

# The relationship between teachers, competence and flipped classroom model in teaching in Lower Secondary Schools in Northern Region of Zanzibar, Tanzania.

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## Abstract

The study was carried out to assess the relationship between teachers' competence and flipped classroom model in lower Secondary School in Northern Region of Zanzibar, Tanzania. The study employed a cross-sectional survey design using quantitative and qualitative approaches. A total of 400 respondents participated in the study and census sampling was employed since the entire population was used. Questionnaires and interview guide were the instruments used for data collection, the instrument was validated and the reliability coefficient of 0.98. The data was analysed using frequency, percentage, means and standard deviation. Spearman Rank Correlation analysis was used to analyze the relationship of variable at 0.05 level of significance, Interview was analysed using content analysis there was a significant relationship between teachers' competence and flipped classroom model in teaching. Based on the findings, the following were the conclusions; Teachers' competence affect the use of flipped classroom model in teaching. Based on the findings and conclusions the following recommendations were made: that teachers should offer refresher courses, workshop to improve their classroom management skills. There is need for head teachers to encourage teachers not only to stick on the flipped classroom alone but also to balance flipped classroom with face-to-face teaching also. And that Education Board especially in Zanzibar should ensure that teachers are monitored regularly and post-supervision conference is always arranged. And the Ministry of Education and Vocational Training should emphasize increasing sensitization, update courses, provide training and seminars, motivation of teachers, improve infrastructure and use of technology especially in hardship area/environment.

**Key words: Teachers, competence, flipped, classroom, model, teaching, secondary schools.**

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## Introduction

Teachers Competence today must prepare students for an increasingly complex, interconnected, and interdependent world. Being a globally competent a teacher requires embracing and accepting a mindset that translates personal global competence into professional classroom practice. It is a vision of equitable teaching and learning that enables students to thrive in an ever-changing world. Globally competent teaching practices include: Empathy and valuing multiple perspectives, a commitment to promoting equity worldwide; an understanding of global conditions and current events, the ability to engage in intercultural communication and classroom environment that values diversity and global engagement. Throughout, you'll also find examples of these practices at work from real teachers in real schools. (Thomson & Klein-Collins, 2012; Soares, 2012; James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023).

Teacher Competence in the United States (US) has evolved over time. Rooted in philosophy of education and the need for practical education, competence-based education expanded throughout the last 100 years, appearing in various forms until the term and concept became a reality in the 1960s. In the United States, the original term of "Teacher competence has evolved into "competency-based education." While the wording is slightly different, the meaning and concept are the same. As the education system in the United States evolved in the late nineteenth century, high schools took on the challenge of preparing students for the world of work as well as society through helping them achieve competence through developing prescribed competencies.

In Nigeria the key competences required by a teacher to be effective are knowledge, skills, values, attitudes and professional ethics. This is categorized in to knowledge competence and further into content pedagogical, professional and contemporary knowledge. In assessing the relationship between teaching competence and teaching style of primary teachers NeaPane (2017) observed a positive correlation between teacher competence

and teaching style. Though the results differed from person to person in case of primary teachers, the correlation will be positive. Competence is a significant determinant of a person's intrinsic motivation and actual competence to carry out future tasks (Lindemann-Matthies, 2017; Patrick, Kennedy, & Powell 2022; Maila & Asiimwe, 2024). The competencies that are needed by teachers include pedagogic, personal, professional and social competence (Lindemann-Matthies, 2017; Patrick, Kennedy, & Powell, 2022). In an environment where resources are very limited and where many factors contribute to the inadequate performance of pupils, teacher competence comes to the front (Lindemann-Matthies, 2017; Patrick, Kennedy, & Powell 2022; Maila & Asiimwe, 2024). As noted in some studies, how better a method of teaching is depending largely on the user (the teacher) and it requires competencies, which may be viewed from knowledge, skills and behavior (Thomson & Klein-Collins, 2012; Soares, 2012; James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023).

