

Effectiveness of School-Based Instructional Supervision Material to Enhance School Leaders' Capacity to Supervise Competence-Based Curriculum Implementation in Zanzibar, Tanzania

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Abstract

This paper assesses the effectiveness of School-Based Instructional Materials (SB-ISMs) in enhancing school leaders' capacity to supervise competence-based curriculum implementation in Zanzibar. The study employed Design-Based Research (DBR) through phenomenography and a single-group quasi-experimental design. It draws on data from 33 section leaders and 118 teachers purposively selected from 15 secondary schools. The data were generated using interviews and questionnaires. It was found that through SB-ISMs, school leaders can support their teachers in implementing CBC. Besides, the paired samples t-test performed on the mean difference of Section Leaders' Competence Scale (SLCS) scores before and after the intervention gave 18.36, with a p-value of <0.0001. Further, the mean difference of School Teachers Competence Scale (STCS) scores before and after the intervention was 14.39, with a p-value of <0.0001. The study recommends that the Ministry of Education, Science, and Technology should disseminate a supervisory guide to all public secondary school leaders, followed by a series of workshops to facilitate its implementation.

Keywords : Competency-based curriculum, Implementation, School-Based Instructional Supervision Material, School leaders, Zanzibar

Introduction

Societies are advancing towards a more complex entity with a myriad of challenges to be solved. In this way, curriculum reform is mandatory to have new learning opportunities or experiences appropriate for emerging challenges (Boahin, 2018; Tahirsylaj & Fazliu, 2021). Taking a cognizance of the new demands of 21 century, in the last years, most of the educational systems in America, Europe, Asia, and Africa have shifted to a competence-based approach (Mumwanguzi, Kibaya & Dicken, 2023). In the USA, there were concerns over insufficient teacher preparation programs and graduates' difficulties finding jobs (Sullivan & Burce, 2014). The state education departments began promoting competency-based teacher preparation in the middle of the 1960s. Later on, several other European nations, including France, Australia, Belgium, Switzerland, and Quebec, adopted the Competence-Based Curriculum (CBC) approach in teaching and learning (Anderson, 2017). Sub-Saharan Africa has never remained immune to these global changes in curriculum. Thus, different countries embraced CBC reform at different times with similar intentions. For example, South Africa moved into CBC in 1998 (Komba & Mwandanji, 2015), the Republic of Cameroon in 2012, which was then approved in 2014 (Ngala, 2016), Rwanda in 2015 (Rwanda Education Board, 2017), and Kenya in 2016 (K.I.C.D, 2016). The shift into a competency-based approach was triggered by an attempt to do away with content-based curricula inherited from their colonial masters for many years. It was explained that the traditional content-based curriculum, also known as a knowledge-based curriculum, failed to instill cross-cultural and cross-contextual competencies relevant to the global agenda of sustainable education. Based on these flaws, the CBC was felt to be a

good innovation for enabling the learners to acquire competencies and essential information that would either enable them to further their schooling or position them for a seamless entry into the labor market alongside fostering their intellectual, civic, and moral development (Akala, 2021).

Tanzania and Zanzibar, in particular, were not left behind in the CBC reform movement. The country's effort to get into CBC became visible in 2005. At that time, the CBC came into light to phase out the content-based curriculum that was condemned for emphasizing too much on what students must know instead of what they should do with what they know for them to become real problem solvers in their societies (Mwandangi & Komba, 2015). In this regard, CBC was highly demanded as a measure to prepare competent graduates as future experts in various fields; hence, contributing to the country's development vision in the shortest time possible. Similarly, the CBC reform was taken as a viable decision in shaping the students to be global citizens capable of serving elsewhere (Ruth & Ramdas, 2020). Nonetheless, an observation made by some scholars (Nkya et al., 2021; Kangalawe et al., 2019; Muneja, 2015; William et al., 2014) indicated that classroom teaching in Tanzania and Zanzibar in particular, still uses the conventional teacher-centered approach predominantly characterized by lecture methods in which chalk-and-talk predominates. It is also poignant to note that in the chalk-and-talk kind of teaching, students are still assumed to be passive listeners and receivers of knowledge whose learning activity is only to copy notes from the board (Makunja, 2016). Research findings have established that one of the reasons for the ineffective implementation of CBC in schools is inadequate supervision of teachers by their school leaders (head teachers and section leaders) (Ali, 2015; Nyambo, 2017; Siamoo, 2013). In this context, enhancing the capacity of school leaders to supervise the implementation of CBC was felt imperative and timely.

