentions in literature – and how best to care for them. Here again, the internet offered a clear way forward: three border collie associations, several kennels in South Wales, and veterinary services – all readily identified.

Some students wished to include a Shakespeare play, as is required by present public examination specifications. Others disagreed, though still feeling that there should be some form of drama content, whether it be studying a modern composition, or basing investigations around theatre visits, or actually writing, producing and performing an original play. Once the subject of *pantomime* was suggested, a host of ideas were put forward: reading up about it, going to see one or more of them (Aladdin in Cardiff and Dick Whittington in Newport), meeting the actors and others involved backstage, performing an extract for fellow-students and families. All group members were ready to research the extensive origins and traditions of panto, covering, for example, cross dressing, topical references and audience involvement – going much further than the contemporary treatment of a prescribed play.

The theme of *Going on Strike* was very topical during the time of these discussions with postal, transport, medical, legal, teaching and several other groups of workers withdrawing – or threatening to withdraw – their labour. It was agreed that two or three case studies could be carried out, starting from the basic employment, conditions and legal situation, through to the consequences of striking, the negotiations, public opinion, and the eventual settlement, or lack of. Group members would study media coverage and, between them, meet with strikers, employers, union organisers and affected members of the public (possibly including a survey). Attention could also be given to the legal position and the history of labour withdrawal, South Wales having been the cradle of unionism and strike action.

Given a shared interest in computer gaming, it was agreed that one contemporary game deserved to be included and *Halo Infinite* was nominated. Initially, the course would involve no more than “getting good at it through playing it and discussing it afterwards, like we now do with rugby” but, after discussion, it was recognised that looking at the development of gaming, and the

marketing of products (Halo Infinite was the 2021 ‘game of the year’; it will soon be outdated) and the gaming industry should be explored, covering also the skills involved in creating this kind of game. But, basically, as one student put it, “we will compete between ourselves getting better and better scores, learning a few other things as we go”.

All students were committed to green causes (two had been on demonstrations) and so a course in this area was likely from the outset. Once the implications of Russia’s invasion of Ukraine started to be felt, the subject *Phasing out Oil and Gas* was identified. It was recognised that this was a massive area of study and that it would be difficult to remain objective. Here and elsewhere, there was some feeling that a ‘teacher’ could lead them through the magnitude of political arguments, scientific and non-specialised articles and statements by environmentalists and fossil fuel companies – but it was also agreed that “not all teachers would be able to do this impartially (and) without taking over our research”.

The possible inclusion of *Veganism – a Plant-Based Diet* was contested. While there was a willingness to learn about it, only two students were in favour of trying it out in practice. While clear ways of researching the subject were apparent – internet information supplemented by discussions with practitioners, and possibly with at least one opponent – for the moment this area of study was placed upon the ‘reserve list’.

Of the traditional secondary school subjects, only *Mathematics* was advocated for inclusion in the set of ‘what we would wish to learn’. Once its function as a requirement for advanced study had been cleared from the group members’ minds – and that was not easy – the value of it, in itself, and – for a few students – the fascination with mathematical games and puzzles became evident. Another challenge was that, across the nine students, there was a great difference in mathematical achievement, two or three racing ahead and “very seldom needing a teacher... we can help one another when we get stuck” while others are pleased to put the subject behind them. Another for the ‘reserve list’ or, possibly, an ‘optional’.

The subsequent finding regarding a knowledge of *Chemistry* being regarded as essential for admission to medical and related university programmes (see below) was given attention by three group members, in informal discussion after a relevant meeting (again, see below). Neither they, nor to their knowledge any of the other six, were interested in becoming doctors nor, indeed, in studying science subjects at the tertiary level. They reminded this paper’s lead author that they had been asked to decide what they would like to learn during the coming academic year, leaving aside the requirements of universities, professional bodies and employers. “If I intended to become a medical professional, or a scientist, then those subjects would be included in my list – I don’t and they aren’t” summed up the discussion. This paragraph in common with the entire draft version was subsequently checked by the entire group and remained unchanged.

VALIDATION BEYOND SOUTH WALES

The 19 members in a class of senior secondary students at an Australian independent school responded enthusiastically to the invitation to determine what they would *like to learn in the coming academic year*. After 45 minutes they were given the South Wales group’s subject list and a lively and largely positive discussion ensued. They chose a contemporary Australian play rather than pantomime, preferred blue heelers to border collies, and liked the idea of learning an aboriginal language as well as or instead of Australian sign language. Other South Wales subjects,

including being prepared for the next pandemic, veganism and mathematics were fully accepted, while Australia-focussed considerations of energy, and of labour laws, were advocated. ‘Australia as British’ was a proposed subject and others were hinted at although not detailed in the time allowed. More generally, it was clear that this group of young people understood and were sympathetic to the general idea of ‘letting the learners lead’.

The 18 Year-11 students in a secondary school in Bangladesh were initially less responsive than were those in Australia, finding it very difficult to move away from existing university and professional entrance requirements, and from ‘getting a good grade’. Until the South Wales list was revealed to them, their creativity had been limited to suggesting minor changes to existing curricula, such as allowing laptops to be used in exams or making computer studies compulsory. However a lively discussion on some of the subjects, such as ‘Mental Health and Me’ and ‘Being Ready for the Next Pandemic’ took place indicating that, once the examples had been seen, the general idea was now understood. ‘Pantomime’ had to be explained and, then, the idea of including traditional Bangla theatre was agreed to, along with the idea of studying ‘Sylheti Nagari’, a local language. ‘Tea Growing’ could readily replace ‘Coal Mining’ in this locality and the inclusion of ‘Mathematics’ was unanimously endorsed. When asked how feasible was ‘letting the learners lead’, most of the class felt that it was “a good idea but not likely to happen”. However, when asked “in the year 2040, should senior secondary students like you be able to choose what to study?” the entire class voted ‘yes’.

UNIVERSITY ENTRANCE REQUIREMENTS DISSECTED

An analysis of several United Kingdom *medical* faculties’ entrance requirements showed that A level Chemistry was a constant prerequisite (see above) while some but not all universities also required grade A level Biology, with some schools preferring a third related science subject. Specifications such as “(grades) AAA including Chemistry and one from Biology, Maths or Physics, and one other subject” make clear that, apart from Chemistry, no one of these is regarded as essential. In addition to the different A level requirements, it is necessary to have “at least five GCSEs (A-C) including science, English, and maths”, while some universities offer special arrangements (such as a ‘foundation year’) generally aimed at those who come from disadvantaged backgrounds and or from families that do not have a tradition of entering higher education.

A former professor of medicine reported that

all of these entrance requirements boil down to an intense process of competition. Certainly there is a genuine need for first year medical students to know their chemistry plus some basic biology – the ability to ‘think scientifically’ is at the heart of it. We expected them to have done some experiments but, most of all, they need good grades. I have come across a mature student with no science at all beyond O levels, but excellent A levels in arts subject: we simply gave her the A level chemistry textbook and she joined the course two months later and kept up with everyone else. Excellent marks and a good impression at interview are the main requirements: everything else can be sorted out later.

Engineering is not quite so specifically demanding, in terms of gaining entry, as is Medicine, with A-level grades AAB all the way down to BBC being specified, typically “including Mathematics

and a second science from Biology, Chemistry, Computing, Economics, Electronics, Environmental Science, Geography, Geology Human Biology, Statistics, Further Mathematics and Physics”. One prestigious university requires “A*AA to include Mathematics and Physics (but not) General Studies and Critical Thinking”, while a less prestigious one will accept “(grades) BBC to include Mathematics and Physics or Technological Studies”. A successful civil engineer who teaches part-time at a South Wales university observed that:

students usually know they're going to go for engineering from around GCSEs and choose the same set of A-levels that they'll go on to do at university. They really must have maths and I'd advise physics and computer sciences – if they don't have those subjects, they'll have to catch up in year one. Unlike most other disciplines, an engineering degree is a continuation of what they were doing in their last years of school.

As far as becoming an *Accountant* by means of a university degree is concerned, a wide range of advice regarding A-Levels is available, with Accountancy itself, Mathematics, Business Studies, Economics, Further Maths and a Science subject all being suggested. However, different universities specify differing requirements and, indeed, it is possible to enter some degree programmes with only A-level Arts subjects (such as English, History and French). A recently retired chartered accountant and long-term Association of Chartered Certified Accountants (ACCA) lecturer commented that

a school leaver may find work in an accountancy firm and take the professional qualifications part-time or else obtain a degree and get exemptions. Either way, he will find it difficult if he isn't at home with maths and, of course, with computer technology. If you have those basic skills – if you like dealing with numbers and the ideas behind them – it doesn't really matter what A-levels you did or didn't do.

Obtaining admission to a *Law* school is highly competitive but with limited requirements for particular A-levels. As one lawyer¹ puts it:

Students who want to take law are often told to study the likes of English literature and law at A-level, but I personally think people should study what they enjoy doing and are good at. Law students don't have to study law beforehand. I think English and history probably help in the sense that they refine your essay writing skills. My essay writing skills needed work when I got to university, but I caught up in the end!

And, as widely proclaimed on the UK's Open University's sites, advertisements and documents,

Most of our courses [Arts and Humanities, Science, Business, Social Sciences et cetera] have no entry requirements but there are some learning skills you need to be successful.

Entering the world of work directly from school is likely to require (a) *trainability* – a readiness and a capacity to acquire specific skills – and to upgrade those and acquire fresh proficiencies on lifelong bases; and (b) what are referred to as *soft skills* such as communication, teamwork, problem-solving, time management, critical thinking, decision-making, organisational competencies and stress

¹Anke Batty, quoted at <https://www.theuniguide.co.uk/advice/a-level-choices/what-a-levels-do-you-need-to-study-law>

management. The students' identification of 'Mental Health and Me' suggests some awareness of these kinds of requirements.

CONCLUSIONS

After some initial hesitation, a small group of senior secondary students accepted the notion of their being able to determine what they should learn, and how it should be learned, and came up with an agreed set of subjects for them, for the following academic year, with, in the authors' opinions (and of those of some students in Australia and Bangladesh), a reasonable level of face validity. Taken together, the agreed subjects were, we feel, interesting, challenging, original and realistic.

The conventional school, with required attendance in teacher-led classrooms, for, say 36 hours per week for, say, 41 weeks per year appears to be an entirely inappropriate response to the bulk of learning preferences of those senior secondary learners. The authors' earlier notion of seeing the school as a process' rather than a 'place' (Douse & Uys, 2020, p.13) is reinforced here. It may be concluded that this small-scale study reinforces earlier work in this area (as summarised above) to the effect that students, suitably primed, can make sensible decisions on what they wish to learn, and on the (far from conventional) support needed to enable effective and enjoyable learning.

DISCUSSION

It became clear, through their agreed set of subjects, that we do our students a serious disservice if we treat them primarily as future adults. It is primarily what they "are" rather than what they may "become" that is significant – and that realisation is what educational planners and policymakers should consider in the first instance. Education is not exclusively (nor even predominantly) a preparation for a career, nor for citizenship, nor for life in general but it needs to be – and be recognised as – relevant at the point of learning.

The question of selection looms large. Examination performance provides the major criteria for student selection and learners aiming for popular programmes at prestigious colleges must perform well in A-level subjects, often of no particular relevance to their university courses. While deploring this state of affairs, we recognise the challenge involved in enabling selection panels to operate effectively in the context of learners determining what they should study. Perhaps planners might consider how a portfolio of subjects studied could be part of the selection process, although choosing what to learn in the shadow of what might help get you in to a particular programme is very much against the spirit of 'letting the learners lead'.

If feasible, the Open University practice of self-selection might be utilised as widely as reasonable, although it might be difficult to apply this to, say, medical and related subjects (where a knowledge of chemistry is generally regarded as an essential pre-requisite), along with some science, technology, engineering and mathematics (STEM) programmes (where there is a continuity in the study of mathematics and science subjects between school and university). This requires further exploration on the part of educational planners and decision-makers.

