REIMAGINING ODL INSTRUCTIONAL APPROACHES IN PREPARING OPEN SECONDARY SCHOOL STUDENTS IN MALAWI FOR EVOLVING GLOBAL MARKET

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ABSTRACT

This paper investigated the effectiveness of Open distance and e-learning (ODeL) instruction in Malawi's Open Secondary School (OSS). Employing Technology, Pedagogy and Content Knowledge framework and concurrent mixed methods, the study sampled six OSS, involving 6 head teachers, 6 ODeL coordinators and 24 teachers. Differentiated instruction is credited for enhancing student's motivation, performance, and self-efficacy. However, findings indicated over-reliance of teacher-centered methods.Eighty-six percent of coordinators and 72% of teachers attached this to overcrowded classes and limited contact time.The study underscored the necessity to integrate technology into differentiated instructions to address these constraints. In response to the challenges, Competence and Material in Differentiated Instruction framework was developed to advance use of technology in differentiated instruction. It is envisaged that the developed instructional framework would revolutionize the existing OSS instructional practices in open schools. This initiative aligns withRegional ODL Strategic Plan 2022–2030 and Malawi Vision 2063,promoting inclusive, self-reliant national development through effective education reform.

KEYWORDS

Effectiveness, OSS, TPACK model, differentiated instruction, COMADI framework

1. INTRODUCTION

Education provides opportunities for young people to critically examine global developments that are significant to both the world at large and to their own lives [1]. Article 13 of African Youth Charter of 2006 states that every young person shall have the right to education of good quality, and that the value of multiple forms of education, including formal, non-formal, informal, distance learning and lifelong learning, to meet the diverse needs of young people shall be embraced[2].

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Malawi's National Education Policy in priority area 2 aims to increase equitable access to secondary education and enhance inclusive, quality special secondary education[3]. Nevertheless, the attachment the Government of Malawi (GoM) has placed onto conventional secondary education has in a way hampered the development of ODL in open secondary school (OSS). This perception has been reflected in [4] which established that Open Distance Secondary School (ODSS) students are part-time learners and depend on the same teachers and use facilities of a normal school. According to the report, there is little attention given to these learners as compared to conventional learners.

The instructional approaches used are mostly teacher-centred [5]. Thus, [5] report called for external support to develop learner-centred instructional materials. However, the report is an admission of inadequacy in provision of quality instruction in ODL. According to anecdotal evidence, current practice of ODL is a complete departure from conventional standards in Open Distance, and e-learning (ODeL) discipline. Malawi College of Distance Education as ODL Centre of Specialisation for Secondary Education is scantly visible in operations of open secondary school. The instruction of ODL is left at discretion of OSS teachers and coordinators. With the use of traditional methods of instruction, OSS students are deprived of the opportunity to participate fully in their own learning and eventually tend to achieve lower levels of performance, in both the study context and work context [6].

[7] established that differentiated instruction can be suited in this environment. According to [7], through differentiated learning, teachers can utilize strategies such as flexible grouping, tiered assignments, modifying the learning environment, and implementing a range of instructional approaches in order to differentiate education in inclusive classrooms. [8] added that student engagement and motivation, academic performance, and feelings of autonomy and competence are only some of the beneficial outcomes that have been linked to varied instruction. Furthermore, [9] recommended that institutions must introduce instructional strategies that accommodate technology into ODL. Technology can be utilized to increase access to information; enhance synchronous and asynchronous learning; increase collaboration among learners and staff; reach out to myriad students; improve pedagogy through simulations and help educate those who have other commitments and limitations such as age, sex, time, and physical defects [9].

Therefore, this paper sought to develop an instructional approach framework that promotes the engagement of students and most importantly, advances the interest of students to be drivers of their own learning. The development of this framework will be informed by relevant literature and the findings of this study. However, if an alternative instructional approach is not advanced, promoted, and eventually accepted for use in OSS then the country should brace for a future with its citizenry having decimated intellectual capabilities to compete in the global market.

2. LITERATURE REVIEW

2.1. Current Practice in Teaching of ODL in Open Secondary School in Malawi

Open distance learning (ODL) in its purest sense offers learners to learn at their own pace, engage in their own learning, develop higher order thinking skills and get subjected to real-time student assessment [10]. [11] explained that the term open and distance learning reflects both the fact that all or most of the teaching is conducted by someone who is away from the learner, and that the mission aims to include greater dimensions of openness and flexibility, whether in terms of access, curriculum or other elements of structure.