The researcher is aware of several attempts made by the governments and other educational stakeholders both in Tanzania mainland and Zanzibar to facilitate the effective implementation of the curriculum. Some of the notable attempts include the introduction of a boost for primary education, the Secondary Education Improvement Programme (SEQUIP), and the latest initiative is enhancing the quality of secondary school education projects (United Nations Office for Project Services [UNOPS], 2022). For instance, enhancing the quality of secondary school education projects is coordinated by Good Neighbors¹ in Zanzibar, whose focus is enhancing the quality of secondary school education by building science laboratories and procuring equipment and supplies for secondary schools both in Unguja and Pemba Island. The said project, which enhances the quality of secondary school education, also organizes capacity-building workshops for teachers on curriculum issues. Still, at least from these projects, one would see that the projects have focused on teachers and less on school leaders and CBC. This warranted the conduct of this study to enhance

¹ It is a non-profit organization based in Korea that partner with Zanzibar in various projects aiming to improve quality education.

school leaders' capacity to supervise the CBC implementation through the design and development of educational materials.

The school leaders are the primary curriculum advisors for their schools and are in charge of helping teachers improve the quality of teaching and learning in the classroom rooms (Ashum & Acquah, 2021). Underscoring the role of school leaders in supervising the curriculum, an agreement among scholars (Mkulu & Ngole, 2020; Sabola, 2017; Islam et al., 2014) suggests that effective school supervision is important in developing teachers' competence and confidence in implementing the curriculum, which in turn enhances students' positive learning outcomes. The school leaders' influence on the effective implementation of the curriculum can be manifested through motivating, encouraging, facilitating teamwork and peer training, and providing advice to teachers on the best practices to implement the curriculum more effectively Chaudhary, 2015; Waruingi et al., 2022). From the discourse, it is logical to make an argument that monitoring and guiding teachers on the effective preparation of schemes of work and lesson plans closely tallying to the requirements of the competence-based curriculum are among the key obligations of the school leaders (Lynn & CurryCorp, 2017; Van Griethuijs et al., 2019). However, school leaders in Zanzibar do not demonstrate these supervision competencies (Ali, 2015; Nyambo, 2017); hence making teachers fail to receive the support they would need to execute the CBC innovation more effectively.

As a remedy to such CBC supervision problem, this study developed and field-tested the School-Based Instructional Materials (SB-ISMs). Specifically, the SB-ISMs aimed to support school leaders in supervising competence-based instructional planning, including the competence-based scheme of work, competence-based lesson delivery, and competence-based assessment. Therefore, this article serves to report on the effectiveness of the SB-ISMs to enhance school leaders' capacity to supervise CBC. The results of this study would also inform the policymakers on the need to disseminate a supervision guide to all public secondary schools in Zanzibar to facilitate the effective implementation of CBC. It is hoped that the lessons to be learned from the efforts of this study will go a long way in enabling several organizations and other researchers to develop or aspiring to develop supervision guides to support school leaders' capacity in supervising CBC implementation.