It may be noted that the South Wales group (and, as far as became clear in the limited time available, the Australian students) did not want their work to be *marked or graded*, although "constructive feedback might be valuable". Certainly, each member of the group of nine was strongly

opposed to their contributions in each subject being ordered (“you came top... you came bottom”) but there was a (contradictory?) feeling that there needed to be some official confirmation that this work had been completed satisfactorily: more for the individual learner than for any external purpose. This uncertainty relates also to the appropriate role of ‘the teacher’ in the transformed learner-led educational situation.

In South Wales, this exercise involved a ‘*teacher-figure*’ who assembled the group, set the scene, facilitated and encouraged the discussions, and recorded (as objectively as possible) the outcomes. If this arrangement became the norm, and if all learners had been prepared for it during their primary years, that teacher-figure’s organisational role would, if not wither away, at least significantly diminish. However, as readily recognised by the nine students, teachers would still be needed, relied upon and valued for key guiding and facilitating (but not leading, assessing or punishing) roles.

Essentially, this involves a very different kind of teacher, from the secondary stage onwards, and lifelong, enabling and encouraging learning but no longer organising it. We foresee teachers coming into their own as concierges and facilitators of learning, and as escorts to wisdom, deserving and receiving widespread respect and [“...far fewer but much more effective and substantially better rewarded” – see Douse, 2022, p.15]. Educational planners, policy makers and, indeed, teachers’ unions and professional bodies might well give attention to this forthcoming transformation, ensuring that these higher-level responsibilities are recognised and accomplished to the optimum benefit of teachers and learners.

While the empirical work was carried out in the United Kingdom, and to some degree verified in Australia and Bangladesh, it is reasonable to suppose that comparable (but not identical) kinds of subject areas, and general acceptance of the transformed process, would emerge were similar secondary student discussions set up and supported elsewhere across the world. It would be interesting to receive and compare the results of such initiatives in various locations: in those countries whose learners obtain the highest PISA scores, for example, or in low-income developing countries. The authors are ready and keen to co-operate with other researchers and educational planners interested in assessing the likely consequences of letting the learners lead.

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²While Mike Douse organised that activity and chaired the discussions, the actual authors were eight secondary school students. They were named in that publication, leading to some unpleasant consequences, and so it was subsequently agreed that young learners’ names should not appear in reports of that nature – and this is the practice being applied in this present exercise.

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INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGY INTO TEACHER EDUCATION PROGRAMME DURING COVID-19 PANDEMIC ERA IN NIGERIA

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ABSTRACT

Teacher education in Nigeria today is highly recognized as the foundation of the nation's educational system, which contributes significantly to the development of other sectors in the nation's economy. The COVID – 19 pandemic outbreak in Nigeria in the last twelve months has adversely affected teacher education programmes in Nigeria leading to suspension of academic and research activities in the institutions as a result of nation-wide lock down for seven months. This study specifically focuses on how Nigeria aims at achieving a buoyant and efficient economy and accelerated transformation through the production of high quality and well-motivated teachers for all levels of education by integration of Information and Communication Technology (ICT), into teacher education programmes. The study examined the impact of COVID-19 Pandemic on teacher education programmes in Nigeria and justified the inevitable need for integrating ICT into teacher education programmes. It also identified the challenges of ICT utilization in teacher education programmes in Nigeria. It was recommended among others that the stakeholders must endeavour to provide the teacher education institutions with modern ICT tools and facilities for effective teaching, learning, conducting research and dissemination of information in the institutions, so as to achieve the lofty goals of teacher education in Nigeria.

INTRODUCTION

Teacher education is accorded high recognition in Nigeria, as the foundation of the nation's educational system, which contributes significantly to the development of other sectors in the nation's economy. As succinctly remarked by Afolabi and Loto (2014), teacher education constitutes the root of the educational system that supports and nourishes all other parts of the system. If this root is destroyed or not given prominent attention it deserves, the educational system in all its entirety will collapse and consequently development and growth in all the sectors of the economy will remain standstill. Also, Afolabi (2016) affirmed that teacher education equips the individual with relevant knowledge, skills and attitudinal orientation required to forge ahead in one's chosen career in life and contribute to the economic growth of the nation. It also helps in building, improving and integrating the nation's socio-cultural values that pave way to national development. The importance of teacher

education in Nigeria is further re-echoed in the National Policy on Education (2014). It is explicitly stated in Paragraph 70 of the document that, since no education system may rise above the quality of its teachers, teacher education shall continue to be given major emphasis in all educational planning and development.

The services of teachers to a nation are very crucial, for they are more than any professional group that influence the lives of the entire citizenship and the nation's future. The high quality teachers produced by various institutions running teacher education programmes in Nigeria would undoubtedly utilize their acquired knowledge, skills and attitudinal values to train and develop high level of manpower in various disciplines such as medicine and surgery, pharmacy, nursing, agriculture, science and technology, banking and finance, law, engineering, accountancy, architecture, marketing, insurance, business administration and other fields of study required for the socio-economic and technological emancipation of the nation. A nation that aims at achieving a buoyant and efficient economy and accelerated national development must improve the quality of her labour force through the efforts of highly motivated professional teachers, who are proficient in Information and Communication Technology utilization at all levels of education. Buttressing further the importance of teacher education in Nigeria, Adamu and Afolabi (2015) maintained that:

The pursuit of teacher education is highly essential for any nation that places high premium on the maintenance of its independence, sovereignty, political stability and economic buoyancy, as quality education constitutes the heartbeat of manpower development and training for socio-economic and technological emancipation of the nation and for prudent use and sustenance of resources in nation building.

In recent times in Nigeria, various education stakeholders have been placing high premium on the inevitable need for quality teacher education programmes. Adesina (2005) maintained that “the quality of education in any country is related to the quality of the man and woman who serve as teachers in the school system.” Quality assurance in teacher education focuses specifically on the issues of relevance, effectiveness, efficiency, validity and functionalism. Ciwar (2005) affirmed that quality assurance in education has to do with setting standards for various processes and activities that lead to the production of graduates by the training institutions. The Third National Development Plan re-echoed that the quality of the teaching staff constitutes one of the significant determinants of educational standards at all levels in Nigeria. Also, Osarenren-Osaghae and Irabor (2018) declared that the training and production of the manpower required to fulfill the task of national development should be framed on the quality and quantity of teachers. Thus, quality assurance in teacher education entails that its contents are quite suitable, functional, valid, relevant, efficient and of high standards. The need for quality assurance in teacher education could be attributed to the inevitable need to produce self-reliant and nationally acceptable graduate teachers from various teacher education institutions that adhere strictly to the minimum standards of operation prescribed by the supervisory and regulatory agencies such as National Universities Commission (NUC), National Board for Technical Education (NBTE), National Commission for Colleges of Education (NCCE), and Quality Assurance Units or Departments of Federal and State Ministries of Education.

In spite of the stakeholders' commitment to quality assurance in teacher education programmes in Nigeria, it is, however, disheartening that teacher education has been susceptible to various challenges of COVID – 19 pandemic, that has been ravaging the country in the last twelve months. The COVID – 19 pandemic has not only threatened the quality of teacher education programme, but has also been a hindrance to effective implementation of the lofty goals of teacher education in the country. As man's socio-economic, moral and political advancement depends on

the teachers, who are potential liberators of people from ignorance, fear, misunderstanding, disease, conflicts, wars and famine, there is inevitable need to revisit the teacher education policy, towards ensuring proper integration of information and communication technology (ICT) into the teacher education programme. The quality of professional development of teachers depends greatly on the extent of ICT integration into teacher education programme. Teachers and students access knowledge and information through Internet, cable network, digital media, television and social media such as Twitter, Whatsapp, LinkedIn, facebook, Igo, Line, Wechat and so on.

Information and Communication Technology (ICT), according to UNESCO (2002), “is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters. Integration of ICT into teacher education entails the incorporation of computer based communication into daily classroom instructional processes. According to Baishakhi and Kammal (2016), ICT is very important for pre-service teacher education programme in the 21st century. Without proper knowledge of ICT, a teacher cannot perform in his or her classroom. Also, Ghavifekr and Rosdy (2015) affirmed that integration of ICT will assist teachers to the global requirement to replace traditional teaching methods with a technology-based teaching and learning tools and facilities. Thus, ICT provides the complementary support for both teachers and students that involves effective learning with the assistance of the computers to serve the purpose of learning aids.

The use of ICT in the classrooms in the teacher education institutions in Nigeria signals a shift from the conventional position of power held by the teacher, to a more collaborative approach to learning, as computer based activities allow the teacher to assume the role of facilitator, while the students take on an increasing responsibility for their own learning. Bakare (2016) declared that teacher can use a range of teaching tools such as discussion boards, forum, e-mail, raps, web, videos and digital photography, e-movies and even mobile phones as tools for delivery of class programmes. It is quite apparent that the use of ICT in teacher education institutions will go a long way in overcoming the challenges of COVID – 19 pandemic on teaching, learning and conducting researches in the institutions and also paves way to the desired transformation in the country.

OBJECTIVES OF THE PAPER

The specific objectives of this paper are:

- (a) To critically examine the impact of COVID – 19 pandemic on teacher education programmes in Nigeria.
- (b) To explore the rationale for integrating ICT into teacher education programme particularly during this COVID – 19 pandemic era in Nigeria.
- (c) To identify the challenges of ICT utilization in teacher education institutions.
- (d) To set up a model of integrating ICT into teacher education programme in Nigeria for quality assurance and overcoming COVID – 19 pandemic challenges particularly on teaching, learning and conducting research in the teacher education institutions.

VISITING THE TEACHER EDUCATION POLICY IN NIGERIA

Teacher education can be defined simply as a specialized programme of study aimed at equipping prospective teachers with the knowledge, attitude and skills they require to perform their tasks

effectively in classroom and wider society. Before exploring the implementation of ICT in teacher education, it is deemed pertinent to have a cursory review of the concept of teacher education in Nigeria.

The Goals of Teacher Education in Nigeria

As explicitly stated in the Sixth Edition of the National Policy on Education (FRN, 2014), the various institutions pursuing teacher education in Nigeria must focus on accomplishing the following goals of teacher education in Nigeria.

- (a) To produce highly motivated, conscientious and efficient classroom teachers for all levels of our educational systems;
- (b) To encourage further the spirit of enquiry and creativity in teachers;
- (c) To help teachers to fit into social life of the community and the society at large and enhance their commitment to national goals;
- (d) To provide teachers with the intellectual and professional background adequate for their assignment and make them adaptable to changing situations;
- (e) To enhance teachers commitment to the teaching profession.

Activities Specified towards Achieving The Lofty Goals of Teacher Education In Nigeria.

The various institutions running teacher education programmes in Nigeria should aim at achieving the goals of teacher education through effective performance of the following functions as specified in the National Policy on Education (2014):

- (a) Teaching;
- (b) Research and development;
- (c) Virile staff development programmes;
- (d) Generation and dissemination of knowledge;
- (e) A variety of modes of programmes including full-time, part-time, block release, day-release, sandwich and so on.
- (f) Access training funds such as those provided by the Industrial Training Fund (ITF);
- (g) Students Industrial Work Experience Scheme (SIWES);
- (h) Maintenance of Minimum Educational Standards through appropriate agencies;
- (i) Inter-institutional cooperation
- (j) Dedicated service to the community through extra-mural and extension services.

It is no gainsaying that the lofty goals of the teacher education in Nigeria would be effectively accomplished if ICT is fully integrated and properly administered in the teacher education institutions. ICT has paved way for better and quicker communication, effective presentation of learning materials to students, and unbiased assessment of students' learning outcomes. ICT serves as an effective tool for information acquiring as students are encouraged to look for information from

multiple sources, thereby making them more informed than before. Thus, ICT is an indispensable tool for achieving the lofty goals of teacher education, particularly in the era of COVID – 19 pandemic in Nigeria.