Contextually, in Malawi, the open and distance learning practiced in open secondary schools (OSS) is devoid of key aspects of mainstream ODL. According to [12], ODL altogether promotes interaction and agility by providing learning opportunities through mediating tools such as face-to-face sessions, Information, Communication and Technology (ICT), print, mobile devices, video, radio, telephones and others. A closer look at current ODL practices, there is an orthodoxical version of the conventional ODL and hence lacks some critical elements. It is usually a face-to-face mode with limited contact hours as compared to conventional one (usually commences from 2 p.m. to around 5 p.m.), teacher-centred methods being the core instructional approach [5], [4]. Notably, Malawi College of Distance of Education is implementing a radio program called Tikwere Interactive Radio Instruction (IRI) for primary schools in Malawi [13]. No similar program is offered at secondary education level. However, subject-specific modules for secondary education are available both in print (which are called *sets*) and digital (uploaded on MCDE website)[5]. Thus, it is mostly distance learning, not entirely ODL. With the limited instructional options and ineffective approaches, it makes the open secondary school disadvantaged to fully prepare the OSS students to reach their full potential [4].

2.2. Effectiveness of Differentiated Instruction on Attainment of Varied Students' Outcomes

Instructional approaches are conductors of knowledge, skills and attitudes in a classroom of learners with varied abilities. A worthwhile instructional approach can expediate knowledge transfer and acquisition while inappropriate instructional approach can otherwise negate it. It is of high essence to recognise that haphazardness in choosing an instructional approach can either promote or frustrate knowledge acquisition in various classroom environments. According to various studies, differentiated instruction is merited for positive learning outcomes in learners [14], [7], [15].

[7] recognised differentiated instruction as a medium to accelerate the satisfaction of learners' diverse needs. Further added that differentiated instruction takes into account the fact that each student has their own unique combination of strengths, weaknesses, interests, and requirements in a learning environment. Teachers can thus choose from a variety of methods which have shown themselves to be effective in differentiating lessons for their students. Differentiated instruction in inclusive classrooms can also be accomplished through the use of multiple pedagogical approaches. Visual, aural and hands-on approaches can all be effective, although some children may learn more effectively through one of these ways than the other. Therefore, when educators use a wide range of strategies, they increase the likelihood that every student will be able to grasp the material presented [7], [15].

According to [7], [14] and [16], differentiated instruction has been linked to a number of positive outcomes such as higher levels of student engagement and motivation, better academic performance and higher levels of student pride in themselves and agency in their learning. Engagement – which is as a result of differentiated instruction – has also been associated with efficacy beliefs in reciprocal relationships which means that students who engage regularly in their academic task are students with high level of self-efficacy [6]. [7] understands that teachers may build a classroom that is conducive to learning for all students, regardless of their cultural or language backgrounds, learning styles, or requirements by employing a wide range of tactics and routinely analyzing student data on their progress. Therefore, use of effective instructional approach can help learners discover themselves in the course of their learning. Learners become more goal-oriented and attain higher levels of performance in study work contexts [11].

2.3. Implications of Utilizing Existing Technologies in ODL Instruction

The emergence of technology has had resonating effects on the education sector. The 21st century has witnessed the replacement of physical textbooks with e-books, tablets, and iPads [10]. Synchronous technology applications such as Skype, Google Hangout, Google Meet, YouTube Live, Facebook Live and Zoom meeting permit teachers and students work at the same pace and are connected online at the same time, making it more like a face-to-face class[17]. Asynchronous technology applications like e-bulletin boards, emails, social media platforms, and learning video recordings allow learning interactions to take place without requiring educators and students to be present at the same time. Similarly, digital video conferencing tools such as Zoom, Microsoft teams, and WebEx, as well as Google classroom offer opportunities for teachers and students to interact in ODL classroom [18].

[19] demonstrated that one of biggest contributions of internet technology in the world of education is in terms of the dissemination of learning content without borders. In tandem with this finding, [18] acknowledged that technology has the potential to revolutionize teaching and learning by allowing for unparalleled collaboration, interaction, and support. [20] further explained that technology offers ability to students to learn at their own pace, to learn independently and to have fun in their learning. With the help of technology for online teaching and learning the materials can be accessed from a computer or from mobile devices. This has created more opportunities for learners [10]. Furthermore, according to [21], technology provides opportunities to promote interaction between learners and teachers. Interaction can increase learning and lessen the psychological distance involved in ODL. Thus interactions can help in achieving the learning outcomes and ensure successful learning; interactions can be facilitated in ODL through effective usage of technology [10]. [22] further added that the use of interactive technology with the affordances of two-way communication and multiple representations may provide more interactions for online learners and thus lead to enhanced learning outcomes. Admittedly, [10] established that technology can promote critical thinking and problem solving skills among learners which are required in the 21st century. [23] advanced that online teachers can make use of various technologies such as Google Docs, Discussion Forums in Blackboard and create various activities that can help to develop the critical skills of learners.