Current State of Research

With regards to the intervention studies in education and their effectiveness in improving the practitioner's (teachers, school leaders') capacities in schools, many studies have shown that intervention studies embedded with exemplary curriculum materials are effective in improving teachers' and school leaders' practices. However, those studies had no direct focus on capacitating school leaders in supervising CBC implementation. For instance, a study by Gakii (2015) developed a model of exemplary instructional materials that can support Kenya secondary school chemistry teachers in engaging learners in investigative practical work by addressing the challenges they face when teaching practical work. Through designed-based research, the study designed, developed, and evaluated exemplary materials. The

results of the study revealed that through teachers' experiences, the materials provided teachers with guidelines that they can use in guiding learners through learning practical work.

In another study, Siamoo (2013), developed a training module that provided skills on evaluation and supervision of classroom instruction to Tanzania head teachers. The effectiveness of the training was proven as very potential to improve the school heads' pedagogical supervision skills. However, Siamoo's study was not very particular about developing school heads' instructional supervision on CBC in Zanzibar. This implies that interventional studies for developing school leaders' instructional supervisory skills for CBC implementation have been scanty, particularly in Zanzibar.

Nguru (2018) designed and developed curriculum materials in primary science on the topic of matter and change of state. Nguru's study intended to address the rising misconceptions among grade six pupils learning about a topic of matter due to the lack of context-based learning resources on this topic. The results of the study indicated that the developed materials were effective in reinforcing learning science about matter. Another study is by Pembe (2017) which designed and developed Intervention Learning Materials (ILM) to support children with susceptible writing difficulties (CSWD) to improve their writing ability. The results indicated that the intervention materials helped to improve the writing ability of children at risk of writing difficulty. Another study by Massi (2015) designed, developed and implemented learner-centered exemplary materials to improve teaching and learning the human evolution topic in O-level secondary school history syllabus in Tanzania. The results of the study proved that the teaching of human evolution through learner-centered exemplary materials brought positive changes in teachers' instructional practices, and positive attitudes among teachers as well as students towards learner-centered exemplary materials thereby high the rate of students learning.

Allay (2019) designed and developed a contextual curriculum for enhancing vocational skills learning in primary schools for the Datoga pastoralist community, one of the disadvantaged pastoralist communities in Tanzania. The results revealed that the developed vocational skills curriculum materials enhanced learning among the Datoga pastoralist communities.

In Tanzania, a study by Ndabakurane (2020), designed English language supportive materials to improve students' vocabularies and reading comprehension proficiencies among students in secondary schools in Tanzania. The study concluded that the designed English language supportive materials proved the potential to improve students' vocabularies and reading comprehension proficiencies. In another study, Philip (2020) designed intervention learning materials for improving English language comprehension ability among students with hearing impairment in inclusive classrooms in Tanzania through a collaborative instructional approach. The intervention learning materials were designed and developed within the framework of social constructivism and text comprehension theories. The findings

of the study indicated that the comprehension ability of students with hearing impairment improved significantly because of the developed intervention materials. This improvement was particularly evident in the experimental group as compared to the control group.

Based on the foregoing discourse, it is evident that Tanzania and more, so Zanzibar got into CBC reform to enable school graduates to handle job-related demands and become problem solvers. Since then, this intention has been crippled by teachers' incapacity to execute it for their students. The literature has also exposed that school leaders were not well prepared to support their teachers in this case. Unfortunately, the cited local intervention studies had no focus on capacitating school leaders to supervise the effective implementation of CBC. To overcome this research lacuna, the researcher developed and assessed the School-Based Instructional Materials (SB-ISMs) as an intervention to support school leaders in supervising the effective implementation of CBC whose effectiveness is hereby reported in this article.