ICT utilization entails the appropriate use of various ICT tools in facilitating teaching and learning in teacher education institutions. As new trends are emerging in teacher education pedagogy such as Inter-disciplinary Approach, Correspondence courses, Simulated Teaching, Micro-Teaching, Programmed Instruction, Team Teaching and so on, the use of ICT tools will assist greatly in presenting learning materials to students at various locations, thus making teaching and learning easy, highly motivating, interesting, captivating and retentive.

THE IMPACT OF COVID – 19 PANDEMIC ON TEACHER EDUCATION IN NIGERIA

Nigeria is one of the countries affected by the outbreak of the deadly viral communicable disease called Coronavirus disease 2019 (COVID – 19), previously known as 2019 – novel coronavirus (2019 – nCoV). Towards the last quarter of the year 2019, COVID – 19 pandemic was reported from Wuhan, the capital and major business city of Hubei province, China. Within a very short time, the deadly disease spread across the globe with an exponential increase in morbidity and mortality rates. On 11th March, 2020, the World Health Organisation (WHO) declared COVID – 19 a pandemic having met the epidemiological criteria of having infected over 100,000 people in over 100 countries. The first COVID – 19 pandemic case in Nigeria was confirmed in Lagos State on 27th February 2020, from a 44 year old man, an Italian citizen, who returned from Milan, Italy, on 24th February (NCDC 2020).

Since 27th February, 2020, Nigeria has continued to experience an increase in the number of COVID – 19 pandemic cases, which have spread across the 36 States and the Federal Capital Territory (FCT). While majority of the initial cases were imported, most of the new cases have no travel history and are attributed to community transmission. Symptoms exhibited by COVID – 19 pandemic according to Shrikrushina et al (2020), include sneezing, running nose, cough, watery diarrhea, and fever in rare cases, sore throat and exacerbated asthma. To minimize the spread the COVID – 19 pandemic in Nigeria, the Federal Government of Nigeria Centre for Disease Control declared total lockdown in April, 2020, which led to closure of all educational institutions, commercial and event centres and churches and mosques. The lock down policy of the Federal Government has far reaching impact on Teacher Education programmes in Nigeria. These include:

- (a) Suspension of all academic activities in the institutions.
- (b) Research activities were put into a halt due to inaccessibility of researchers to research facilities and equipment
- (c) Suspension of practical-based programmes such as teaching practice, laboratory-based activities and so on.
- (d) Keeping teachers and students at home, engaging only in domestic activities and playing in door games.
- (e) Prevention of physical interaction by placing high premium on social distancing and healthy living.
- (f) Putting all learning environments in the institutions such as lecture theatres, lecture rooms, technical workshops, studios, science laboratories and so on under total lock.

- (g) Keeping students away from using the recreation ground for sporting activities.

RATIONALE FOR INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGY INTO TEACHER EDUCATION PROGRAMMES IN NIGERIA

The emergence and advancement of Information and Communication Technologies (ICTs) have greatly modified the culture of teaching and learning in various educational institutions across the globe. As succinctly remarked by Abidoye (2018), “Advances in ICT have really revolutionized the way we teach and how we learn in many ways; for instance, increasing access to post-secondary institution, improving the availability of educational resources and facilitating meaningful interaction among learners”. The use of Information and Communication Technologies (ICTs) applications enhances an exchange of information between the teachers and learners through the use of various forms of ICT tools such as computers, mobile phones, audio devices, video, radio and television broadcasts and other communication based technology tools. According to Loveless (2011), a positive experience of ICTs in the classroom helps developing students’ self-confidence and confidence in working as individuals and with others, and contributes to the broad quality of their learning.

Current innovations and development in ICTs have increased the level of interactivity and collaborations among teachers and learners. For instance, the web-based learning which is a form of learning largely supported by an Internet browser has greatly helped in resolving the multifarious problems caused by distance between teachers and learners. Web-based learning can be used in imparting knowledge through web-based conferencing, chats, electronic mails, web pages and web board for sharing vital information. Thus, it is therefore deemed pertinent to integrate Information and Communication Technology into teacher education programmes because of the following reasons.

1. In this world of pragmatic and competitive science and technology, teachers in Nigeria should be properly trained in the area of basic Information and Communication Technology with special focus on its application in the classroom to enhance pedagogy.
2. Teacher education constitutes the foundation of the entire educational system. It is highly imperative to produce high quality teachers who would utilize their required knowledge, skills and attitudinal values to train and develop high quality manpower required for the socio-economical and technological emancipation of Nigeria. This requires proper integration of ICT into teacher education programmes.
3. For teachers to serve as potential liberators of Nigerian from conservatism, fear, misunderstanding, diseases, conflicts and famine, they should jettison the traditional methods of instruction and embrace modern instructional strategies which demands the use of ICT tools and facilities. Hence, there is a need to integrate ICT into teacher education programmes.
4. COVID – 19 pandemic caused the closure of educational institution for seven months in 2020 in Nigeria thereby paralyzing academic activities in the institutions. These difficulties could be overcome through proper integration of ICT into teacher education programmes. Students in various locations could be taught effectively through the use of ICT facilities and tools.

5. In order to effectively accomplish the lofty goals of teacher education in Nigeria of producing well committed teachers with high personal and professional discipline, integrity, commendable deamenour and competence for all levels of education in Nigeria, there is a need to integrate ICT into teacher education programmes to assist teachers to the global requirement of using technology based teaching and learning tools and facilities.
6. As teacher education serves as a formidable tool for political stability, economic buoyancy, cultural integration and social reconstruction in Nigeria, ICT should be properly integrated into teacher education programmes to ensure that good standards are set for various processes and activities that lead to production of high quality teachers for all levels of education in Nigeria.

THE CHALLENGES OF ICT UTILISATION IN TEACHER EDUCATION INSTITUTIONS IN NIGERIA

1. The challenge of dwindling allocation of funding to teacher education institutions.

Adequate financial input is crucial to the success of any system of education. The provision of ICT facilities, tools and equipment and procurement of software and other needs is dependent upon availability of funds. Financial allocation to teacher education institutions in Nigeria has been showing a downward trend over the years (Aworanti, 2016).

2. Astronomical increase in the cost of ICT facilities, tools and equipment.

Economic recession in Nigeria coupled with Naira devaluation have inevitably led to increase in the cost of ICT facilities, tools and equipment, particularly the hardware, like desktop and laptop computers, computer printers, overhead projects, and monitors.

3. Prohibitive cost of establishing well equipped computer laboratories and management information centres in the institutions.

It has been an onerous and herculean task for the stakeholders of teacher education to provide modern and well equipped computer laboratories and management information centres in the teacher education institutions. Even most of the institutions lack automated e-libraries stocked with modern gadgets.

4. Irregular electricity supply in the institutions.

The use of ICT for teaching, learning, research and proper dissemination of information requires proper supply of electricity. Ironically, the institutions have been witnessing epileptic power supply over the years.

5. High cost of Internet data and electronic services on server connection.

There has been unprecedented increase in the cost of Internet data and electronic services on server connection beyond what most of the institutions could afford due to paucity of fund in the institutions.

6. Low level of computer literacy among the lecturers.

The use of ICT in teacher education institutions will continue to be an uphill task, if the lecturers are recalcitrant to undergo professional training in computer utilization

in teaching, learning, research, students' assessment, results computation and prompt dissemination of vital information on academic matters.

7. Lecturers' apathy to adopt technology-based instructional strategies.

In spite of the various benefits to be accrued in ICT utilization in teacher education institutions, it is very disheartening that some lecturers hitherto show preference to traditional methods of teaching.

8. Student location and security challenges.

ICT utilization in teaching and learning may be difficult to accomplish, where students could not be well connected due to poor signals from the Internet Servers, as a result of their remote residential areas. Also, students carrying their laptops or Android phones to places where they could receive proper signals are often embarrassed by Nigerian Police as mischievous students who want to make money through Internet fraudulent practices with their laptop computers.

9. Inadequate personnel for ICT training.

As many teachers are now clamoring for ICT utilization in teaching, learning, research and dissemination of information, experts in ICT to train the teachers are grossly inadequate. ICT has many components that require various experts to handle effective service delivery.

10. Maintenance of ICT facilities, tools and equipment: To prevent quick depreciation of ICT facilities, tools and equipment, they must be subjected to regular maintenance and prompt replacement of the faulty ones. Lack of maintenance of their facilities is a serious challenge to ICT utilization in teacher education institutions.

A MODEL ON INTEGRATING ICT INTO TEACHER EDUCATION PROGRAMMES FOR QUALITY ASSURANCE

The model of integrating ICT into teacher education programmes for quality assurance is depicted in Figure 1. The following procedural steps are vividly indicated in the model.

- (a) Enriching the implementation of curriculum of teacher education with technology-based strategies.
- (b) Procurement of high quality and adequate quantity of human, physical, material and fiscal resources required for effective implementation of teacher education programmes in the Nigerian teacher education institutions.
- (c) The ICT tools, facilities and equipment must be prudently utilized and well monitored by the appropriate regulatory and supervisory agencies in Nigeria, for quality assurance.
- (d) Incorporating ICT into teaching, learning, research and dissemination of information on vital academic matters.
- (e) Production of high quality teachers for all levels of education in Nigeria.

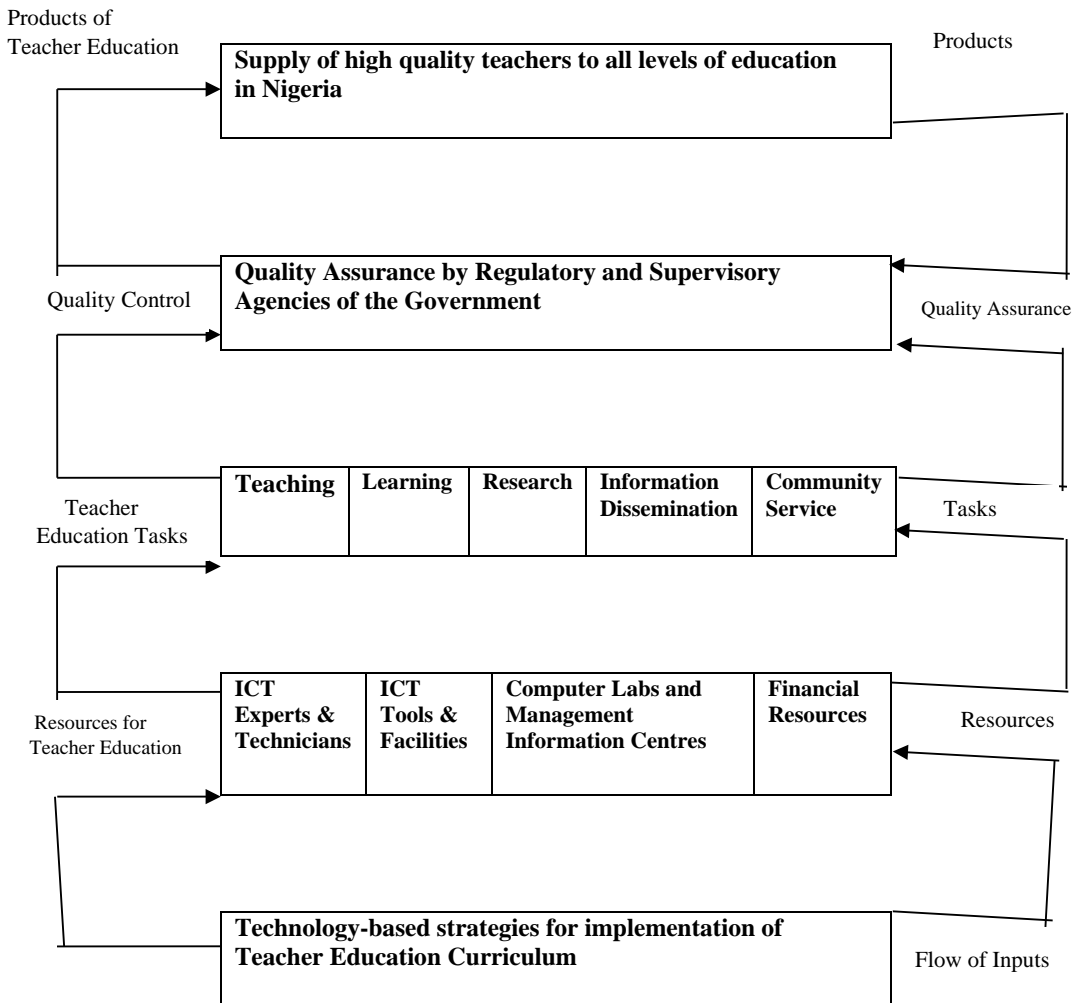


Figure 1: A Model of Integrating ICT into Teacher Education Programmes for Quality Assurance

Source: Akinola, E. T., Afolabi F. O., Afolabi, O. A and Dike, I. D. (2020). Field Work

CONCLUSION

Proper integration of ICT into teacher education programme for quality assurance particularly during COVID – 19 Pandemic era in Nigeria, requires robust funding. It therefore behoves all stakeholders of teacher education in the country to provide all the necessary infrastructural support and adequate fund for teaching, learning, research and dissemination of information in the teacher education institutions. The high quality manpower developed through teacher education would utilize their acquired knowledge, skills and attitudinal values to attain and

sustain economic efficiency, cultural change, social reconstruction and scientific and technological advancement of the nation. However, the training received and skills acquired by these teachers while in the institutions would be a monumental waste if they are not maximally utilized in the service of the nation through gainful employment.