In the changing world especially flipped classroom learning and teaching has made the professional difficult especially those who have been trained on traditional teaching. Many secondary schools have found it challenging for some teacher to teach both model online teaching and face to face which made schools especially in north town of Zanzibar abandoned the projects that would like to introduce blended learning in secondary schools. The type of competence is related to learning processes and teaching methods and how to adapt these to match the needs of the learners (Stueber & Idowu, 2019; Ryatura, Serunjogi & Asiimwe, 2023). Academic skills is based on sound, broad and current knowledge within the subject area, as well as knowledge of students' learning and subject-based teaching and learning issues. As learners find it hard to choose from the vast information they receive, increasing skills allows teachers to take individuality into account and meeting the needs of different learners. For example, Wang Long Que (2017), Espra Ecen, (2021), Chuk, Asiimwe and Asiimwe (2023) observed that most teachers exhibit incompetence in handling learners with "special needs" as well as "adult learners". This is because many teacher training programs do not include courses about these competencies. Academic skills is the ability of a teacher to manage the learning of learners including understanding of learners, instructional design and implementation, evaluation of learning outcomes, and the development of learners to actualize their potential.

The year 2005, Tanzania officially introduced a competence based curriculum that guides the development of competences during the teaching and learning process. The new curriculum attempted to improve the quality of education that enabled students to develop competences relevant to life (Komba & Mwandanji, 2015). To achieve that the education sector has been addressing issues such as teaching approaches and the emphasis was on the learner rather than the teacher (Thomson & Klein-Collins, 2012; Soares, 2012; James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023). One of the reasons for poor understanding of curriculum is that the teachers did not participate in the curriculum development process. They directly received instructions from the experts (Komba & Mwandanji, 2015); (Thomson & Klein-Collins, 2012; Soares, 2012; James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023). Educators cited in Stiggins and Chappius (2018) Kayindu and Asiimwe (2020), argued that the curriculum reform of teacher education applied mainly the top down method and teachers were not fully involved in the processes of curriculum change. Similar support was stated and proposed to start conducting ongoing professional development and school based training for teachers to gain and improve knowledge in teaching (Komba & Mwandanji, 2015); (Thomson & Klein-Collins, 2012; Soares, 2012). They suggested in-service training and retraining compulsory for teachers (Komba & Mwandanji, 2015; Ryatura, Serunjogi & Asiimwe, 2023).

### **Theory and Related Literature**

Medley (1977) has enumerated that teacher competence is the knowledge, abilities and skills a teacher possesses. It is a stable characteristic of the teacher and does not change appreciably when the teacher moves from one situation to another. Many other theorists, philosophers and educators have addressed the issue of teacher competence including how to define teacher competency as well as what a competent teacher is. According to the researchers, the teacher is knowledgeable about the subject content to be taught and is an active member of professional organizations and should understand the process of learning. The teacher is skilful and fails in assessing student learning and in working with parents and guardians, colleagues, administer, and the classified start, maintains and nurture friendly and ethnical professional relationships. Many of theorists and education scholars have also given a list of teaching skills to be applied at many levels for teaching many different subjects. Those teaching skills have also been tried out to reach on a certain level of competence in classroom teaching.

Teacher's competence refers to the right way of conveying units of knowledge, application and skills to students. The right way includes knowledge of content, process, methods, and means of conveying content. Also refers to the ability of the teacher to help guide and counsel, teacher competence is one who promotes cultural transmission and perpetuates civilizations by passing on as heritage essential basic skills and subjects from one generation to another. Additionally, it is necessary for teachers to present to the students an effective selection of the world they live in and to work in cooperation with them in order to help them attain competence in their world. Teachers

competence which include, mastery of subject matter, understanding of human nature, interest in continues professional improvement of knowledge opined that a competent teacher attends conferences, workshops and seminars, have good classroom control, effective communication skills, adequate knowledge of the subject, utilize variety of teaching methods or strategies and show enthusiasm for teaching as indicated below.