Materials and Methods

Overall, this study was informed by Design-Based Research (DBR) in a mixed-method embedded intervention design (Karsten & van Zyl, 2022; Nieveen, 2009; Plomp, 2009). Under DBR, a *preliminary investigation* was undertaken to determine school leaders' current supervisory practices on CBC and best practices from the literature on effective supervision of CBC. *Prototyping (iterative design phase)* was involved in the design and development of different prototypes of the desired intervention materials. Lastly, a *semi-summative evaluation (reflective phase)* was used to establish the effectiveness of the developed intervention after being fully field-tested. As stated earlier, the focus of this article was to present the findings from the semi-summative evaluation phase only. With the embedded intervention design, the researcher collected both qualitative and quantitative data simultaneously in a qualitative dominant intervention study such as this (QUAL>quan) (Creswell & Creswell, 2018). In this case, the quantitative research approach was embedded to supplement the former approach. Categorically, the phenomenography design was also felt appropriate in investigating variations in the way teachers and school leaders experienced the intervention materials (Khan, 2014) whereas a single-group quasi-experimental design was needed to measure the effectiveness of the intervention materials upon field testing (Mertens, 2019).

This study was carried out in Zanzibar, particularly in West B District and Urban District, both located in the Urban West Region. Unlike Tanzania Mainland, Zanzibar was chosen based on the limited intervention studies with a specific focus on capacitating school leaders to supervise CBC implementation (William, 2012; Gabriel, 2013). About 30 schools were selected: 15 from the Urban District and 15 from West B District. The involvement of the selected schools was motivated by the preliminary study conducted by the researcher in 2015, which established that at least these two districts showed interest in taking part in the study because school leaders thought that the training programme would update them on the modern supervisory skills for CBC implementation.

The sample of the study involved section leaders (N=33) and teachers (N=118). The section leaders were purposively selected because they are in charge of supervising the teaching and learning process in the context of Zanzibar. On the other hand, only teachers who got a chance to be supervised by their leaders after the intervention program were purposively selected to have their experiences on the CBC supervisory practices executed for them by their section leaders.

Data collection and analysis

The effectiveness of the intervention was established by using data collected through a semi-structured interview guide and a retrospective questionnaire for triangulation purposes. Qualitative data from the interview were recorded and transcribed verbatim and were analysed using a thematic approach (Braun & Clark, 2006). With the support of the SPSS 25 version, quantitative data from the retrospective questionnaire were analysed using the paired samples t-test performed on the mean difference of Section Leaders' Competence Scale (SLCS) scores and School Teachers Competence Scale (STCS) scores before and after the intervention.

Validity and reliability of the instruments

With inputs from the literature, the researcher constructed the items/ variables of the instruments. The relevance of the items about the aspects measured was verified by the educational management experts and colleagues. This ensured the content validity of the instruments. Face validity was ensured by colleagues with experience in qualitative research and academic writing culture whereby clarity and ambiguity among the items were enhanced. However, as stated before, the study had section leaders' as well as teachers' questionnaires. In this sense, it was important to have reliability tests for both. Starting with the section leaders' questionnaire, the composite reliability index for each of the factors resulting from the factor analysis presented the following results: 0.937 for pedagogical competence supervision, 0.872 for professional competence supervision, 0.847 for lesson delivery supervision, and 0.720 for instructional planning supervision. It is evident from these statistics that the values of composite reliability indices for all constructs were greater than 0.7 which is an indication of good reliability for all constructs.

Furthermore, it was also found important to compute composite reliability on the retrospective questionnaires for teachers. The proposed model had the following reliability indices: 0.877 for instructional planning competence, 0.779 for lesson delivery competence, and 0.830 for assessment practices competence. It is clear from such reliability indices that the values of the Composite Reliability Index (CRI) for all constructs were greater than 0.7, which is an indication of good reliability for all constructs.

In observing ethical practices of conducting research, different procedures were followed. To collect the data, approval for the conduct of this study was sought and granted by the Directorate of Research and Publications, University of Dodoma. The informed consent from the participants was also sought. The confidentiality of the data and anonymity of the participants were carefully considered by using general terms such as "section leader" and the use of

letters instead of mentioning the actual names of the participants while their participation remained voluntary. In addressing anonymity aspects, letters were used to represent the actual names of the participants.