Despite the challenges on utilization of interactive technology in ODL – which among many others include access to technology as result of poor infrastructure[24], digital divide (blocking the distance learners' realisation of their information needs) marginalizing the underclass of "info-poor" [25], and inadequate pedagogical skills of online teachers[10], the emergence of the Internet and related networks such as the World Wide Web has had and will increasingly have radical effect on the transformation of education and training in all sectors [11].

2.4. Theoretical Framework for the Study

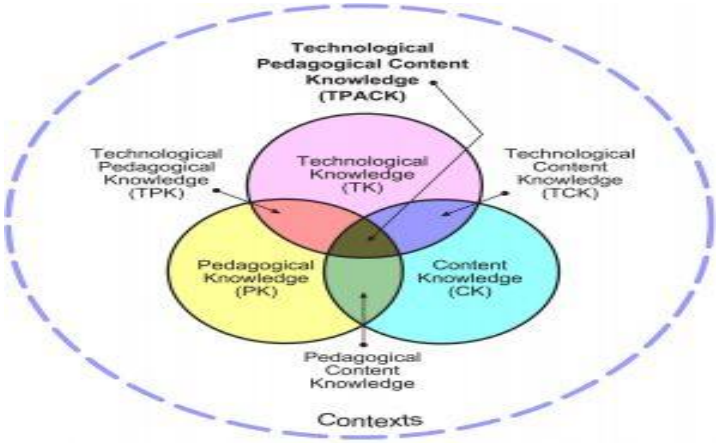

Figure 1: TPACK Model as Theoretical Framework

This study adopted a Technology Pedagogy and Content Knowledge framework on which research undertaking was based. Technology Pedagogical and Content Knowledge (TPACK) is an intersection of Technology Knowledge (TK), Pedagogical Knowledge (PK) and Content Knowledge (CK). The three types of knowledge – TK, PK, and CK – are thus combined and recombined in various ways within the TPACK framework.These triangulated areas then constitute TPACK, which considers the relationships among all three areas and acknowledges that educators are acting within this complex space [26].

In addition, [27]explained that TPACK requires teachers to help their students to acquire content using appropriate teaching methods via use of relevant technologies. In this way, through the framework, technology is seen as a tool that assists in the learning process and helps students stay engaged. Thus, technology provides way into the explanations, representations, analogies, and demonstrations that make the subject matter more approachable to the learner [28].

Most importantly, TPACK is a constructivism approach. For constructivists, both the learner and environmental factors are critical and specific interaction between these two variables create knowledge [29]. As such, good teaching involves learners actively participate, reflectively think and collaborate with one another and the technology integration allows learners to engage in rich learning possibilities [30], [31]. Therefore, we found merit in the framework and hence forms solid foundation to tease out the efficacy of technology in ODL classroom. Placing learners at centre of teaching and learning process with tailored medium of instruction to suit diverse needs of learners and integration of technology in their learning will surely ascertain the possibilities of readying them for dynamic world of business and sustainable livelihoods.

3. METHODOLOGY

3.1. Research Design

A cross sectional concurrent mixed method guided the study to comprehend the ODL instructional approaches that can best transition OSS learners to be competitors at global markets. This design accorded us with the urgency to collect both numeric and categorical data concurrently. Furthermore, concurrent triangulation was advanced. In this design, quantitative and qualitative data were collected and analysed simultaneously with findings converging in

conclusions to answer an overarching research question [32]. The efficacy of instructional approaches currently in use was the overarching question being teased out in this regard.

3.2. Population of the Study

The study targeted ODL facilitators (teachers), coordinators, and head teachers from open secondary schools in Malawi. The principal informants in this case were facilitators and head teachers who - according to our understanding – on the daily basis interact with ODL students in their capacities as teachers. Head teachers were engaged in order to understand the management of open secondary schools. These participants were drawn from the northern, central and southern regions of Malawi.