**Instructional delivery:** The systematic and explicit instructional delivery emphasizes mastery of the lesson to ensure that students understand what has been taught, become fluent in new material, and can generalize what they learn to novel situations they encounter in the future. The following are hallmarks of an explicit approach for teachers to select the learning area to be taught, teacher sets criteria for success, teacher informs students of criteria ahead of the lesson, teacher demonstrates to the students' successful use of the knowledge/skills through modelling, teacher evaluates student acquisition. Teacher provides remedial opportunities for acquiring the knowledge/skills, if necessary and teacher provides closure at the end of the lesson (Thomson & Klein-Collins, 2012; Soares, 2012; James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023; Bundi, Asiimwe, Mugenyi & Asiimwe, 2024) Effective classroom introduction delivery: refer to the interaction among the student, teacher the content and the knowledge skills, disposition students will need a learning and collaborating with another in a deliver society and rapidly in a changing world. The process of instruction delivery involve applying repertoire of instructional strategies to communicate and interact with student around academic content and to support students engagement like innovation lab network state frame work for collage, career and citizenship, readiness, and implication for state policy (Thomson & Klein-Collins, 2012; Soares, 2012; James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023; Mugenyi, Matagi, Kobusingye & Asiimwe, 2023).

In case of flipped learning model in instructional delivery method in which individual students access concept and skills prior to class, often through video then spend class time in a dynamic interactive learning, online learning environment (Komba & Mwandangi, 2015). Also its essential practice that teachers must master effectively introducing students to maximize knowledge and skill acquisition, unfortunately many popular instruction practice are not supported. It has a human touch- due to physical practice of teacher via blended learning approach students get that human touch which is very necessary for balanced student's emotional quotient and very necessarily up to secondary level. It provides multicultural and multi dimension approach to teaching learning process-Flipped classroom model that provides students opportunity to communicate and share their views and feeling with the students all over the world thus it makes teaching learning process multicultural and variety of experience bring with it the interdisciplinary and multidimensional factor also (Komba & Mwandangi, 2015). The reality is that all effective instruction, regardless of philosophy, must aid students in generalizing newly taught knowledge/skills in a context that is greater than a single lesson. An explicit model accomplishes the goal of building toward "big ideas" by first emphasizing mastery of foundation skills such as reading and mathematics, and then systematically introducing opportunities to integrate these critical skills in discovery-based lessons to maximize students' experience of success (Lindemann-Matthies, 2017; Patrick, Kennedy, & Powell 2022). Effective explicit instruction practices include these features like;

**Well-designed and -delivered instruction:** Good classroom management and effective instruction are interdependent; you can't have one without the other. To minimize misbehaviour, teachers should employ the most effective instructional practices. To maximize learning, teachers must be proficient in evidence-based behavior management strategies. Move students from their current level of competency toward explicit criteria for success. Research finds that students who persistently perform poorly on academic assignments have a negative attitude toward school and are more likely than academically successful students to act out and be labelled as problem students (Thomson & Klein-Collins, 2012; Soares, 2012; James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023). Sometimes, students may act out to escape instruction that is at their failure level. Similarly, gifted students who are not challenged or given quality instruction also display disruptive behavior. In either case, poor instruction only exacerbates poor conduct. Teachers should assign work that is neither too easy nor too hard. Students need lessons that are well matched to their abilities and the difficulty of the assignment. When mismatches occur, students become frustrated, bored, distracted, and eventually disruptive. Effective instruction practices: consistent and predictable schedule is important when creating an affirming learning environment. Teachers must pay special attention to transition periods in the daily schedule. The time between lessons, during moves between classrooms, before and after recess, and before and after lunch provide opportunities for students to act out because of the low structure in these situations.

**Instructional by objectives:** The teacher should present these *clear* instructional objectives to students for each lesson, teachers develop objectives, link lessons through the use of possibility system, tie instruction to "big ideas" (concepts or skills central to the lesson that connect these to the "bigger ideas" or ways these concepts and skills will be used in later lessons and in "real world" settings), and to standards are the most successful. Teachers who provide each student with a sufficient quantity of instruction and require high rates of responding for each student

to demonstrate acquisition of the lesson are better instructors (Thomson & Klein-Collins, 2012; Soares, 2012; James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023; Bundi, Asiimwe & Asiimwe, 2024).