Research findings

The key function of this section is to present the study results that emerged from the study. The study results are presented based on the study's main objective which is the effectiveness of the validated SB-ISMs for enhancing SBIS capacity for the implementation of CBC. A wide range of evidence was used to determine the effectiveness of the validated SB-ISMs. Such evidence includes overall sample paired t-test results for teachers, the results of Open-Ended Questions for teachers, Pre, and post-intervention classroom observation results on teachers, Pre, and post-intervention teachers' instructional planning skills, the overall Paired Sample t-test Results for section leaders and Results of Open-Ended Questions for Section Leaders.

Overall sample paired t-test results for teachers

Regarding the overall t-test for teachers, the results (in Table 1) show that the mean difference in STCS scores before and after the intervention was 14.39 with a p-value of <0.0001. This means that there was a significantly higher SBIS capacity for the implementation of CBC among teachers after the intervention as compared to the situation before the intervention. This implies that the validated SB-ISMs used to enhance SBIS capacity for the implementation of CBC were significantly effective.

Table 1

The Results of Paired Sample t-test for Effectiveness of the Validated SB-ISMs Used for Enhancing SBIS Capacity for the Implementation of CBC

Variable	Mean ± SD	T-Value	P-value
Before intervention	39.88 ± 12.24		
After intervention	54.27 ± 9.47		
After intervention – Before intervention	14.39 ± 12.72	12.29	<0.0001

Source: Field Data (2023)

The results of Open-Ended Questions for teachers

In the attempt to strengthen evidence on the effectiveness of the developed intervention as viewed from teachers' perspectives, additional data were collected. This was made by asking teachers a set of open-ended questions as a means of corroborating evidence obtained from closed-ended questions. Primarily, the additional open-ended questions were intended to enable the researcher to draw a valid and compressive inference on the effectiveness of the intervention programme. Specifically, these questions elicited information on three major areas. First, teachers'

insights on the ability mostly developed by their school leaders (section leaders) while carrying out internal school supervision compared with before. Another aspect was teachers' insights on the major aspects currently assessed by their school leaders (section leaders) different from the past. The major revealed phenomenons are presented in the subsequent sections.

Ability Mostly Developed by Section Leaders in School Supervision Different from the Past

A close analysis of the scene revealed that the highly emphasized ability among teachers is pedagogical competency. The section leaders emphasize the application of good teaching and learning strategies that could have a positive impact on students' learning. In the teachers' view, good teaching and learning strategies include effective instructional planning whereby lesson plans and schemes of work ought to follow the requirements of a competence-based curriculum. They also cited the management of learners' aggressive behaviours to provide productive learning opportunities. Teachers also pointed out the use of a variety of teaching techniques to reinforce students' involvement in the learning process. They explained that using a variety of teaching techniques could also cater to the diverse needs of the students.

On pedagogical competency, the section leaders stressed the use of appropriate teaching and learning materials (aids). Those materials included real-life objects that are familiar to students and are relevant to the concept taught. In their view, it was thought that the objects should also be capable of engaging students in teaching and learning experiences. Besides, teachers agreed that section leaders advise them on using various strategies regarding the management of students' learning difficulties. Such strategies include using differentiated instruction and individualized instruction to help students in need of extra support. Additional evidence in support of these observations comes from the following excerpt by teacher A:

I feel that the intervention has improved my pedagogical competence. This is due to the high emphasis placed on leaders' use of good teaching and learning strategies such as differentiated instruction and individualized instruction catering to the needs of different students, particularly those with learning difficulties (Excerpt from the open-ended question with teacher A, on 3rd January 2023).

Major aspects currently assessed by section leaders different from the past

On this aspect, teachers raised their voices that section leaders assess teachers' ability to execute effective lessons for the students. It was observed that section leaders seek to ensure that teachers employ effective teaching strategies. It was expressed that effective teaching strategies include seeking students' prior knowledge, aligning classroom instructions with learning objectives, using interactive teaching, and learning strategies such as questions and methods and group discussion, using interactive teaching aids, and relating teaching and learning activities to the real-life context of the learners. The following narratives from the extract by teacher C testify to this:

The section leaders want to see if teachers can deliver their lessons effectively. They remind us to take students as our customers. Thus, as service providers, we should work hard to ensure that we use interactive instructional techniques that promote students' learning (Extract from the open-ended question with teacher C, on 3rd January, October 2023).