3.3. Sampling Technique and Sample Size

The study employed purposive sampling techniques to select the open secondary schools. Two schools from each region took part in the study. This entails that critical case sampling technique was used in this scenario. According to [32], critical case sampling technique involves selection of units that provides a crucial test of a theory or program. Further added that the examination of the critical cases can enhance the ability to generalize or apply to other cases. Critical case sampling is where you collect critical samples that are most likely to give you information you are looking for. In addition, this type of sampling is particularly useful if a small number of cases can be sampled[33]. The case in this study is an open secondary school with largest enrolment in the region. However, we wanted two open secondary schools per region. Therefore, the first two schools with largest enrolment were selected. The reasoning behind the criterion of choosing schools with largest enrolment is that – basing on anecdotal evidence – teachers in these schools mostly prefer to employ traditional instructional methods to learner-centred instructional approaches. From this premise, we anticipate gathering information that can either substantiate the propositions this study is advancing or provide enough grounds to appreciate the implications of traditional instructional methods on learning outcomes of ODL students.

However, if for instance more than two schools have “abnormally” large enrolments within a region then single random sampling technique will be applied to select the two schools. A *random number generator* application downloaded from Android’s Play Store will be used to do the sampling. Therefore, in total, six open secondary schools in Malawi took part in the study. Furthermore, each school provided four (4) facilitators (which were randomly sampled from selected OSS’s data), one (1) coordinator and one (1) head teacher, making a total of 36 participants.

3.4. Research Instruments and Data Collection Response Rate

We used questionnaires to collect numerical data from ODL facilitators and coordinators. Virtual interviews were administered to head teachers in the northern and southern regions of Malawi. In-person interviews (face-to-face interviews) were administered to head teachers in the central region. Questionnaires were checked for validity and reliability. Both attributes exceeded minimum requirements. This entails that the protocols measured what they were supposed to measure.

Response rate for survey participants is presented in Table 1. For schools in north and south, questionnaires for facilitators were sent and accessed via social media platforms and emails. Those for the central region, the data collection was done physically. Efforts were made to make follow-ups on the survey tools sent to the participants. However, some failed to submit, hence the recorded response rate in the table. Remarkably, the return rate in the table was consistent with

[34] who stated that a 50 percent return rate is adequate, 60 percent is good enough while 70 percent is very good. Similarly, of all head teachers earmarked for interviews only one did not turn up for the interview.

Table 1: Data Collection Response Rate

Respondents	Questionnaires targeted	Questionnaires administered	Questionnaires returned	Return rate
ODL facilitators	24	24	21	87.5%
ODL coordinators	6	6	4	66.7%

3.5. Data Analysis

Quantitative data was analysed using Statistical Package for Social Sciences (SPSS) version 27 to generate descriptive statistics. Descriptive statistics in this case are frequency tables, pie charts, graphs since the number of respondents is not huge [35]. Inductive content analysis analysed categorical data. Inductive content analysis is credited for interpreting opinions and perspectives of various subjects by categorizing elements into themes [32].

4. RESEARCH RESULTS

4.1. Current Practice in Teaching of ODL in Open Secondary School in Malawi

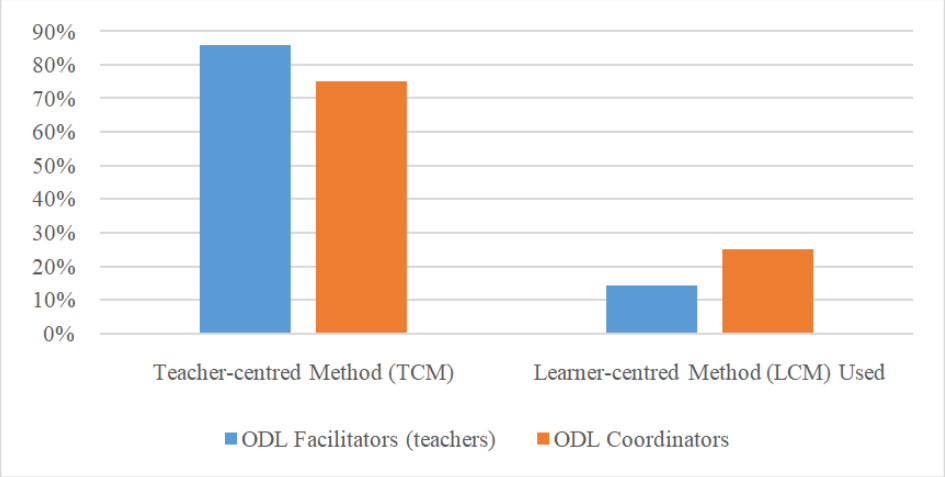

Figure 2: Current Instructional Approaches in Use

About eighty-six percent of facilitators accepted they were using teacher-centred approaches. Similarly, over seventy percent of coordinators agreed that the traditional methods were prioritized. These findings were consistent with the head teachers' own. Head teacher V expressed that "*it is the most predominant instructional approach in ODL instruction.*"