**Scope and sequencing and arrangement:** The teacher should teach the range of related skills and the order in which they should be learned; Instruction that offers sufficient opportunities for successful acquisition: high rates of responding for each student to practice the skill: The teacher should provide sufficient opportunities for unpunished errors and ample reinforcement for success. Sufficient quantity of instruction: The teacher should allocate enough time to teach a topic (Thomson & Klein-Collins, 2012; Soares, 2012; James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023; Mugenyi, Matagi, Kobusigye, & Asiimwe, 2023).

**Teaching to mastery:** Students need to learn the knowledge/skills to criteria that are verified by teachers or students' peers and teaching foundation knowledge/skills that become the basis for teaching big ideas: Current lessons should be built on past knowledge to increase fluency and maintain mastery of material. The teacher should relate lessons to complex issues and big ideas that provide deeper meaning and give student better understanding of the content. To build long-term success, the most effective teachers require students to demonstrate mastery of the material before moving on the next assignment. In this way, students gain the foundational skills to be successful in future assignments. For learning to be sustained beyond the moment, teachers must return to previously taught material in future lessons. They must also find opportunities for students to use the skills or knowledge in real-life settings to increase student motivation and establish greater relevancy (James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023). Another hallmark of effective teaching is the proficient use of feedback. Teachers who provide acknowledgment and corrective feedback in a non-judgmental way to guide students toward improving performance achieve better results. The ratio of positive to corrective feedback should be Specific, clearly defined feedback is more effective than general statements, and immediate feedback is more powerful than delayed feedback. Few instructional practices have as much impact on student performance as formative assessment. Teachers who regularly collect performance data and then chart and analyze the data see student learning notably enhanced. Even greater results can be achieved when teachers provide the outcome of their analysis to their students (James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023; Bundi, Asiimwe & Asiimwe, 2024).

**Classroom management** plays a critical role in creating an environment conducive to learning. It consists of practices and procedures that teachers apply to establish an environment conducive to instruction and learning. Research ranks classroom management near the top of issues that impact effective instruction and student achievement. Administrator and teacher surveys consistently list disruptive student behavior as the primary reason for teacher turnover. Ultimately, success in the classroom depends on a classroom environmental climate that encourages and supports learning. However, a well-managed classroom doesn't just happen on its own; it results when a teacher is trained in key competencies and becomes fluent in them. (James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023). Competent command of student conduct is essential to a teacher's success. Classroom management is how teachers influence student behavior to create an environment conducive to learning. The primary goal is to maximize appropriate conduct and minimize student misbehaviour. Effective teachers accomplish this by managing contingencies, the events that occur immediately before and after a behavior. In this way, they remove impediments to teaching students the skills for effective communication, interpersonal interactions, and academic achievement needed for success in life. Ineffective classroom management results in chaos; student learning is disrupted and teacher morale is often damaged beyond repair (Apiku & Asiimwe 2023). Where instructional control is poor, neither teacher nor students win.

Classroom management consists of practices and procedures that teachers apply to keep students organized, orderly, focused, attentive, on-task, and academically productive (Oliver, (Asiimwe & Zuena, 2023) Success in the classroom depends on the teacher's ability to maintain an environment that encourages and supports learning. However, a well-managed classroom doesn't just happen on its own; it develops from well-designed training and experience in working with students. The four classroom management categories that rigorous research identifies as critical are (1) rules and procedures, (2) proactive management, (3) well-designed and -delivered instruction, and (4) disruptive behavior management. Principals and teachers list classroom management among the top five indispensable teaching skills. Disruptive student behavior has ranked among teachers' top concerns for more than 15 years and is one of the prime reasons teachers leave teaching Ryatura, Serunjogi and Asiimwe (2023) found out that over 30% of teachers indicated classroom management issues as their primary reason for leaving the profession, the following are the indicators of classroom management.