In addition, the findings showed that instructional planning is another aspect that is critically assessed by the section leaders. Unlike in the past, section leaders currently want to see that the lesson plans and schemes of work are correctly shaped. For example, they check whether statements of competencies are clearly stated using measurable action verbs. They assess teachers to link instructional objectives or learning outcomes with the real-life situation of the learners. They ensure the use of authentic learning tasks for authentic learning. The following extract from teachers' descriptions captures this idea:

Since we finished the intervention programme, I have seen real changes in supervision. At present, I have noted the critical analysis of these documents followed by an intensive discussion between me and my leader. My leader insists on aligning these two documents with CBC demands (Extract from open-ended question with teacher D, on 3rd January, 2023).

Moreover, teachers' competency in using effective assessment practices is another area currently assessed by section leaders. From teachers' experiences, section leaders assess all stages of the lesson from introduction, new development, and conclusion. Categorically, it was revealed that section leaders assess teachers' ability to adopt CBC assessment practices. In this respect, it was noted that teachers are assessed in terms of their abilities to align assessment tasks to instructional objectives or learners' learning outcomes. Teachers are also assessed based on their abilities to design realistic learning tasks and their immediacy in providing assessment feedback to the students. Concurring with this line of thinking, the following extract from teacher E verifies this:

In my observations, our section leaders have changed their practices. Now they want to see if the assessment tasks we provide develop the competencies stipulated in the instructional objectives. They always advise using assessment tasks that generate evidence of students' problem-solving abilities upon finishing the topic (Extract from open-ended questions with teacher E, on 3rd January 2023).

Based on these findings, it is clear that the intervention programme helped the section leaders to increase the critical eyes on how teachers design and carry out effective competence-based assessment practices. This further indicates the success of the executed intervention programme.

The overall Paired Sample t-test Results for section leaders

Regarding an overall paired sample t-test in this section, the results presented in Table 2 showed the mean difference of SLCS score before and after intervention was 18.36 with a p-value of <0.0001. This means that there was significantly higher SBIS capacity for the implementation of CBC among section leaders after the intervention as

compared to before the intervention. This implies that the validated SB-ISMs used to enhance SBIS capacity for the implementation of CBC were significantly effective.

Table 2

The Results of Paired Sample t-test for Effectiveness of the Validated SB-ISMs used for Enhancing SBIS Capacity for the Implementation of CBC

Variable	Mean \pm SD	T-Value	P-value
Before intervention	31.00 \pm 9.33		
After intervention	49.36 \pm 9.56		
After intervention– Before intervention	18.36 \pm 11.61	9.09	<0.0001

Source : Field Data (2023)

Results of Open-Ended Questions for Section Leaders

Apart from section leaders' insights on the effectiveness of the intervention as revealed from closed-ended questions, it was felt important to give them more room to express their opinions lengthily and clearly through open-ended questions. This eventually made the researcher feel safe to come up with a valid inference on the effectiveness of the intervention programme. Specifically, open-ended questions sought to have more insights from section leaders on the skill set gained from the intervention that has improved their capacity to support teachers' effective implementation of CBC, which is different from the past. Also, the questions intended to explore section leaders' plans on changes they intend to make in school from what they have learned in the intervention programme. Finally, the open-ended questions wanted to have section leaders' voices on the areas to be further improved in the subsequent intervention programmes. The next section mirrors the main issues which came to light from open-ended questions.