RECOMMENDATIONS

ICT should be properly integrated into teacher education programmes in Nigeria. Every teacher education institution should be mandated to have functional and well equipped computer laboratories, management information centres, and automated e-library stocked with modern learning gadgets. The ICT tools and facilities must be properly powered through uninterrupted electric power supply and well maintained.

ICT utilization in teacher education programmes needs robust funding. Thus, funding of teacher education programmes should be a joint responsibility of the Government, communities, business organizations, non-governmental organisations and the households. It is imperative for the teacher education institutions to persistently appraise their sources of Internally Generated Revenue (IGR) with a view to securing them.

The cost of ICT tools, equipment and facilities is increasing daily in Nigeria due to Naira devaluation. As teachers and students are in dire need of the ICT tools particularly laptop computers and Android cellular phones for teaching, learning, research and dissemination of information, the Federal Government could passionately remove import duties on these ICT tools and facilities.

Regular workshops and in-service training should be mounted periodically for staff in the teachers education institutions on how to effectively utilize ICT in teaching, learning, students' assessment, results computation, web based conferencing, open and distance learning, teleconferencing and dissemination of information on vital academic matters.

The supervisory and regulatory bodies such as NUC, NBTE, NCCE and TRCN must be adequately funded and empowered by the Federal Government and national legislature for effective service delivery.

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HISTORY MEETS A GLOBAL PANDEMIC AND TRAUMA-INFORMED PRACTICES AND PREPARATION

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ABSTRACT

The global COVID-19 pandemic invited first-year teachers to a unique lens of university and local school learning experiences during their transition from student teaching to full time positions. Our study identified changes first-year teachers experienced while transitioning into full-time teacher positions after completing their education preparation programs during COVID-19. Participants (n=8) were from two states; one that incorporates evidence-based trauma-informed training and one that does not. Teachers who had worked in the state identified as an early adopter demonstrated knowledge specific to high-leverage trauma-informed practices while teachers who worked in the second state had little to no knowledge about trauma, the impact to the brain, and inherent connections to positive behavior practices. Recommendations identify guidance for educator preparation programs interested in expanding course content to include trauma-informed practices.

INTRODUCTION

In an increasingly interconnected and digital age, COVID-19 required teacher educator preparation programs to revise student teaching and residency activities in an unprecedented season of change. Overnight many student teachers were supporting instruction through a virtual medium. As university faculty members, we wondered what lessons could be captured from student teachers who completed their student teaching and first-year teaching experiences during the COVID-19 pandemic. To that end, we designed a qualitative study with participants in two states, located in the southern United States, to determine what changes student teachers experienced during the pandemic and as they transitioned into full time teacher positions the following year. This article highlights what we learned from their reflections and proposes recommendations for practice for educator preparation programs and school leaders supporting aspiring teachers in the field. Three themes emerged around teacher preparation experiences (1) trauma-informed practices and preparation, (2) school culture and discipline, and (3) the role of mentors. Trauma-informed practices are a part of an emerging body of research, and we found it insightful to identify and understand how to inform ideas to build capacity around high-leverage practices that support P-12 preparation programs and school leaders who serve as mentors.

REVIEW OF LITERATURE

History Meets a Global Pandemic

There has been a long and rich history of intentional work to design rigorous educator preparation standards that guide institutions through the creation and design of curriculum grounded in research and high-leverage practices (Spring, 2011). The Council for the Accreditation

of Educator Preparation was created in 1954 under the title National Council for Accreditation for teacher education (NCATE) and founded as a non-profit, non-governmental accrediting body. The mission encompassed increasing the value of accreditation while building on the solid foundation of institutional knowledge. In 1997 the Teacher Education Accreditation Council (TEAC) was established and dedicated their work to improving professional learning. NCATE and TEAC recognized the power of collaboration and in 2010 introduced an innovative idea to design a new accrediting body called the Council for the Accreditation of Educator Preparation (CAEP). Since 2013 CAEP supported universities through the process of assessing and designing innovative learning experiences through their standards focused on the mission to ensure university educators are providing future teachers and administrators with knowledge and skills to advance the development of all students (CAEP, 2023).

Following the global crisis in the spring of 2020, many universities and school districts adjusted traditional school experiences to virtual learning experiences overnight (Glanz 2021; Superville, 2021). There was a clarion call in March from the World Health Organization (WHO), Director Grebreyess, who advised that governments and schools should consider all measures to limit the spread of a new virus known as COVID-19. Within the following month governors advised school districts to consider alternative environments to provide services (Ford, 2022; Superville, 2021). Principals, mentors, and student teachers found themselves learning and teaching in a new medium with unprecedented challenges to support both the emotional and physical welfare of students (Aguayo Chan et al., 2020).

Trauma-Informed Practices

In 2017, the National Conference of State Legislatures (NCSL) reported that 18 states were developing bills that references adverse childhood experiences (CHCS, 2023). The passage of Public Law 115-271 in 2018 allowed the authorization of \$50 million to help state education agencies, school districts, and tribal governments increase evidence-based trauma support services and mental health care. That same year, Washington DC, Massachusetts, Tennessee, and Washington passed state laws to begin the process of helping people with trauma support services. In anticipation of and in line with PL115-271, Tennessee launched Building Strong Brains, TN Adverse Childhood Experiences, an evidence-based training program to provide intentional training and resources for school leaders and teachers focused on trauma-informed principles and practices for classrooms. Additionally, some university preparation programs-initiated conversations about expanding knowledge specific to the impact of trauma on the brain to strengthen pedagogy practices. The goals of the Build Strong Brains initiative in TN are to raise public knowledge about ACEs and support innovative ideas that refresh thinking and approaches to supporting students who have experiences toxic stress (TN.Gov, 2023). Consistent interventions with connections to school-wide instructional expectations grounded in a positive school culture provide high-leverage practices that mitigate toxic stressors and provide a continuum of resources over time to strengthen and heal the brain (Thomas & Vanderhaar, 2019).

Adverse childhood experiences refer to inherently disruptive experiences in childhood that produce significant and potentially damaging levels of stress and associated physical changes that can be detrimental to brain development and instructional developmental processes (Blodgett and Dorado, 2019). Due to toxic and constant stress, a child's brain development is directly impacted. Neuroscience highlighted that the brain responsible for language development and emotional regulation can be damaged by toxic and constant stress. School leaders in Tennessee were charged with a mandate to develop an evidence-based training program to train and establish a continuum of

resources for students who have experienced ACEs. Additionally, the Tennessee Trauma-Informed Law required school leaders incorporate discipline practices that included a process for the ACEs assessment, interventions, and intentional focus on creating a positive school culture (TN. Gov, 2023). Guidance to school leaders included attention to the following five precepts: (1) a balance between accountability with an awareness of the impact of trauma on behavior; (2) consistent attention to teaching school and classroom expectations and interventions for inappropriate behaviors; (3) adherence to positive behavior supports and minimizing disruptive behaviors; (4) creating and implementing consistent rules and expectations for consequences, and (5) personnel serving as a model and demonstrating respectful behaviors (Trackbill SB170 n.d.).

The Substance Abuse Mental Health Services Administration of the USA (SAMHSA) in collaboration with the Center for Preparedness and Response identified six principles universities and schools can connect to high-leverage practices. The six principles encompass: (1) safety; (2) trustworthiness and transparency; (3) peer support; (4) collaboration and mutuality; (5) empowerment, voice, and choice, and (6) cultural, historical, and gender issues (Centers for Disease Control, 2020). University professors recognized that schools required additional guidance to implement a PK-12 trauma-informed system and developed the Resilient Schools Framework that identified school culture and climate as essential to establishing vision and core values to guide positive behaviors in schools. The framework also identified seven high-leverage practices grounded in evidence-based connections to preparation programs and school improvement processes with intentional focus to include leadership and trauma-informed practices (Christian et al. 2022).

School Culture and Trauma-Informed Practices

On April 29, 2019, the Tennessee House of Representatives amended TCS Title 49 and passed House Bill No. 421 which required every TN local board of educations to create and adopt a policy that requires school leaders to investigate root causes of office discipline behavior referrals and complete an ACEs assessment. As school leaders started the process of creating policy and practices to support students and schools during the 2019-2020 school year, Covid 19 required principals and teachers to shift face-to face learning environments to a virtual continuum (Ford, 2022). Universities and schools, who had been providing intentional focus to expand awareness around trauma-informed practices, were required to immediately adjust their focus to teaching and learning through a global pandemic with a heightened focus on the emotional welfare of both teachers and students.

Students who are removed from class due to behavior disruptions demonstrate lower levels of academic proficiency (Benner et al., 2013). Learning organizations also recognize teachers have an important voice in the process of identifying how to implement high-leverage practices and systems such as School-wide Positive Behavioral Interventions and Supports (SWPBIS) to support students who demonstrate behaviors associated with trauma (Jimerson et al. 2016; Sergiovanni, 2007). Iterations of SWPBIS can provide schools with a structure and blueprint for implementation of more proactive school-wide and individualized support for students and teachers. Intentional connections to professional learning for aspiring and practicing teachers and administrators is paramount to short- and long-term positive outcomes for students (Augustine et al., 2018; Fullan & Edwards, 2022). Most school districts depend on principals and supervisors to interpret regulations under both state laws and federal guidance specific to IDEA (2004) and Section 504 of the Rehabilitation Act. Supervisors and principals are responsible to provide support to teachers to ensure all students receive a free and appropriate education via the delivery of evidence-based practices and services aimed at achieving positive outcomes (Bellamy & Iwaszuk, 2017; USDOE, 2010).

Principals and teacher leaders are uniquely positioned to communicate and create supportive cultures during seasons of dynamic change (Fullan & Edwards, 2022; Hoy & Miskel, 2013). Thomas et al., (2019) found that attention to trauma-informed care in the school setting with a focus to develop a change in both pre-service and teacher practices were paramount to respond to disruptive and/or disengaged behaviors resulting from traumatic experiences. Also, to lead sustainable change, school administrators play a critical role in the development and implementation of trauma-informed and restorative practices. Prior to the global pandemic, childhood trauma was identified as “America’s hidden health crisis” and provided a unique lens to the importance of developing school cultures that championed evidence-based practices for adults and students (ACES Connection, 2016). Principals serve as instructional leaders and as such should be well versed in a variety of instructional activities (Fuller et al. 2018). The emerging concept of trauma-informed practices is often connected to discipline issues and the need to provide intentional mentor support to onboard new faculty during their transition to full-time teaching (Thomas et al, 2019). According to a 10-year study published by the National Association for Elementary School Principals, improving student and staff performance were the primary concerns for school leaders. The report highlighted the importance of creating and maintaining positive relationships in schools with teachers and that relationships are essential to the role of leadership with a direct connection to both teacher and student learning (Fuller et al., 2018). Intentional focus on school culture, Multi-Tiered Systems of Support (MTSS), trauma-informed, and restorative practices can provide resources for school leaders, teachers, students, and community stakeholders that promote resilience in the post-COVID-19 era of recovery (Fullan & Edwards, 2022; Lamie, 2022).