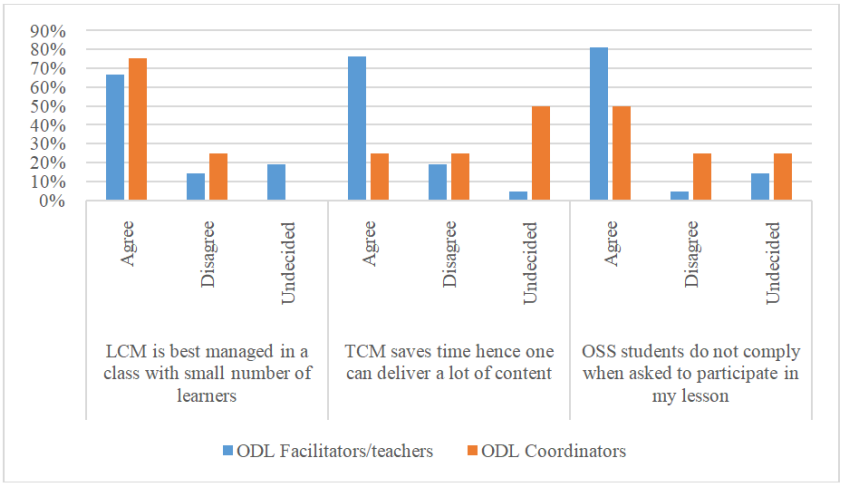

Figure 3: Reasons for Use of Teacher-centred Methods

More than half of both facilitators and coordinators endorsed that learner-centred method is best managed in a class with small number of learners. Apart from this reason, they also agreed that OSS students do not comply when asked to participate in lessons as being the second most prevalent reason for their employing of orthodoxical method. Likewise, head teacher W had similar idea.

> *"they [teachers] want to cover the syllabus since they have less learning hours. In addition, most students do not participate in group work as they do not like expressing ideas, but only those who are repeating can do that."*

However, head teacher X had this to say.

> *"ODL time is limited, mostly six period of 30-minutes per day which is far from being adequate to fully delve into studying of a particular aspect [subject matter]."*

4.2. Effectiveness of Differentiated Instructional Approach on Attainment of Students' Outcomes

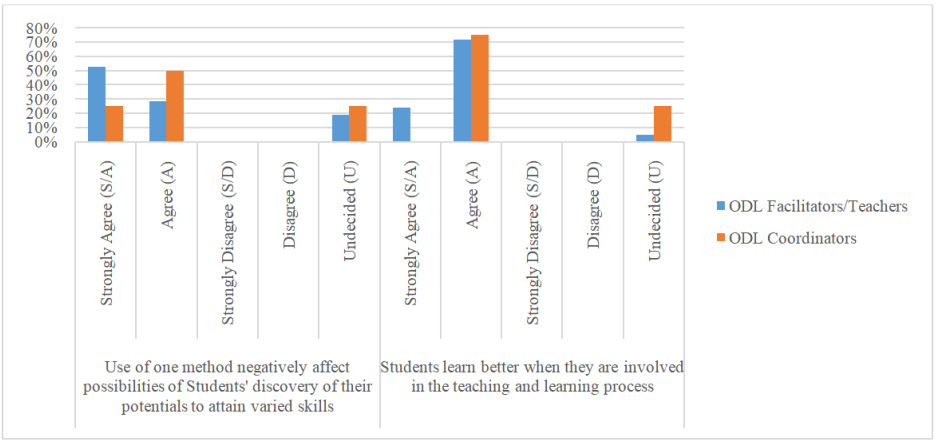

Figure 4: Effect of Varied Instructional Approaches on Attainment of Students' Outcomes

Over eighty percent and seventy percent of facilitators and coordinators respectively agreed that use of one method of instruction negatively affects possibilities of students' discovery of their potential to achieve varied skills. In the same vein, head teacher Y confirmed that *"flexibility in varying methods assist students with learning difficulties to grasp and participate in the lesson."*