From the findings, it was revealed that the intervention programme helped section leaders supervise competence-based pedagogy. On this account, section leaders felt that the programme enabled them to model their teachers to create authentic learning experiences. Specifically, section leaders modeled their teachers on providing real-life examples to support students' understanding, how to invite learners' experiences as a base for their learning, demonstrating the provision of real-life learning tasks, and connecting learning outcomes to real-life situations. In this context, the following extract from section leader A illustrates a case in point:

On my side, the intervention programme helped me supervise competence-based pedagogy more effectively. As of now, I can model my teachers how to design learning experiences in a way that mirrors the ambiguities and challenges of real life. This was not the case before the commencement of the current intervention. (Extract from the open-ended question with section leader A, on 9th January 2023).

Similarly, on competence-based pedagogy, section leaders expressed that the intervention programme capacitated them to carry out effective competence-based lesson delivery. Their general perceptions in this direction

indicated that section leaders felt confident in supporting teachers to stimulate students' engagement in the teaching and learning process. This was done through well-designed collaborative learning tasks such as group discussions, which encouraged each student to take part actively in the learning activities. They added that they support teachers in designing and delivering competency-based lessons by using multiple teaching and learning strategies to meet the diverse needs of the students. The section leaders also acknowledged that they are capable of modeling teachers in designing instructional sessions by including activities that provide opportunities to find out what the students already know about the topic. The section leader's feelings at this point are quoted in the following excerpt:

Indeed, this intervention programme has helped me to shape a competence-based lesson and its delivery. I also learned some innovative teaching and learning spaces including starting lessons by exploring what the students know about the topic, providing group work to make students more engaged, and teaching the students by using various methods (Excerpt from open-ended question with section leader B, on 9th January 2023).

Also, one of the skills that section leaders developed from the intervention programme was supervision of competence-based instructional planning and its execution. This entailed designing professional documents such as competence-based curriculum lesson plans and schemes of work. Besides, the participants were of the view that the intervention programme provided them with the capacity to check out if teachers design instructional planning by adhering to Bloom's Taxonomy learning domains. The teachers were assessed if their instructional objectives reflected cognitive, psychomotor, and affective domains. Similarly, while assessing competence-based instructional planning and its execution, the section leaders explained that they assess teachers' ability to write a statement of competence. In section leaders' views, a correctly formulated statement of competence involves the use of action verbs that specify abilities to be demonstrated by the learner. The section leaders' experiences in this context are illustrated in the following excerpt:

Assessing teachers' lesson plans and schemes of work in a way that matches with CBC demand is one of the good things I learned from the intervention programme, I came to know that there are more to be examined such as whether teachers write their competence statements and instructional objectives by reflecting four learning domains of Bloom's Taxonomy. (Excerpt from the open-ended question with section leader C, on 9th January, 2023).

Moreover, the competence-based assessment was also cited by section leaders as one of the significant skills they developed from the intervention programme. They expressed that the programme provided them with skills for assessing the execution of competence-based assessments. Categorically, section leaders believed they could model their teachers in the use of regular or continuous and comprehensive assessment by covering Bloom Taxonomy learning domains. They also felt capable of advising teachers in assessing students based on expected learning outcomes. To section leaders' understanding, it is these outcomes that give assurance of students' ability and readiness to face community problems. Section leaders also advised teachers to provide immediate feedback which encourages students to learn more. They also mentioned that they insist teachers use performance tasks and assessments to

reinforce the students' learning. However, they elucidated that regarding the provision of timely constructive assessment feedback, they thought it is difficult to encourage teachers to do so in the large class context which is normal in Zanzibar. In this context, Section Leader E was blunt enough to say:

Presently, I can support my teachers in designing and executing competence-based assessments. I can advise teachers to assess the students based on the expected learning outcomes. Through this, we become certain of the student's potential to cope with various problems they are likely to face in the community. The only challenge is encouraging my teachers to provide timely corrective feedback assessment feedback because of the large number of students. (Excerpt from the open-ended question with section leader E, on 9th January, 2023).