School Mentors

Providing assigned mentors to guide first year teachers is often paramount to long-term success through professional careers. Pirkle (2011) as cited by Callhan (2016) defined the role of a mentor as a “a master teacher, wiser and more experienced, who guides a new teacher through the probationary period and who observes and provides instructional support and feedback during the steep learning curve” (p. 8). Mentors are leaders, both administrators and teachers, who demonstrate the ability to guide first-year teachers to establish both long- and short-term goals, respond to classroom management issues, enhance pedagogy strategies, and contribute to a positive school culture. Additionally, effective mentors encourage mentees to develop reflective practices through dialogue and relationships built on a student centered and growth mindset. Principals are ultimately responsible to create proactive relationships with university partners and assign mentors during student-teaching and first year teaching experiences that establish and mentors who can cultivate a culture (Callahan, 2016; Fuller et al. 2018). Hughes (2012) noted that the role of mentor assignments to establish supportive relationships built on trust were paramount to teacher retention. Additionally, for mentors to advance knowledge specific to emerging research and high-leverage practices, principals are responsible to ensure that assigned mentor teachers are continually trained to enhance both adult learning practices commonly referred to as andragogy and student-centered pedogeological practices that enhance the whole child (Callahan, 2016).

PURPOSE OF THE STUDY

The purpose of this phenomenological qualitative study was to investigate first-year K-12 teacher perceptions following student-teaching experiences during the COVID-19 pandemic, to better understand how teacher preparation shifts influenced readiness for job requirements during a global pandemic. Equipping aspiring teachers during a global pandemic with the experiences

necessary to lead a classroom effectively was an unprecedented challenge during the necessary transitions from virtual and face-to-face teaching and learning opportunities through the pandemic. This study examined the perceptions of first-year teachers in two states who completed student teaching experiences in the 2020-2021 school year during the COVID-19 pandemic.

RESEARCH QUESTIONS

This research is part of a larger project investigating first-year teachers in relationship to their college teacher preparation programs and how COVID-19 may have impacted that preparation. From this larger study, we wanted to specifically understand first-year teachers' perceptions about trauma-informed practices. The following research questions guided this work:

- How did exposure to trauma informed practices during teacher preparation programs prepare graduates following student-teachers' transition to a full-time position during the pandemic?
- How did mentorship from building level administrators and teachers support first year teachers during the pandemic?

METHODOLOGY

Research Design

The research design was qualitative in nature. Qualitative research is used when a study's goals are to explore and become immersed in a phenomenon or issue in its natural setting to gain a deeper understanding of it (Creswell, 2014). The phenomenon under examination was to investigate first-year K-12 teacher perceptions following student-teaching experiences during the COVID-19 pandemic, to better understand how teacher preparation shifts influenced readiness for job requirements during a global pandemic. A phenomenological approach was utilized as we explored several individuals and their lived experiences of a concept or a phenomenon (Creswell, 2014).

Participants

This study took place in two different states in the southeastern United States. Participants represented four different universities with educator preparation programs. There were eight participants in total—six of the participants were female and two were male. There were six elementary teachers and two secondary teachers. Participants were interviewed in late spring of 2022.

Research Instrument

Because the research is a part of a larger study, the research instrument contained questions not discussed in this paper. For the purposes of this study, we are reporting on the following questions:

1. What experiences, during your preparation courses, prepared you for the job requirements in your first year as a full-time teacher?
2. Can you describe the office discipline referral process or behavior interventions you used as a first-year teacher?
3. Can you describe your exposure to trauma informed practices during your preparation Program?
4. How did trauma informed practices guide your classroom culture?

5. How would you describe the level of support you received from your principal when dealing with parents?
6. Could you describe the level of support and mentorship that you expected to receive from other faculty members at your school?
7. As a first-year teacher, can you describe the strategies you used to increase student engagement?
8. As a first-year teacher, how did your vision for teaching connect to job satisfaction on the job?
9. What were the primary challenges you experienced as a first-year teacher?

Data Collection

Purposeful sampling method was used to identify research participants that met the criteria for the study. The participants in this study were recruited from regional school district partners and data banks within each University of teacher candidates who completed student teaching during the 2020-2021 school year and whose first year of teaching occurred during the 2021-2022 academic year. Teachers were recruited and interviewed in late Spring 2022.

Data Analysis

The data collected through each interview was recorded and transcribed. Once all interviews were transcribed, the researchers coded each participant's interview to look for themes. This occurred in two phases. In the first phase, the coding scheme followed the order of the questions. During the second iteration of coding, the researchers looked within each question to determine the themes that addressed the two research questions for this study.

After the initial coding, the researcher wrote a summary profile for each participant. Participants in the study were given their summary profile for member checking to solicit their views of the credibility of the findings and interpretations (Creswell, 2014).

FINDINGS

Trauma-informed Practices and Preparation

An idea around the need for teachers to understand research and application of trauma-informed practices emerged as a key to establishing effective relationships. This was verified when four of the eight participants claimed they had not received any exposure to trauma-informed training. Candidate three, who had not received exposure to trauma-informed practices stated, "In all honesty, nothing could have prepared me for what I had to do this year. One of my kid's mom passed away. I had no idea of how to go about that. . . navigating the death of a child's parent and then having to explain that to 14 kids who are six or seven and explain death. . . I do wish that I would have had more of that in my prep course."

Similar to participant three, Participant seven stated, "[trauma-informed practices] is something I still need to learn more about because while I love my classroom management time and I learned so much through that and my special education course. . . but explicit, trauma-informed teaching practices I don't think were explicitly taught."

Participant five also mentioned not having experience with trauma-informed practices. “The biggest trauma information is the whole COVID-19 situation and having to adapt on the fly. . . and everybody had to adopt, adapt, and evolve to the situation and by the time I started in the fall, I guess that trauma was already gone because I already experienced it. I was still [in school] and kind of ‘oh, this is the new normal.’”

In contrast, Participant four, who had undergone trauma-informed training stated, “It was great that I had that going on to look for signs and know what to do. . . Who do I call? What is the protocol if I have heard something or if I see bruises.” Participant two discussed how trauma-informed professional development (PD) was the most helpful PD she had prior to her teaching position. She affirmed how important it was for her to navigate trauma in the classroom. “It has affected every decision I made; it has helped me to better reach students that I normally would see as a student with behavior and with different behavior accommodations or especially coming out of the pandemic. It is just really helped me navigate how to reach those students and how to better teach them.” Participant four echoed this sentiment when stating, “I think learning about all the traumas that kids go through was really eye opening to make sure that I am just watching and making those connections. That way you know they do not leave my classroom without getting what they need.”

When discussing her situation about her student whose mom passed away, participant three, who had not gone through trauma-informed training explained how she felt she was all alone when navigating the death of her student’s parent. “I feel like I have navigated that mostly on my own. I definitely have the support of my administration and my counselor, but it was kind of a tricky situation.”

School Culture and Discipline

All participants said they felt supported by their administration, but half did not mention a school-wide plan to guide discipline decisions. Of these four participants who do not have a school-wide plan, only one of the four participants discussed utilization of a team to help with discipline. Participant seven stated, “We have a freshman Academy within the school and so all of the freshmen teachers are very close. We know all the students and we also have lunch hour called Connect with them . . . we get really close with those students for that lunch hour for the whole year.” The lack of a detailed, school-wide plan suggests that these four teachers were not in schools that utilized trauma-based interventions.

Although participant three did not receive trauma-informed practices training, she felt that the knowledge she learned about creating a classroom community from her behavior management course enabled her to see the importance of making sure her students were supportive and taken care of. “One of the biggest [takeaways] is building the classroom community and the culture within the classroom that we care for one another. So, when we did have the conversation with the kids to explain what happened [when the student’s mom passed away], they were all so supportive and it was a learning opportunity for everybody and so I think without knowing and having that knowledge, my prep courses did prepare me for stabilizing that classroom community.”

She continued to explain how much her behavior management class clarified the importance of creating a supportive learning environment that guided her as she navigated such an emotional situation. “We did have to have that hard conversation with the kids to explain what happened. They were all so supportive and it was a learning opportunity for everybody. I think knowing and

having that knowledge in my prep courses did prepare me for being able to stabilize that classroom community.”

Participant five also discussed her behavior management course as being a beneficial course in establishing the classroom community. “Establishing those relationships and establishing a positive, inclusive, and welcoming environment for all my students and that I feel just kind of takes care of everything else.”

Participant seven identified the unique challenges that COVID-19 invited, “Well, really, it’s interesting because I began the teaching program in the fall of 2019 and so really that semester was truly my most formative semester that I had. I was at a High School, and I think I was in classroom management and Ed Psychology, but the classroom management class really prepared me. . . After that I had about four weeks in middle and got to teach one class there and then we locked down for COVID. And then every all-field experience was cancelled until I did my internship. So truly my main teaching, like what prepared me, came outside of the education program. It really came from being a teaching assistant.”

These snapshots of the teacher’s perspectives help us to see the need and the benefits of training university faculty, pre-service teachers, and practicing educators in trauma-informed practices. Because of the nature of establishing community and culture in the classroom, teacher preparation programs could provide intentional connections to trauma-informed practices through redesigning courses that focus on behavior management or creating new courses through interdisciplinary collaborations.

The Role of Mentors

The first-year teachers highlighted how valuable mentors were with the struggles they identified. Common challenges that arose include comfortability calling parents when a student was having discipline issues, meeting all the individual needs of all their learners, understanding the pacing of their curriculum, and knowing what to teach within their curriculum. Several of the participants mentioned they were not prepared to handle the daily juggle of all the responsibilities of a teacher in the classroom and several participants mentioned having difficulty with managing their time as a teacher.

Participant seven stated, “The primary challenge is the magnitude of it. Figuring out my curriculum, my standards, and my content that I am teaching and making it all happen. Learning how to accommodate different learners. You cannot do everything in theory.” Participant three echoed this sentiment, “I have to lesson plan, I have to teach all day from bell to bell, but also, I have all the paperwork that I have to do with all these other things that I have to do while also having kids in my room. So, I have given a lot of my personal time. . . It is not a job that you can just go and leave it at school when you are done. You always have something to do, and you think about it when you go home because you are building relationships with the kids. I have 14 little six- and seven-year-olds that I am responsible for and feeling the weight of the responsibility of that is a lot heavier than what I thought it would be.”

Participant three also highlighted the challenges with learning how to incorporate a behavior plan. She explained, “My partner teacher had a behavior plan that was already set so when I came in, I just had to learn her behavior plan and integrate that into my room. I did not fully understand the behavior plan and I would say it was two months or so into my placement that I was

comfortable with it and three to four months before I was comfortable following through with it.” Participant four also mentioned the importance of mentor teachers. “They always took care of me.”

The teachers also highlighted unique opportunities to learn during the pandemic, stating that the season of quarantine provided more time to work with their mentor teacher during student teaching. Participant two stated, “I experienced a fifth grade and kindergarten classroom throughout the pandemic, so I saw teachers and administrators, making decisions in the moment and saw the good and bad side of that. I feel like it prepared me for how flexible you need to be as a teacher. Participant two also commented on the unique opportunities that COVID-19 brought to the classroom. She discussed how, because there were no students in the building due to COVID-19 in the beginning of the year, she received more guidance from her mentor teacher. “I got more out of the mentorship than a normal year . . . I had a lot of personal downtime to hear from my mentor teacher because there were no students around.”