**Rules and procedures:** An indispensable tool for preventing disruptive conduct is the systematic use of rules. Rules describe generally acceptable routines, standards, and procedures that inform students how to behave. Rules and procedures at both school and classroom levels are important in communicating to students and teachers the conduct expected. They prevent disruptive behavior by objectively defining how to behave, how to solve and avoid problems, and consequences of rule violation (Apiku & Asiimwe 2023). Posting the rules publicly, teaching

appropriate behavior, and frequently reviewing expected conduct, when paired with constructive feedback, are found to significantly decrease common disruptive behavior such as veering off-task and talking in class. The various rules and procedures increase opportunities for teachers to reinforce appropriate behavior. These classroom management strategies are also associated with increased engagement, reduced frequency of student conflicts, and greater academic achievement (Apiku & Asiimwe 2023).

Teachers must adopt a continuum of strategies to respond to disruptive or inappropriate behavior. They must use the tool that best suits the situation. As a rule, they should begin with the least intrusive and uncomplicated intervention to remedy a problem, such as correcting the inappropriate behavior, and move on to more complex behavior interventions when required. One of the most important strategies available to teachers is differential reinforcement, which essentially ignores the inappropriate behavior and instead reinforces the appropriate behavior to replace the inappropriate conduct. It is designed to reduce misconduct in a positive manner and is a powerful alternative to the use of negative consequences. Other important strategies for behavior reduction include ignoring misbehaviour (withdrawal or discontinuance of reinforcement in order to eliminate inappropriate conduct); corrective feedback (a verbal statement for the student to stop engaging in a behavior or an instruction to engage in an alternative behavior); an explicit reprimand (a verbal statement that describes the behavior and tells the student exactly how to behave in the future); and response cost (the withdrawal of access to a reinforcer immediately after the disruptive behavior) (Apiku & Asiimwe 2023).

Thus teacher gets freedom from the monotonous traditional roles and she can try her hands in diverse areas that are good for her professional growth also Teachers' competence include resourcefulness, effective teaching skills and good evaluation enhance students' performance which also is in line with the finding of Wang Long Que (2017), Espra Ecen, (2021), Chuk, Asiimwe and Asiimwe (2023) that there is significant relationship between teachers' competence and students' performance. This is also in agreement with the findings of James Mohammed (2020) Epra, (2021), Apiku and Asiimwe, (2023) indicate that teaching is effective when the teacher makes use of instructional materials, qualified teacher can translate knowledge, skills, attitude and values in accordance with certain professional principles.

A qualified teacher has a good classroom control, effective communication skills, and adequate knowledge of the subject and can utilize varieties of teaching strategies in order to enhance students' performance. This is in line with the work of Apiku and Asiimwe, (2023) indicate that all teachers need breadth and depth in subject they will teach, including the understanding of the new knowledge and this calls for high professional qualification. In the study conducted on investigating classroom teaching skills of pre-service elementary teachers, prospective teachers were more competent in measurement and evaluation but highly incompetent in managing the teaching activities. This will be attributed to the fact that the amount of the subject area courses prospective teachers take are less than the amount of practice lessons. Pedagogical creativity can enhance learners' abilities to understand and utilize the skills in the classroom setting (Apiku & Asiimwe 2023). The report noted that most of the seminars and workshops intended to improve classroom effectiveness render little attention to skills and guidance. The key to distinguishing the knowledge base of teaching lies in the intersection of content and pedagogy, in the capacity of a teacher to transform the content knowledge he or she possesses into forms that are pedagogically powerful and yet adaptive to the variation in the ability of students (James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023).

**Assessment** is defined as a process for documenting, in measurable terms, the knowledge, skills, attitudes, and beliefs of the learner. Although this definition of assessment is rather straightforward, the process of assessment in the classroom is complex. At the classroom level, teachers must decide which specific knowledge, skills, attitudes, and beliefs warrant assessment; at what point, purpose they should be assessed; and which tools might best accomplish these classroom-based assessments (James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023). There research two forms of assessment, formative and summative assessment.