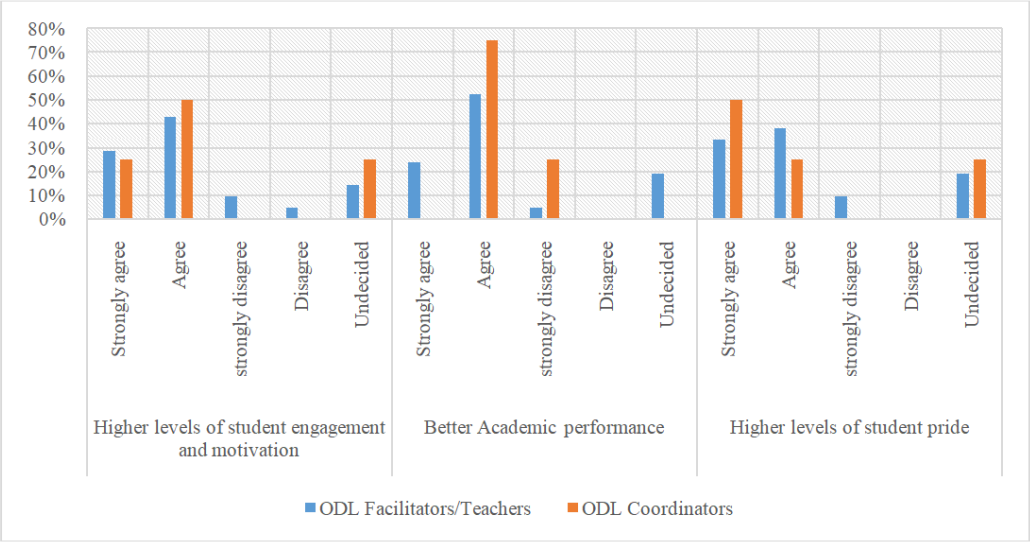

Figure 5: Benefits of Using Differentiated Instructional Approaches in ODL Classroom

Differentiated instructional approaches have been credited for better academic performance according to majority of facilitators as well as coordinators. However, in related scrutiny of methodologies and resultant effect on students' outcomes in terms of poor performances in OSS, head teacher Z attributed it to *"lack of learner-centred methodologies."* Head teacher U added that:

> *"Differentiated instruction is indeed best approach of delivering quality subject content to the intended recipients. We wish that deliberate efforts be made to popularize them otherwise our students are losing out."*

4.3. Implications of Utilizing Technologies in ODL Instruction

4.3.1. Effect of Technology onTeaching ODL

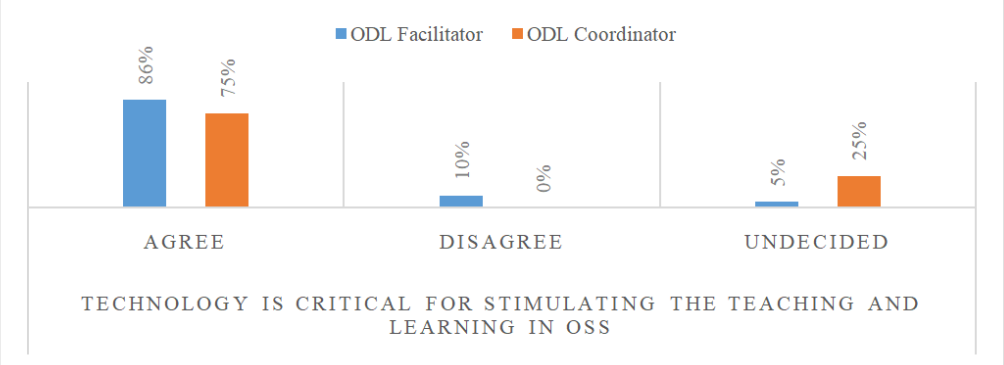

Figure 6: Technology as Stimulus for Effective Learning

Eighty-six percent and seventy-five percent of facilitators and coordinators respectively accepted that technology is critical for stimulating the teaching and learning in OSS. Head teacher X added that

> *"it [technology] can effectively enhance the instruction since they [students] can interact with the content on their own through online/e-learning using smartphones or computers."*

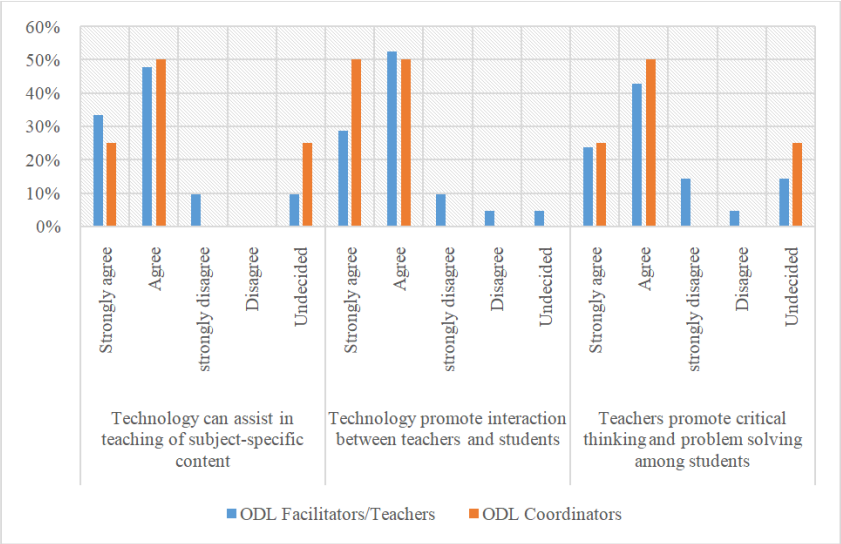

Figure 7: Influence of Technology on Teaching and Learning Process

Majority of primary respondents acknowledged that technology has the potential to enhance teaching and learning subject-specific content; promote interaction between teachers and students; and promote critical thinking and problem-solving among students.