Other participants throughout the interviews mentioned the many “hats” teachers wear daily without the additional stressors experienced during the pandemic. Our findings highlight the importance of providing intentional blocks of time during student teaching and during the first year of a full-time position. This would provide uninterrupted opportunities to leverage mentor expertise to support the transition to teaching.

Despite being overwhelmed with curriculum, diversity of students, handling discipline and the multiple responsibilities of a teacher, most participants agreed that their vision for teaching connected to their satisfaction on the job, with two of the participants saying it far exceeded expectations. Participant three stated her vision for teaching was to help her students learn, but the biggest thing was to love the kids and “let them know that they have someone that supported them.” She talked about how as she reflects on this school year; she can see the fruits of her labor and she knows her students know that they are loved and they know they have her, which has solidified the field of teaching as a career for her.

Participant 5, who rated his experience as far exceeding expectations, entered the teaching field as a second profession. He discussed trying to find himself after almost ten years, and then a seed was planted for teaching. “At the end of the day I do not want to just have a paycheck. I want to at least feel like I am leaving a legacy for the future. That is ultimately what got me into this profession. And, you know, the love that I got from my students and how much they enjoyed having me and how much they miss me. . . it makes it all worth it. I could be the worst content history teacher out there. . . The amount of love and appreciation I got for my students. That proves to me that I made an impact on them.”

DISCUSSION

The first research question of our study was, “How did exposure to trauma informed practices during teacher preparation programs prepare graduates following student-teachers’ transition to a full-time position during the pandemic?” All participants identified classroom culture and setting expectations as foundational to establishing positive relationships with students. We found teachers who had worked in one of the states identified as an early adopter demonstrated knowledge specific to high-leverage trauma-informed practices while apprentice teachers who worked in the second state had little to no knowledge about trauma, the impact to the brain, and inherent connections to positive behavior practices in their classrooms. Students who did not have training in trauma-

informed practices stated the knowledge they gained from classroom management and behavior courses enabled the participants to establish a classroom community that was supportive and nurturing, which helped participants such as Participant 3 navigate the death of a parent within her classroom. If Participant 3 was introduced to trauma informed practices, she would be equipped with a Child Trauma Toolkit for Educators that would provide basic information about working with traumatized children in the school system (Blodgett & Joyce, 2019).

CAEP standards are robust and ensure educator preparation programs provide intentional focus to both Learner and Learning and Instructional Practices that include behavior management techniques (CAEP, 2023). The emerging research specific to brain development and trauma-informed practices indicates that preparation programs can create connections to existing behavior management classes with explicit instruction around ACEs and interventions. Educator Preparation programs could also consider designing new courses to weave neuroscience and trauma-informed practices through an interdisciplinary lens and leverage expertise of applications to practice in all educator preparation concentrations.

The Building Strong Brains Tennessee ACEs initiative has developed a bridge to practice in educator preparation programs and required TN Educator Preparation Programs to incorporate trauma-informed practices (TN.Gov, 2023). Many university preparation programs provide intentional and specific connections to trauma-informed practices during the educator preparation process. Participants in the state noted as an early adaptor demonstrated knowledge and application to deescalate students. Participants 4 captured the value of learning through her preparation program, “So I think learning about all the traumas that kids go through was really eye opening to make sure that I am you know really just watching and making those connections. That way they don’t leave my classroom without getting the help they need. We have used a peace corner and definitely had some kids with a lot of anxiety at the beginning of the year.” Participants who demonstrated knowledge of practices noted use of a peace corner or the ability to view student behavior through a different lens, stating, “especially coming out of the pandemic it has really helped me.”

In addition, our study found that participants who had gone through trauma-informed training in their new school felt it was the most helpful professional development they have had to date. In contrast, participants who had not gone through trauma-informed practices felt they were not prepared to handle various situations that could occur in individual classrooms. Pandemics and epidemics related to infectious diseases like COVID-19 are often traumatizing for individuals and could lead to post-traumatic stress and ongoing psychological distress (Boyras & Legros, 2020). Many front-line workers, like healthcare professionals, college campus employees, and PK-12 educators all worked to address many COVID-19 related challenges. Many teacher candidates were working along the front lines to ensure the emotional, physical, and psychological well-being of their students. Therefore, not only is it important to instruct our students about trauma-informed practices, but it is also just as important to ensure learning communities provide a supportive foundation for teacher candidates as they navigate the numerous challenges a typical semester brings. It is suggested that to build a trauma-informed learning community for our teacher candidates, colleges should provide mental health support, help candidates develop pedagogical problem-solving skills, and implement an online community (Hoppey et al., 2021).

Our second research question asked, “How did mentorship from building level administrators and teachers support first year teachers during the pandemic?” Our participants were faced with many different challenges during their first-year teaching, and they all expressed how important mentors and administrators have been in supporting their inaugural year. Interestingly,

due to the differences that COVID-19 brought to the classroom with remote learning and hybrid days for students, our participants found they had more time to receive mentorship due to more one-on-one time that was available due to the differences in remote learning. Despite this, the participants mentioned the desire to have more of a variety of mentor teachers, since many of their field experiences were cut short or changed drastically due to the fallbacks of COVID-19.

Participant 7 noted significant challenges with the transition to full time teaching and explained, “the magnitude of it, figuring out my curriculum, my standards... learning how to accommodate different learners. It’s a big challenge...the day in and day out, lesson planning and making sure that it can be done.” While another participant captured opportunities, “I think that, yes, it was definitely a great year and a lot of a lot of doors open the right way, I think, especially for me this year and that helped. I was able to work with my mentor teacher They were like my moms they always took care of me.” Several participants expressed the unique opportunity Covid provided to have individual coaching support from their student teaching mentor during seasons of virtual instruction. The adaptation from normal operating scheduled during the pandemic invited a unique lens for mentor teachers to provide additional support while students were working virtually. The finding supported what Callahan (2016) identified as a critical component to providing intentional mentor support for first-year teachers to ensure a culture of care is communicated through the onboarding process and throughout the year.

RECOMMENDATIONS

Based on the findings of this study, we have the following recommendations for teacher preparation programs interested in capturing lessons learned through a global pandemic. First participants in the current study involved in trauma-based practices felt equipped to support implementation of trauma-informed practices in their teaching experience. It is important to note the Tennessee State Board of Education implemented the Literacy Learning Act in alignment with Building Strong Brains and required Educator Preparation programs for teachers and aspiring administrators to provide evidence of Trauma-informed practices in course content (TN State Board of Education, 2023). Teacher preparation programs should consider requiring faculty members to complete the Level 1 Trauma-Informed Training and review early adaptor state updated laws and policy to guide necessary modifications in current curricular (TN. Gov, 2023). Programs can consider providing intentional connections to trauma-informed practices and redesigning learning activities that connect behavior management strategies to neuroscience and child development. Additionally, incorporating SAMSHA’s six pillars in designated courses could provide a continuum of knowledge and pedagogy strategies to mitigate the effects of toxic stress on the brain (CDC, 2022). It is also important to note that providing professional learning to administrators and teachers who serve in a mentor role will expand both knowledge and application of high-leverage strategies that can result in a decrease of office discipline referrals (Fuller et al., 2018). Additionally, university preparation programs seeking to expand pedagogy specific to trauma-informed practices in PK-12 educator preparations programs should collaborate with early adaptors to review course content, asynchronous training modules, and evaluate implementation through both quantitative and qualitative studies.

Another crucial factor to consider is the abundance of research around the role of a mentor and guided support during the first year of a teacher’s professional transition. According to the National Center for Education Statistics (2022), approximately 8% of teachers leave their profession each year. Prior to student teaching placement, universities should investigate the partner school

placements' policies specific to school-wide discipline practices and connections to MTSS. To ensure schools retain the quality teachers needed, school leaders should initiate intentional times for onboarding student teachers into the assigned school and identify assigned days for the mentor to support the student teacher away from normal teaching responsibilities. In a similar approach, to ensure schools recruit and retain the high-quality teachers, administrators should initiate intentional times for onboarding first year teachers into the assigned school and identify assigned days for the mentor to support the teachers away from normal teaching responsibilities (Callahan, 2016; Fuller et al., 2018). School leaders should ensure that times are scheduled each grading period for mentors and mentees to work without interruptions to reflect upon instructional activities and design proactive resources to provide ongoing professional learning that aligns with the school's vision and core values to align to the success of each student and aspiring teacher.

Finally, faculty are encouraged to establish partnerships with institutions who are emerging in these conversations and are in the early adoption phases of trauma informed practices to collaborate and learn from colleagues who are leading and implementing innovative work to create positive school cultures through proactive leadership practices.

CONCLUSION

Trauma-informed practices are a part of an emerging body of research, and we found it insightful to identify and understand how to inform ideas to build capacity around high-leverage practices that support P-12 preparation programs and school leaders who serve as mentors. The themes identified around teacher preparation experiences and the transition to inaugural positions provided a unique lens to capture lessons learned through an unprecedented season of change during the COVID-19 pandemic. We learned that some practices should be considered COVID-19 keepers as we continue to navigate the post-pandemic season of change. The experiences the participants highlighted while student teaching during COVID-19 affirmed time invested in relationships grounded on emerging research specific to trauma-informed practices provide new strategies that encourage positive outcomes for our future generation of teachers and transform classrooms from crisis to hope.

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EFFECT OF NUTRITION ON CHILDREN READING ABILITY

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ABSTRACT

Early nutrition supplementation's effect on children's reading ability was assessed during the conduct of the study. The study methodology followed children who participated in an early nutrition supplementation intervention and conducted a reading test to measure how well the children read. The effect of school resource endowment on student reading ability was assessed. School resources as a lead effect on variations in reading performance through a fixed effect regression model was discounted and confirmed that early nutrition supplementation explains variations in reading performance. However, it was found that school resources accessibility on factors such as library availability and access to reading textbooks post classroom lessons to children complements the acquisition of reading skills in children. The policy implication from the findings calls for the domestication of reading curricula and leveraging the children's nutrition to sustain reading gains.

INTRODUCTION

Childrens' nutrition intensity levels below five years and their ability to learn to read was examined in this study. The nutrition levels were identified through the children's access to food supplements in their first 36 months after their birth. The nutrition levels were grouped as below:

- i) Group A: This group involved children who received a delayed Supplementation treatment. The treatment was introduced 18 months after birth. The treatment that the participating children received included counselling sessions for the mothers on complementary feeding, with the goal of ensuring that each parent of the participating children was providing complementary foods as their child grew. In addition, the participating children in this group received Vitamin A every six months until they were 36 months old. Furthermore, the participating children received, through their mothers, one (1) kilogram (kg) of maize and soy flour every two weeks, equivalent to approximately 71 grams (g) per day. These participating children received the intervention on nutrition supplementation between 18 and 30 months of age.
- ii) Group B: In this group, the participating children received a standard fortified spread. They were also given milk powder as a source of protein. In addition, the participating parents also received guidance on food preparation and complementary feeding of their young children, as well as the continuation of these practices following the nutrition intervention. Additionally, the children were given Vitamin A every six (6) months. In addition, the children in this group received 750 grams of fortified peanut spread each for two (2) weeks, which translated into fifty-four (54) grams of the spread per day. The duration of these interventions for the participating children was 18 months. The children were introduced at six months.

- iii) Group C: The children in this group were given a modified fortified spread containing soy powder as the protein source. Parents or guardians of the children also received nutrition and complementary feeding guidance to sustain the practice of post-nutrition intervention. In addition, the children were given Vitamin A every six months. Each of the participating children were given 750 grams of fortified spread twice a month, translating into 54 grams of fortified spread per day, between 6 and 18 months.
- iv) Group D: The children in the fourth group were given Likuni Phala as a source of protein. In addition, the parents or guardians of the children were counselled on nutrition and food supplements in order to inculcate a nutrition culture regarding how they would support the feeding of the children following the nutrition intervention. In addition, the children received Vitamin A supplement every six months. The children also had access to one (1) kilogram of fortified maize or soy flour given to the families every two weeks, equating to 71 grams per day for children aged 6 to 18 months.