**Formative assessment:** referred to effective ongoing assessment, and progress monitoring, is indispensable in promoting teacher and student success. It is frequently listed at the top of interventions for school improvement (James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023). Feedback, a core component of formative assessment, is recognized as an essential tool for improving performance in sports, business, and education. Wang Long Que (2017), Espra Ecen, (2021), Chuk, Asiimwe and Asiimwe (2023) identified feedback as the single most powerful educational tool available for improving student performance. It occurs throughout the school year. Initially, it identifies baseline information about students' achievements to inform instruction. As the school year progresses, formative assessments update teachers' understandings of their students' needs and accomplishments (Afflerbach, 2008). Formative assessment data include the cognitive components and the affective dimensions (examples attitudes, motivation, and experiences) of learning that allow it to occur (James Mohammed, 2020; Epra, 2021; Apiku & Asiimwe, 2023).

According to Wang Long Que (2017), Espra Ecen, (2021), Chuk, Asimwe and Asimwe (2023) formative assessment is assessment *for* learning. Studies such as one conducted by the teachers to increase their regard for data, and the alignment between the curriculum and instruction improves. Their initial use of formative assessment provides a window into students' achievement and indicates strengths and impediments to future learning. As the school year progresses, formative assessments detail students' learning, growth, and challenges (Afflerbach, 2008). While benefitting teachers, formative assessment also provides advantages to students. They become more closely attuned to learning goals and their progress toward achieving them. As noted by Mohammed (2020) Epra, (2021), Apiku and Asimwe, (2023) student performance also improves. When taken as a whole, the artifacts used for formative assessments provide progressive indications of student knowledge of strategies and content. They provide a richer and more complete picture of what students know than would otherwise be available for teachers and students.

Within the classroom, and as found by Wang Long Que (2017), Espra Ecen, (2021), Chuk, Asimwe and Asimwe (2023) "data streams create the information feedback loops needed to support a continuous improvement regime" This overall benefit justifies the time and attention that using formative assessment entails. To maximize the advantages of formative assessment, several attributes warrant consideration: (a) the composition of the students, (b) the content, (c) outcome expectations, (d) time frame, and (e) the time students spend on the activity. These attributes point to the important differences in assessment tools that stem from the number of students to assess, the discipline area under consideration, the amount of time available for the assessment, and the extent of the activity that drives the formative assessment product. Black, Wang Long Que (2017), Espra Ecen, (2021), identified four central types of formative assessment that seemed to matter most for students: (a) questioning, (b) feedback, (c) peer assessment, and (d) self-assessment. As Black and his colleagues concluded, "The overall message is that formative tests should become a positive part of the learning process. Through active involvement in the testing process, students can see that they can be the beneficiaries rather than the victims of testing, because tests can help them improve their learning". For many scholars, formative assessments must also have a ring of authenticity Apiku and (Asimwe, 2023). This call for authenticity stems from a basic tenet of quality assessment, which confirms the importance of construct validity and matching assessments to key concepts in the discipline (Apiku and Asimwe, 2023). While there is no clearly agreed upon definition of authentic assessment, the major focus is that the product is relevant to the learner. Authentic and true assessment matches the content being learned, is produced in conjunction with student interests, and is guided by clearly defined outcomes. Simply stated, authentic and formative assessments must coincide with the discipline under consideration by aligning with what experts in the field, actually do (Apiku &Asimwe 2023; Bundi, Asimwe &Asimwe, 2024).

**Formative assessment:** Effective ongoing assessment, referred to in education literature as formative assessment and progress monitoring, is indispensable in promoting teacher and student success. It is frequently listed at the top of interventions for school improvement (Apiku &Asimwe 2023). Feedback, a core component of formative assessment, is recognized as an essential tool for improving performance in sports, business, and education. Wang Long Que (2017), Espra Ecen, (2021), identified feedback as the single most powerful educational tool available for improving student performance, with a medium to large effect size ranging from 0.66 to 0.94. Here are four strategies for flipped learning assessment that can help provide this kind of support.