Discussion

In this study, an intervention (SB-ISMs) was designed to enhance school leaders' capacity to supervise the effective implementation of CBC among government secondary schools in Zanzibar. To that end, both qualitative and quantitative instruments were used to assess the effectiveness of the designed SB-ISMs. The results of this research are discussed in this section based on the related intervention studies conducted elsewhere and in Tanzania in particular whose focus was improving teaching and learning. In the context of this study, the paired samples t-test performed on the mean difference of Section Leaders' Competence Scale (SLCS) scores before and after the intervention was 18.36, with a p-value of <0.0001. Based on these statistics, this study revealed a significant difference in the mean difference of Section Leaders' Competence Scale (SLCS) scores before and after supervising their teachers using the designed SB-ISMs. Further, the mean difference of School Teachers Competence Scale (STCS) scores before and after the intervention was 14.39, with a p-value of <0.0001. This again implies that the validated SB-ISMs used for enhancing SBIS capacity for supervising the implementation of CBC were significantly effective. The effectiveness of the designed intervention programme was also corroborated by the findings from open-ended questions asked to the section leaders whereby they also conform about their increased potential in supervising CBC implementation using SB-ISMs.

Overall, from the findings, it is evident that SB-ISMs were effective in enabling section leaders to support the effective implementation of CBC. This observation was in tandem with other similar studies (Carey, 2011; Rittenour, 2017; Siamoo, 2013). For instance, the study conducted by Siamoo (2013) in Tanzania indicated that after attending the six days intensive Evaluation and Supervision of Classroom Instruction (ESCI) workshops, school leaders (headmasters and headmistress) felt capable of providing support and coaching to the teachers to improve their pedagogical skills. The current study also agrees with Gakii (2015), who also observed that the development of exemplary instructional materials supported Kenya secondary school chemistry teachers in engaging learners in investigative practical work by addressing the challenges they face when teaching practical work. On the same note, Nguru (2018) found that the designed curriculum materials facilitated effective teaching and learning in primary science on the topic of matter and change of state. Similarly, the developed Intervention Learning Materials (ILM) by Pembe

(2017) supported children with susceptible writing difficulties (CSWD) to improve their writing ability. The results of this study indicated that the intervention materials helped to improve the writing ability of children at risk of writing difficulty. Besides, the findings of the current study correspond to Massi (2015) whose learner-centered exemplary materials were found to improve teaching and learning of the human evolution topic in O-level secondary school history syllabus in Tanzania. The findings support that of Allay (2019) who found that the developed contextual curriculum enhanced learning among the Datoga pastoralist communities. The findings of this study confirm earlier studies by Ndabakurane (2020), whose design of English language supportive materials proved potential to improve students' vocabularies and reading comprehension proficiencies. The findings are also consistent with Philip (2020) who noted that the comprehension ability of students with hearing impairment improved significantly as a result of the developed intervention materials.

Conclusion and recommendations

Based on the results of pre-test and post-tests before and after utilizing SB-ISMs, it was found effective to support school leaders in supervising CBC implementation. The effectiveness of the intervention was also complemented by the qualitative results from the interview data thereby creating congruence between quantitative and qualitative results. Hence, this study feels safe to infer that SB-ISMs are feasible for use in public secondary schools and are effective in enhancing school leaders' capacity to supervise the implementation of CBC. Based on the findings, the study comes up with the following recommendations: Firstly, the policymakers from the Ministry of Education, Science, and Technology should disseminate a supervisory guide to all secondary school leaders, followed by a series of workshops to facilitate effective supervision of CBC implementation. Secondly, school leaders should conduct training sessions for their teachers on the effective use of SB-ISMs to support their competence-based teaching and learning in the classrooms. Moreover, the current study would be a valuable point of departure for subsequent researchers whose research focus will be on intervention studies to improve teaching and learning in the classroom context. The subsequent intervention studies on improving school leaders' instructional supervisory practices will find this study a true match.

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