The children were grouped randomly in various levels of nutrition intensity to track their growth. The primary objective of the grouping of the children per level of intensity of food supplements was to determine the growth patterns of the children based on the food supplements. This study was conducted by Tempere University of Finland, and University of Malawi's College of Medicine. The findings revealed that the intervention did not cause significant growth differences amongst the children across the groups. However, there was marginal statistical significance for children enrolled in Groups 1 and 2 (considered high-nutrition intensity groups). This finding suggested a positive correlation between high-intensity nutritional supplements and children's vertical growth (Thakwalakwa, Phuka, Valerie, Maleta & Arshorn, 2009).

The results above, provided an opportunity to follow through the participating children with a reading test to examine if their growth patterns in their first 36 weeks had any effect on their reading ability. Therefore, in this study, children who were enrolled in primary schools in Lungwena, Mangochi District were traced, to test their ability to read through a standardised reading test levelled for Children in Grade 2 of primary education. At the time, the Children were followed up, they had an average age of nine and a minimum of two years of primary education.

In addition, since the children were followed up six years post the early nutrition intervention, school related factors were assessed to examine if they had an influence on reading ability of the children growing up. The home factors were also assessed for any non-homogeneity that may have affected how well the children read, minus the factors mentioned above.

REVIEW OF RELEVANT LITERATURE

Effect of Nutrition on Children's Reading Performance

Early studies conducted in Jamaica on the effects of early childhood supplementation with and without stimulation on the later development in stunted children revealed that the stunted children scored significantly lower on most assessments than non-stunted children. In addition, stunted children's heights and head circumferences at enrolment predicted intelligence quotient at follow-up in a significant manner (Grantham-McGregor, Walker, Chang & Powell, 1997). Similarly, research conducted in Guatemala on a cohort of subjects exposed to nutrition supplements prenatally and for at least the first two years of postnatal life and others who received supplementation after

24 months of age revealed consistent differences between groups on the psychoeducational tests (Pollitt, 1996). It was further found that those who received supplementary nutrition prenatally and postnatally scored significantly higher on knowledge, numeracy, reading, and vocabulary tests than those who did not.

Further to these findings, the study concluded that nutritional differences provide the most robust explanation for the differences in test performance. However, in a survey conducted in Indonesia, Pollitt, Watkins, and Husaini (1997) did not find any immediate benefits of nutritional supplementation. Instead, the benefits on the infants were observed eight years later, when their memory function was better than those who did not receive nutrition supplements earlier in their lives. Similarly, another study on supplementation attests to the longer-term benefits of nutrition supplementation, where benefits begin to manifest at five years and none are observed at 18 months in terms of variations in children's learning (John, Bullock, Brenner, McGraw & Scalapio, 2013). Therefore, it is more appropriate to examine the effects of early nutrition on learning outcomes after a longer period of nutrition supplementation.

The aforementioned findings suggested that longitudinal tracking of beneficiaries of early nutrition supplements should be conducted for a sufficient period of time to assess their learning performance, which may not be significant in the years immediately following nutrition supplementation.

Studies on nutrition reviewed above largely agree on the positive correlation between early nutrition supplementation and performance of children on cognitive tests such as reading test, when conducted after a substantive timeframe post-intervention. Several studies have also shown that vitamins and minerals are essential to humans because they play essential roles in a variety of primary metabolic pathways that support fundamental cellular functions. Their involvement in energy-producing metabolism, DNA synthesis, oxygen transport, and neuronal functions makes them critical for brain and muscular function which affects cognitive and psychological processes, including mental and physical fatigue. These elements include the B-vitamin family (B1, B2, B3, B5, B6, B8, B9, and B12), vitamin C, iron, magnesium, and zinc, all of which have proven recognisable roles in cognitive development (Beluska-Turkan, Korczak, Hartell, Moskal, Mackonen, Alexander & Salem, 2019). Therefore, the vitamins provided to children under study was likely going to influence the cognitive ability of the children and hence an effect on their performance in standardised reading tests.

Therefore, cognitive-based curricula interventions must be cognizant of the dietary diversification of micronutrients through food intake, or they must be coupled with micronutrient interventions that target cognitive development and complement curricula instruction for faster, more sustainable gains in learning outcomes. It is a fallacy to assume that the population targeted by curricula interventions will have adequate access to micronutrients and the appropriate cognitive development state to learn at the right level without reading scores deviance around the mean benchmark score. Such a scenario must be adjusted based on the baseline micronutrient uptake if it is not invested and addressed together with the delivery of the reading intervention.

Another research on a population-based epidemiological cohort in the Japanese American community of King County, United States of America, revealed that a larger brain volume, measured by head circumference, provides a buffer against clinical symptoms of Alzheimer's disease, which lowered the risk and reduced the severity of diseases. According to additional studies, the head circumference of 1,985 older adults who underwent cognitive testing was associated with superior

cognitive performance (Graves, Mortimer, Larson, Wenzlow, Bowen, & McCormick, 1996). These findings established a correlation between head circumference positively and nutritional status, and by extension, cognition and academic performance.

Having observed the nutrition status of Malawian children in general, trials of food supplementation at a young age have demonstrated an effect on the linear growth of children who were given 10–40 g/day of Lipid-based nutrient supplements. This has resulted in higher energy and macro-nutrients intakes among 9 to 10-month-old Malawian infants without displacing locally accessible Complementary Foods (Hemsworth, Kumwenda, Arimond, Maleta, Phuka, Rehman, Vosti, & Ashorn; 2016). However, such trials have not been implemented on a large scale nor have they been proven on a large scale; consequently, the benefits of food supplementation cannot be observed on a large scale. Significant reasons for not scaling up the trials include the amount of financial resources and public civility that must accompany the rollout in order to benefit as many children as possible and improve the nutrition status of the children in Malawi. Otherwise, a more recent study found that at a median cost of \$2.26/person/day (2011 US\$ PPP), the shared diet is unavailable or unaffordable to 80% of rural Malawian households based on their current food expenditures, and to 69.5% even if all available resources were spent on food.

On the other hand, the individualised diet is more accessible – 90% of the time on average – at a lower price (\$1.79/person/day) but is still unavailable or unaffordable for 62% of the rural population within current food budgets and 44% even if spending all resources on food (Schneider, Gerlad, & Friedman; 2021). These findings suggest that undernutrition is perpetual in Malawi, therefore, any post-intervention resource effect of the children under study will be homogenous and hence no effect on their growth, such that at the time a reading test was conducted, there was likely less variations of after-effects of resource access, and nutrition to describe the variation in cognitive ability, and hence their performance in the reading test.

The underlying assumption of the studies mentioned above is that the effects of nutrition on learning outcomes are positive. Therefore, any intervention seeking to increase gains in learning outcomes should explore complementary effects to improve the nutrition and effort levels of the population. Otherwise, the studies reviewed above have infinite potential impact in driving the nutrition status of the children by targeting linear growth, the age for height, weight for age, and head circumference of the children. However, a gap in the literature still exists on the linkages that such lineal growth has on the ability of the targeted populations to learn and the impact this may have on the development of the curricula and development interventions with a learning scope and cognition as targeted vital objectives.

Effect of Access to School Resources to Reading Performance

Having reviewed the literature on nutrition, and noticing the homogeneity of access to nutrition post-intervention, and the uniformity of access to resources at household level, the researchers discount these factors as being critical in explaining the variation in reading performance of the pupils. However, it is notably clear that access to resources at school level would explain the performance of the children in their reading, since these factors are non-homogeneously present across the schools that the children were enrolled. As such the study incorporated these factors to check whether they complement the reading performance of the children under study.

Literature shows that pupils and teachers utilise a library if it is available in schools and stocked with appropriate books for pupil use (Sailors, Hoffman, Pearson, McChung, Shin, Phiri & Saka, 2014). Therefore, the study included the latent variables on the availability of school libraries and books. As a result, they predicted the use of library resources relating to pupils acquiring reading skills, in particular, mastery of pre-reading skills, which studies have proven as essential in the teaching of reading as advanced by Graaff et al. (2009) and Torgerson et al. (2019). Schools could only distribute textbooks if enough were available. Thus, the study proposition was that the distribution of the textbooks was contingent on materials adequacy. Where this occurred, pupils had the opportunity to read the books at home, thereby improving their reading skills. Similarly, literature states that teacher friendliness towards pupils and their willingness to support pupils' learning and acquisition of reading skills creates an atmosphere where pupils felt comfortable seeking reading remediation (Dimmock, 2015; Gurr, 2015; Mombourquette, 2017; Cruickshank, 2017; Day, Sammons and Gorgen , 2018). The inherent assumption is that pupils who enrolled in schools where it was easier to seek remediation had an advantage in acquiring reading skills. Therefore, teacher friendliness and ability to support the acquisition of reading skills, latently, determines the reading practice environment and the frequency with which a pupil practised reading outside of the school timetable. Such amenability to reading practice and remedial learning predicted pupils' ability to acquire reading skills.

Contribution of the Study to the Research Literature

The study acknowledges the available literature linking nutrition to better cognitive ability and likelihood of better learning to read based on the nutrition status of a child. However, the study extends such literature to trace the evidence that early nutrition supplementation may have in the long-term, even post intervention in efforts on child growth. Furthermore, the study considered the literature available on the teaching of reading through phonics. It however questions the applicability of such literature and models on the teaching of reading, where context is not given adequate thought and investments. Therefore, the findings of this study will contribute to the literature that blends theory and practice by calling on a leveraged investment on the programming of reading intervention, especially on taking account the physiological factors of the children or students targeted to undergo through a reading approach and curricula.

PURPOSE OF THE RESEARCH

The purpose of this study is to examine the effect of early nutrition supplementation on children's ability to read, considering the access to school-based resources that complement the teaching of reading.

RESEARCH QUESTIONS

- i) How does access to early nutrition affect children's ability to read?
- ii) To what extent does access to school resources affect children's ability to read?

METHODOLOGY

Approach of the Study

The study was conducted using a quantitative research approach. The approach was informed by a positivist worldview. The primary objective of this philosophical position was to derive inferences regarding the causal relationships of variables within the pupil, household, and school resources associated with reading theories. Schmidt-Petri (2003) categorised positivism philosophy in research on its ability to hypothetically deduce a process from the theory in literature, construct hypotheses, operationalise relational variables, conduct an empirical study and use findings to advance the theoretical discourse.

Positivist research has, over time, relied on the study's internal validity, objectivity, and sampling adequacy to draw inferences about the study's results that are representative, according to Park, Konge and Artino (2020). From this perspective, the study's data collection was done independently of the researchers' interference by independent enumerators who administered the study tools. In addition, the sample size from the study population was large at fifty percent to ensure that results could be attributed and were representative. This sample size was determined to mitigate the effects of sample attrition and ensure that there were adequate study subjects when data collection was conducted to ensure adequate representation. The study collected data for inferencing from 37 percent at the time of data collection.

Furthermore, the positivist philosophical stance on research epistemology contends that knowledge must be developed objectively to be authentic (Bunniss & Kelly, 2010). Therefore, in this study, the researchers were detached from interacting with research participants and study enumerators during the research. The research enumerators visited schools and interviewed pupils independently of the researchers. The positivist axiology also endorses reducing subjective experiences and values in research using carefully developed research protocols that limit subjective responses from study participants (Ponterotto, 2005). Therefore, the study deployed closed questionnaires that prohibited subjective explanations in the participant responses to ensure objectivity in the study results.

Research Instruments

A survey design was used in the study. The survey included an early grade reading test and a school resources survey. The early grade reading test was used to test the ability of the children with a minimum of two years of primary education to read. The school resources survey was conducted to examine whether resource endowment in schools explained reading performance, aside access to nutrition.

