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CONTENTS

The Dualism of Learning Study: Understanding and Practices of Student-Centered Learning in Mathematics Lessons

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Abstract
There have been ideological variations in understanding, focus and practices of student-centred learning (SCL) across the world. This study explored the teachers' ways of understanding and practising SCL in enhancing student learning of mathematics concepts. Using interviews, lesson preparatory meetings, reflective journals, and students' tests, the study employed a phenomenographic variation framework, coding strategies and paired sample t-test to analyse data. The results show that when teachers share their experiences on SCL, they come up with a wider understanding of the best SCL pedagogical strategies. They unfold the SCL teaching challenges, especially in overcrowded classrooms. As such, teachers changed their ways of understanding (experiencing) SCL from seeing it as a methodological orientation to subject content and object of learning. The more teachers were engaged in the learning study, the better their pedagogical teaching practices became focused on students learning complex mathematical topics.

Keywords: Learning study, Student learning, Student-centred learning, Teacher learning, Variation theory.

INTRODUCTION
There are evident variations in understanding, focus and implementation of Student-Centred Learning (SCL) across the world. The literature portrays these variations are categorized around conceiving SCL in terms

of methodological orientation - a way of according to students' opportunity to meet their learning needs, choose what to learn, and how to be assessed (O'Neill & McMahon, 2005); a way of shifting power and responsibility from the teacher to students (Mushi, 2004); and the act of engaging learners in experiencing critical aspects of the object of learning (Msonde & Msonde, 2017a; 2019). These differences originate mostly from diverse theoretical underpinnings, not from teachers' practical experiences.

Like many other countries in the world, Tanzania introduced SCL in school curriculum reform, which emphasized the use of participatory methods to shift teachers from teaching to learning (Wangereja, 2003). Besides being trained on the ways to implement SCL in their pre-service and/or in-service teacher professional development (TPD), teachers in Tanzanian schools have not changed their pedagogical practices. These teachers employ transmittal teaching strategies in teachers' colleges and secondary and primary schools. Among the factors that hinder teachers from effective implementation of SCL include prevailing constraints in schools such as large classes, inadequate resources, and teacher overload. Though acknowledging these realities, Msonde and Msonde (2018) argue that the school teachers were not well prepared in teachers' colleges and/or in-service orientations to implement SCL innovations. Indeed, they relied on one way of seeing SCL as a codified participatory method.

Little has been done to explore teachers' practical experiences of SCL in overcoming formidable classroom challenges in Tanzania. The underlying assumption of this study was that when teachers come together and share their experiences on SCL practically, they could come up with a wider understanding of the best way to implement SCL. Additionally, it could unfold the teachers' challenges in understanding and practising SCL. Thus, exploring school teachers' ways of experiencing and practising SCL in promoting student learning is essential to realize the teachers' practical knowledge and their learning trajectory.

Theoretical context
A learning study is an "action research which aims to improve classroom teaching and learning by enhancing teacher professional development" (Keung, 2009: 33). In line with Marton and Lo (2007), it is a designed experiment aiming at making students as well as teachers' learning

possible. In this process, teachers as practitioners learn from their practices which results in improving students' learning outcomes (Pang, 2006). An effective learning study improves not only students' learning but also high-quality teacher professional development (Msonde & Msonde, 2017b).

On the one hand, a learning study is grounded in the theory of variation (Pang, 2006) whereby teachers practice their lessons focusing on specific critical aspects of an object of learning aiming at achieving student capabilities. On the other hand, the theory of variation was built from the phenomenography perspective that different people conceive the same phenomenon differently (Marton & Booth, 1997). These differences are due to the variations among individuals in experiencing a phenomenon (Marton & Tsui, 2004). To experience a phenomenon, one has to focus on the critical aspects of the phenomenon simultaneously (Lo *et al*., 2005). However, discerning critical aspects is not possible without one to experience variations on those critical aspects. In this context, learning becomes a function of discernment, variation and simultaneity. Thus, student learning achievement depends on the way teachers handle the object of learning in classroom practices (Msonde & Msonde, 2018). As such, this study explored two research questions, first, how do Mathematics teachers understand and practise SCL in their teaching practice? Secondly, how did participation in the learning study improve teachers' and student learning?