**Start with good learning objectives.** The basic principle of backward design states that we should start by determining the learning outcomes we wish from students, determine what constitutes acceptable evidence that students have attained these, and then design specific ways of gathering that evidence. Before any good assessment can happen, we need good learning goals. When designing a flipped course or unit, careful and clear enumeration of learning outcomes will give a framework for learning activities and help students know what they need to know and where it fits in the overall scheme of the course (Apiku &Asimwe 2023).

**Employ a "frequent and small" approach.** In an ideal world, there would be a device that connects directly into students' brains that would give a continuous stream of full-spectrum data about student learning and engagement. No such device exists yet, so the next best thing is to give assessments that are short, frequent, and informative that collect these data for us. For example, classroom response systems can be used effectively to gather in-the-moment data about student learning. Short metacognitive activities, such as one-minute papers, can give a bigger picture. And don't forget that assessment doesn't necessarily mean quizzing or grading. Sometimes simply having students talk through a procedure while you observe them can give you mountains of "data" about how they are doing (Apiku &Asimwe 2023).

**Use "pre formative" assessment.** In addition to the usual categories of formative and summative assessments, flipped learning environments have a special third kind of assessment that I call "pre formative." This refers to assessments given while students are learning new material independently, before any group interaction has taken place. Pre formative assessment gives a reliable idea of what students have learned before the all-important group space activities you have planned. Pre formative assessments can serve not only as data-gathering opportunities

but also as learning experiences. For example, in the Guided Practice model of pre-class activities Sornson, Kirby and Martin (2022) students practice self-regulated learning strategies in acquiring fluency with new material while at the same time giving the instructor data about their attainment of basic learning objectives, in a format that is lightweight, risk-free, and welcoming to initial failures.

### Methodology and discussion

The study because it describes facts and characteristics concerning individual, group or situation. The design was also picked based on (Bryman and Bell 2015) assertion that descriptive studies are designed to obtain pertinent and precise information concerning the status of phenomena and whenever possible to draw valid general conclusions from the facts discovered. The study used a mixed methodology approach, that is, quantitative and qualitative approaches. Quantitative approach was used to collect and analyze numerical data through surveys using questionnaires and qualitative approach was used to make observations, to get information through interviews to get the in-depth opinions of the respondents about the study, (Bryman and Bell 2015).

Table 1.0 Means and Standard Deviations Showing Teachers' Competence in Lower Secondary Schools in Northern Region of Zanzibar, Tanzania

| Classroom Management Skills   | Means | Std. Deviation | Interpretations |
|---|-------|----------------|-----------------|
| Teacher always goes around the classroom to ensure that students are actively participating in learning activities. | 3.75  | 0.59551        | Very High       |
| While teaching, Teacher moves round the classroom to spot out learners who make a noise                             | 3.31  | 0.64025        | Very High       |
| Teacher is partial in assigning responsibilities to students in the classroom.                                      | 2.98  | 0.90512        | High            |
| Teacher appoints a class prefect to write names of late comers to class.  | 2.97  | 0.92804        | High            |
| I behave well in the classroom only when teacher uses punishment on me  | 2.27  | 0.77542        | Low             |
| Teacher warns students on when to start writing during lesson period so that do not lose focus.                     | 1.85  | 1.00910        | Low             |
| Average Mean  | 2.68  | 0.66900        | High            |
| Instructional Delivery  |       |                |                 |
| Teacher encourages us to interact during a lesson   | 3.31  | 0.65954        | Very High       |
| Teacher does not ask questions while teaching   | 2.98  | 0.90512        | High            |
| The teacher makes use of instructional materials when teaching  | 2.97  | 0.92804        | High            |
| The teacher uses Cooperative learning to encourage cooperation among students                                       | 2.27  | 0.77542        | High            |
| The teacher allows the use of phones and tablets in his class when questions are asked                              | 1.85  | 1.00910        | Low             |
| Average Mean  | 2.68  | .66900         | High            |
| Formative Assessments Abilities   |       |                |                 |
| Students' works are marked  | 1,91  | .96289         | Low             |
| After marking, students' work is returned to them   | 1.63  | 1.05398        | Very Low        |