Early grade reading test

The reading test had five essential sub-tasks that were assessed as adopted from the Ministry of Education standardised reading test (Malawi Government, 2017). The parts were determined to be the essential components of the phonics-based reading instruction homogeneously used by the children under study for a minimum of two years. The reading sub-tasks tested are described below:

- i) Letter naming: Children were asked to name random letters grouped in a box. Children were asked to name the letters at random intervals over one minute. Correctly named letters were marked. The total number of letters read correctly were recorded for the sub-task.

- ii) Letter Sounds: Children were requested to provide sounds of letters pointed randomly by the survey administrators within a minute. Letters sounded correctly were marked and totals recorded.
- iii) Reading Fluency: Children were requested to read words in a paragraph loudly within a minute. Words read correctly were marked and recorded.
- iv) Comprehension: Children were requested to read and answer questions based on the story provided within a minute. Questions answered correctly were recorded.
- v) Extended comprehension: Children were allowed two more minutes to read and answer questions from a story presented to them. All questions answered correctly were marked and recorded.

The reading test was in local language, Chichewa. The administrators of the test were practising teachers. They were familiar with the early-grade reading assessments and were further trained by the researchers.

School resources survey

The school resources survey examined key resources available to the children who took the reading test. Resources examined are as follows:

- i) Textbook availability: The study examined the availability of additional textbooks that were not included in the reading curriculum's core textbooks. The purpose of this objective was to determine how effectively the school is working to improve the vocabulary and reading comprehension of its pupils by providing alternative texts from which the pupils were expected to develop further reading skills and apply them to their learning efforts.
- ii) Teaching guides' availability: The study further evaluated the availability of teaching guides in the classrooms. The purpose of this observation was to evaluate the reading curriculum's implementation. This observation also helped the study validate the fidelity of implementing a scripted lesson plan for reading curriculum teachers to follow.
- iii) Availability of a well-stocked library: The study also observed the utilisation of the library resources, focusing on the records for lending the materials, use of the materials taken from the libraries, and the variation of titles in the library, as well as the levels of the reading materials that were available in the libraries or places designated by the school as libraries. The assumption underlying this factor is that access to a variety of titles aids in the development of pupils' vocabulary and reading skills. Therefore, the study expected that pupils who are exposed to more reading titles have a greater chance of learning to read more quickly than those who are not.
- iv) Existence of teacher mentoring and coaching: Under this factor, the study observed how the schools utilised teacher mentors and coaches for peer support during classroom teaching or for other purposes.
- v) Pupil caning: Under this factor, the study examined whether children were caned in schools or not, to check whether the children were free to attend lessons without fear and approach teachers for support on reading.

Sampling

Participants were randomly selected from a list of pupils who participated in the early nutrition supplementation programme in Lungwena, Mangochi. The selection was based on a simple random technique where 50 percent of early nutrition supplementation intervention participants were selected to form a sampling frame. This procedure led to a selection of 420 pupils from the population of 840 who had previously participated in the nutrition supplementation programme in their earlier years (0-36 months).

The study participants were oversampled in anticipation of sample attrition, as pupils in the sample had to be tracked down from their respective schools in the area of study, and the study was conducted seven years after the early nutrition supplementation programme was discontinued. In addition, the sampling was stratified because 50 percent of the sample was based on the nutrition levels that the pupils received during their first 36 months. The sample size therefore consisted of 105 pupils per level of nutrition intervention intensity across the four levels. The selection used a simple random strategy. This sampling strategy was implemented to determine the impact of early nutrition on a pupil's ability to acquire reading skills during their formative years.

After drawing a sample of the pupils per group of nutrition intensity, the pupils were tracked down to primary schools they were enrolled seven years after the implementation of the early nutrition supplementation programme. This allowed researchers to link the school endowment effect to the pupil's performance in reading fluency; the effects were experienced by all pupils at a given school. However, they differed across schools per the level of resources available to each school.

In total, 309 children were randomly selected and traced from a potential population of 420 pupils selected at random from a study population of 840 pupils. The sample size achieved represented 37 percent of the sampling framework. The split by level of intensity was as follows: 78, 85, 90 and 67 children from Groups A – D described above. These children were enrolled in a total of 17 schools in Lungwena, Mangochi.

Measurement and Data Analysis

Data were entered from the reading scores per individual student with their names blinded in the MS Excel database to maintain the privacy of pupils who participated. In addition, household and student-related information for each student was included in each record, along with information regarding school resources for sampled schools. Data entry for each record was categorised into four parts following the treatment levels described earlier to allow for inter and intra-analysis of the performance of pupils based on the levels of nutrition intensity for supplements received.

Having collected the data, an analysis involved a fixed effect regression model so that we could measure the effect of nutrition on the reading performance of children, holding the accessibility to school resources effect constant and vice versa. Therefore, the regression was identified as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_i + u_{it} \quad (1)$$
 , where X_i are unobserved school effects across variables $i = 1, \dots, n$. In (1) above, the aim was to estimate β_1 's (change) effect on reading performance based on the changes in X_i (group of nutrition intensity that a child belonged), holding the school effect (Z_i) constant. Therefore, letting $\alpha_i = \beta_0 + \beta_2 Z_i \dots (2)$, (1) was expressed as follows:

$Y_{it} = \alpha_i + \beta_1 X_{it} + u_{it}$... (3), where α_i has individual specific intercepts $i = 1, \dots, n$, and each had a fixed effect on entity i . The dummy variables that were used to assess accessibility of school resources by the children, included availability of a school library, whether the school library was well stocked or not, school ability to distribute reading textbooks to children, whether the school had adequate teaching and learning materials, whether the school leadership provided instructional support to teachers and whether teachers canned the pupils or not. These variables for the school effect were identified based on their evidenced correlation with the teaching of reading as presented in the literature reviewed in this study. Thereafter, the fixed regression model was run based on the obtaining data collected during the study.

RESULTS

Results from the mixed effect regression model show that level of nutrition intensity that the children belonged to earlier in their lives had a positive effect on their ability to read fluently, holding school resources effect constant ($p = .03$), with a unit change in the group that children belonged having a potential to reduce their reading performance by a factor of -0.12. This implied that changing a child from a higher level of nutrition intensity to the other reduced their ability to read by 12% with statistical significance at 95%. Similarly, schools that had a library had children reading better by a factor of 0.48, holding every effect in the rest of the variables, inclusive of nutrition constant, with statistical significance ($p = .00$), implying that children enrolled in schools where libraries are available improved their reading ability by 48%. In addition, children that had access to reading materials that were distributed to them, read better than those that did not had a chance to access reading materials beyond classroom lessons ($p = .02$) These children had an opportunity to increase their reading ability by a factor of -0.68 for a unit change between schools, holding everything else constant. Implying that children with access to reading materials could improve their ability to read by 68% on the overall reading score.

Results of data analysis showed that whether children had access to a school with well stocked library, adequate teaching materials, teachers providing reading instruction support, teachers were friendly or the teachers canned the children did not explain the variation in the children's ability to read for any unit change in these variables, since they were statistically insignificant ($p = .56, p = .3, p = .13, p = .2, p = .13$ respectively). However, despite the statistical insignificance, children whose teachers were not supported with reading instruction underperformed by a factor of 0.74 and those that were canned underperformed by a factor of 0.41, holding everything else constant. This implies that these factors are worthy of attention, despite being found statistically insignificant.

From the results above, it is clear that designing and implementing a reading instruction programme requires focus beyond classroom instruction. Attendant factors such as nutrition of the children undergoing the reading instruction should be given due attention as there is a proven link between nutrition and cognitive ability, which affects how a child will handle and process the reading instruction. Similarly, resources available in schools have a larger effect on the performance of the children in reading tests. Obviously, in this study availability of school libraries and distribution of reading materials to children post-lessons matters more on how well they will read. As noted above, the reading instruction curricula must be complemented by a focussed attention on how the school leadership supports the ability of teachers to teach. In addition, children that are not canned in schools have potential to approach teachers for reading support and improve their reading skills.

Table 1: Mixed effects model on children's ability to read

Mixed-effects ML regression					Number of obs. = 284
Log likelihood = -389.16134					Wald chi2(8) = 21.25
					Prob > chi2 = 0.0065
	Coef.	Std. Err.	z	P > z	[95% Conf. Interval]
Reading score					
Level of nutrition intensity	-.1145563	.0518366	-2.21	0.027**	-.2161542 -.0129583
Availability of library at school	.4774212	.160216	2.98	0.003***	.1634036 .7914388
Well stocked library available at school	.11372	.1925811	0.59	0.555	-.263732 .4911721
Reading textbooks distributed to children	-.6822961	.2793358	-2.44	0.015**	-1.229784 -.134808
Adequacy of teaching materials	.2018808	.1977753	1.02	0.307	-.1857517 .5895133
Reading instruction support provided to teachers	-.7352397	.4853232	-1.51	0.130	-1.686456 .2159763
Teachers' friendliness to children	.256875	.2067419	1.24	0.214	-.1483317 .6620816
Children caning in schools	-.4099865	.2685412	-1.53	0.127	-.9363175 .1163445

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]
Var (Residual)	.9072799	.0761372	7696797 1.06948

The findings above show that the support teachers provide to pupils in their learning to read, the availability of various reading materials, and the utilisation of libraries could be influential in developing reading skills of children. However, these factors found statistically insignificant were rarely available in the study area. Therefore, the study cannot conclusively state that these factors are less influential in explaining variation in the ability of children to acquire reading skills. It remains an area that requires further academic inquiry to complement theory or inform practices in teaching reading.

From the analysis of the factors stated above, the study was able to assess the association of reading ability of children to the level of nutrition intensity received in their first thirty-six months, and assess other school related factors that may have affected the children's ability to read as they grew, having been subjected to a principally homogenous teaching of reading approach. The results offer practical curriculum development implications as well as implementation context consideration. Therefore, implementation of curriculum should be leveraged by the context. If

possible, considerations for investments in the key contextual factors noted above should be made to sustain learning gains from the curricula implementation.

It is apparent that early nutrition supplementation and school resource endowment affect the ability of children to learn to read. However, several factors such as household level support to reading, pupil physiological factors and peer support have potential to affect how well children read. These are aspects that have implications for further studies.

DISCUSSION OF THE RESULTS

Results of the study above show that student performance was not affected by how friendly the teachers were in delivering reading instruction, nor did the school practices and leadership on reading instruction matter. Instead reading performance of students was primarily influenced by three key factors, namely: - 1) student nutrition status, 2) availability of text at home and 3) utilisation of libraries in schools. These findings discount earlier findings by Gurr (2015), Dimmock (2015), Day, Sammons and Gorgen (2018) who have claimed that teacher instructional delivery positively correlates to learning outcomes. In this study, this phenomenon was proven marginal. In the context of the home environment and the support students get at home has more leverage on their performance than otherwise.

Results show that students continue to learn beyond instruction received during class. In particular, reading practice supported in home environments have a more significant effect on their performance. Therefore, while accepting the role of reading instruction in the acquisition of reading skills as advanced by Graaff et al. (2009); and Torgerson et al. (2019), the findings clearly show that investments in reading instruction must be supplemented with a clear focus on the nutrition of the students, preferably early nutrition supplemented between 0-5 years, and the home support system for continued support for students during reading practices, and the ability to pay for supplementary reading titles so that text is available in homes and libraries, including those managed by the communities

CONCLUSION

The findings of the study indicate that pupils with good access to early nutrition supplementation have better chance to read well based on their developed cognitive ability. In addition, the study results showed that availability of well utilised school libraries and the adequacy of teaching materials contribute to the ability of children to learn to read. Therefore, curriculum developers and implementing agencies should carefully consider the nutrition stature of the pupils targeted when programming implementation of a reading curriculum and assess leverages where possible. This should be extended to the contextual analysis on the implementation sites, otherwise, there is potential to erode reading gains if the context is not well invested.

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