> *"Technology if utilised properly has capability to transform the way we [teachers] conduct our lessons. Students can be learning at their own pace thereby making sure the gap in terms of coverage of content between conventional students and OSS students is halved."*

Head teacher X remarked when quizzed on the efficacy of utilizing technology in teaching and learning of ODL.

4.3.2. Urgency for Technology integrated Instructional Approaches

Table 2: Demand for Technology-integrated Instructional Approaches

Respondent	Will you recommend adoption and use of learner-centred instructional methods which promote integration of technology				
	most likely recommend	likely recommend	least likely recommend	not recommend	Undecided
ODL facilitators	33%	29%	14%	10%	14%
ODL Coordinators	50%	25%	0%	0%	25%

Sixty-two percent of facilitators would likely recommend the adoption and use of learner-centred methods which promote integration of technology. Similarly, seventy-five percent of coordinators would do the same. Head teacher V explained that

> *"Instructional approaches that utilizes existing technologies and informed by relevant frameworks would surely revolutionalise teaching and learning in open secondary schools. It will bring the learning closer to the students."*

5. DISCUSSION OF FINDINGS

5.1. Current Practice in Teaching of ODL in Open Secondary Schools in Malawi

Majority of respondents consented that teacher-centred methods continue to be prioritized in ODL classrooms. Despite knowing the negative effects of traditional methods on teaching and learning, use of the method has been exacerbated by large classes facilitators accustomed to. However, it ought to be emphasized that continued use could frustrate efforts of meeting standards in Article 13 of African Youth Charter of 2006 – which advocates for young persons' right to good quality education and ensures that various forms of education must meet the diverse needs of young people – and of Malawi National Education Policy especially Priority Area 2 which primarily endeavours to ensure increased equitable access to secondary education and that the education should be of quality and relevant, special and inclusive [2], [3]. [18]further comprehend that students who regularly engage in their academic tasks are students with high levels of self-efficacy. Their findings sought to have dismissed the relevancy of traditional methods to induce positive learning outcomes in students.

5.2.Effectiveness of Differentiated Instructional Approaches on Attainment of Students' Outcomes

Majority of primary surveyed participants failed to disagree that varied instructional approaches bring about positive atmosphere for learning hence enhancing acquisition of knowledge and skills. Management too agreed that varying instructional methods provide conducive environment for students with mixed abilities to participate in their learning. In addition, they did not deny but overwhelmingly alluded that differentiated instructional approaches contribute to better academic performance. These findings are in tandem with [8] who also established that varied instruction is credited for student engagement and motivation, academic performance, and feelings of autonomy and competence.

5.3. Implication of Utilizing Technologies in ODL Instruction

Majority of respondents did not disagree that technology stimulates learning in students. So too head teachers had similar views. [20] had found out that technology ensures students to ably interface with the subject content in a variety of ways of which it is not possible with face-to-face mode of instruction. According to [10], this has brought about more opportunities for students. Moreover, in terms of influence on teaching and learning process, technology has the capability to contribute to more positive students' outcomes in as far as the study participants were concerned. [22] also found that use of interactive technology enhanced achievement of learning outcomes.

However, there was a call from respondents for development of technology-integrated instructional approach to counter the continued overuse of traditional methods which (to the participants) has proven to have negated the possibilities of producing market-ready OSS

graduands who could compete at global level. In addition to the calls, other findings pointed out that when educators incorporate wide range of strategies in their teaching, they enhance the likelihood that every student will be able to grasp the teaching and learning material presented [7], [15]. Therefore, the formulation of and subsequent adoption of differentiated instructional approach will among other things bring out the needed change in the way ODL is delivered to OSS students.