|   |      |         |           |
|---|------|---------|-----------|
| Feedback is interactive   | 1,66 | 1.06565 | Very Low  |
| The teacher does allow students to send assignments to his/her e-mail             | 1.99 | 0.96679 | Low       |
| The teacher explains the grades given and provides a grading rubric               | 1.09 | 1.02546 | Very Low  |
| Average Mean  | 1.58 | 1.015   | Very Low  |
| Communication Competence Skills   |      |         |           |
| Listen to the pupils attentively when they ask questions.                         | 3.44 | 0.64997 | Very High |
| Demonstrate communication that is harmonious with pupils' feelings.               | 3.47 | 0.60403 | Very High |
| Reprimand the pupils if they ask the wrong questions.                             | 3.25 | 0.71151 | High      |
| Make use of gestures during class with the pupils                                 | 1.98 | 1.03055 | Low       |
| Ignore offensive language from the pupils rather than making a big deal out of it | 1.79 | 1.11131 | Low       |
| Average Mean  | 2.78 | 0.82147 | High      |
| Grand Mean  | 2.43 |         | Low       |

Results in table 1.0 revealed that teachers' competence is low with a grand mean of 2.43. This means teachers in lower secondary schools in Northern Region in Zanzibar are not competent in teaching. The classroom management skills of teachers and instructional delivery skills are high with an average of 2.68 respectively. While the formative assessment is very low with an average mean of 1.58. This means that teachers need to improve on their assessment with the students. And the communication competence skills is high with an average of 2.78. Table 2.0 Spearman's Rank Correlation Analysis on the Relationship between Teachers' Competence and Flipped Classroom Model in Teaching Lower Secondary Schools in Northern Region, Zanzibar. Tanzania.

| Correlations   |                         |                         |                      |                         |
|----------------|-------------------------|-------------------------|----------------------|-------------------------|
|                |                         |                         | Teachers' competence | Flipped Classroom Model |
| Spearman's rho | Teachers' competence    | Correlation Coefficient | 1.000                | 0.395**                 |
|                |                         | Sig. (2-tailed)         | 0.000                | 0.000                   |
|                |                         | N                       | 400                  | 400                     |
|                | Flipped Classroom Model | Correlation Coefficient | 0.395**              | 1.000                   |
|                |                         | Sig. (2-tailed)         | 0.000                | 0.000                   |
|                |                         | N                       | 400                  | 400                     |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Primary Data, 2023.

Table 2,0 shows a strong relationship between teachers' competence and flipped classroom model in teaching lower secondary school in northern region Zanzibar, Tanzania. The hypothesis which states that there is no relationship between teachers' competence and flipped classroom model in teaching is rejected. Teachers' competence greatly affect the use of flipped classroom model in teaching in lower secondary schools. They emphasized that teacher competencies in a blended learning environment can be affected by the interaction between different psychological factors, namely teachers' attitudes and motivation, institutional factors, such as course management and pedagogical models, the architectural constraints of digital platforms, as well as the degree of support from a network of colleagues.

### **Conclusion and recommendation**

The findings of the study revealed that teachers' competence and flipped classroom model has a significant relationship despite the low average mean of teachers' competence. Based on the findings only formative assessment model has low average mean and no relationship with flipped classroom model but the other constructs of teachers' competence such as classroom management skills, instructional delivery and communication competence skills have high average mean and have significant relationship with flipped classroom model in teaching.

This being the 21st century of growing Science and Technology, secondary schools in Zanzibar through the Ministry of Education should emphasize flipped classroom teaching. Therefore, all competencies of teachers put together need to be developed through government legislation (laws), increasing sensitization, update courses and motivation. By doing this, more development of flipped classroom model will be realized in secondary schools of Northern Zanzibar.

### **Compliance with ethical considerations**

**This article was sponsored by the authors themselves**

**Disclosure of conflict of interest**

**Statement of informed consent**

**Informed consent was obtained from all individual participants included in the study.**

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