6. CONCLUSION AND RECOMMENDATIONS

Study respondents accepted use of traditional methods of instruction. These methods have been faulted for not delivering the expected standards required to compete at global level. Open secondary school students continue to fall behind their counterparts in many areas and therefore attain undesirable learning outcomes. Nevertheless, varied instructional approaches have been touted to be responsible for desirable learning outcomes in students. With advent of technology, study respondents believe its integration in teaching and learning can transform the education sector especially in the instruction of ODL. As such it has been suggested that efforts be made to make use of existing technologies to assist in instruction of open and distance learning. Thus, demand for development of instructional approach with inducement of technology is inevitable due to the approach's efficacy. According to these findings, this approach once rolled out can address the gaps in the instruction. In pursuant to this call, this study has developed an instructional framework called Competence and Materials in Differentiated Instruction (COMADI) of which, subject to further scrutiny and test, can be a solution to the established challenge.

6.1. COMADI Framework for ODL Instruction in Open Secondary Schools in Malawi

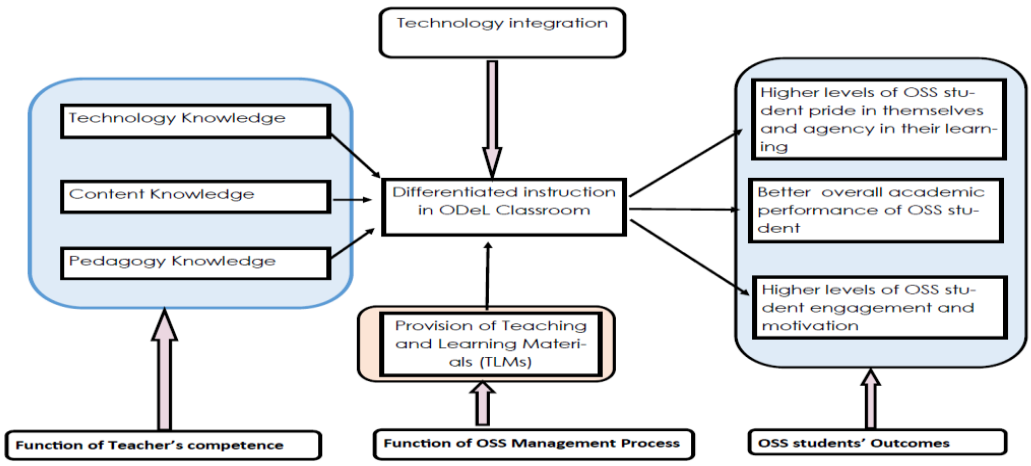

Figure 8: COMADI Framework for Effective ODL Instruction in Open Secondary Schools

Technological Pedagogical and Content Knowledge (TPACK) frameworkinformed the development of Competence and Materials in Differentiated Instruction (COMADI) model. The COMADI framework proposes that knowledge on technology, pedagogy and content is a function of teachers' competence. Competent teacher has acquired knowledge about appropriate technology to be applied in a specific subject content while employing relevant pedagogy to facilitate the teaching and learning. In this framework, use of relevant technology is advanced to form part of the instruction hence dealing with constraints such as limited contact hours, large

classes which attract use of teacher-centred methods. Again, technology can help to clarify some concepts within the content to accelerate the learning process.

In addition, this competent teacher needs teaching and learning materials (TLMs) supplied by Open Secondary School (OSS) management to assist in the teaching and learning. Hence provision of TLMs is a function of OSS management. OSS management processes affect the provision of TLMs which in turn will affect the teacher's lesson delivery.

In this framework, teacher must have attained the relevant competencies and been provided with TLMs before attending the lessons. During the teaching and learning process, the teacher must use differentiated instruction knowing that students have varied learning abilities. [7] established that differentiated instruction has been proved time and time again to be an efficient method of catering to the demands of a wide range of students. [14] further added that it has been linked to gains in students' interest and motivation, productivity in the classroom, and a sense of agency and self-worth. Thus, this study found merit in its incorporation into the model.

The framework expects that, after meeting all the parameters, students will – at the end of education cycle – have better academic performance and higher levels of pride in themselves and higher levels of engagement and motivation. These changes in students form part of student outcomes. This study advances that consideration, testing and adoption of this framework will help to improve the instruction of ODeL in OSS and eventually, ODeL graduates will positively contribute to the development of the country.

7. SUGGESTED AREAS FOR FURTHER RESEARCH

Similar study should be undertaken to establish the relationship between the use of traditional methods of instruction and students' learning outcomes in open secondary schools across the country. The results of this study would help to strengthen the need to introduce differentiated instructional strategies in the teaching of ODL in Malawi. Furthermore, another study, however longitudinal, should be carried out to determine the efficacy of the instructional framework this study has formulated as an alternative to existing instructional strategies used in instruction of ODL in Malawi.

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