METHODOLOGY
Setting and participants
This study was conducted at one community secondary school in Tanzania. The secondary school was purposively selected following the willingness of the school administrator to host the study and the school Mathematics teachers' acceptance to participate in this research. The Tanzania secondary education system resembles that of secondary education in the UK. However, the learning environment in Tanzania's secondary schools especially community-based ones, is associated with large classes, inadequate teaching and learning resources and teachers' heavy workloads (Athour, 2017). At the time of conducting this study, the school had 10 teachers. Three of them taught Mathematics subject. For confidentiality and ethical reasons, the researchers assigned pseudonyms (Teachers A, B, and C) to the three Mathematics teachers who later formed a learning study group.

Before the professional development (TPD), teachers were unaware of the learning study and the variation theory. Rather, they were trained by teachers training colleges to follow a particular method as prescribed in the curriculum. The methods prescribed in the curriculum focused on classroom pedagogical arrangement to bring about students' participation in the instruction and learning process. This study explored how the three Mathematics teachers understand and practise SCL to bring about student learning.

Study approach

This study was performed in two major phases to explore the way teachers experienced and practiced SCL before and during the learning study intervention. The teachers were oriented for two days before the learning study intervention so that they could learn about the theoretical underpinnings of the learning study. Thereafter, they were engaged in three learning study cycles (research lessons) to share their experiences with the way they understood and practiced SCL. Each research lesson included 3 pre-Lesson Preparation Meetings (LPMs). The first meeting (LPM1) involved teachers in selecting the object of learning to address. They also shared their experiences with challenges or difficulties that students faced in learning what was to be taught and designed the pretest. The second meeting (LPM2) was aimed at reflecting on the pretest students' learning outcomes. They found that there were critical aspects for students learning what was taught. Finally, in the third meeting (LPM3), teachers planned the lesson (the intended object of learning). There were also 3 post lesson preparation meetings. These meetings reflected the way the lesson was conducted in the three research lessons. The teachers also filled in the reflective journal (TRJ) at the end of each research lesson.

Data collection

Data were obtained from interviews, supplemented by teachers' lesson preparatory meetings and reflective journals. The teachers were interviewed before and immediately after the orientation as well as at the end of each research lesson. Each interview was audio-recorded and lasted for approximately 40 minutes. The interview was intended to explore the teachers' practical reactions and understanding of SCL before and during an intervention. The lesson preparatory meetings provided important data on how teachers enacted the SCL in classroom settings. In addition, the teachers' reflective journal provided supplemental data

which revealed the practical experiences and challenges in implementing SCL in their school milieu.

Data analysis
Analysis of interviews, teachers' preparatory meeting lessons, and reflective journals followed phenomenographic analytical conventions (Akerlind, 2008; Pang, 2006). These data were further coded by the first coder using ATLAS. Ti software was used to generate a set of main and sub-codes. During the coding process, the transcripts were studied holistically to capture their general meaning to recognise important parts that were marked as significant quotes. Then, the first coder was compared with coded segments to identify critical aspects that were core to realise the teacher's understanding of SCL practically at different time points. The coder established the set of core themes (main codes) and consistently improved the code description for more than three rounds. To ensure the trustworthiness of the coding scheme, the codes were given to the second coder for member checking. The coders agreed to 12 out of the 17 codes. Their level of agreement was 0.82 (Cohen's κ), which exhibits excellent inter-coder agreement. The discrepancies between them were resolved through negotiation. Then, the first coder refined the codes and re-coded the data using the new coding scheme which comprised 5 themes: teacher learning, teaching methods, student engagement, critical aspects and the object of learning.

FINDINGS
The results of this research are presented in several subsections. First, we present the teacher's views on their learning and SCL practices before the intervention, followed by their views and practices on it during the intervention.

Experiencing and practising SCL before learning studies
Teachers in the learning study group were asked through in-depth interviews how they understood and practised SCL in classroom settings. The teachers had similar views, and one of them had that to say:

> To me, SCL is to implement participatory methods that make learners participate fully in the entire teaching and learning process. To practise learner-centred teaching you need to apply participatory instructional methods such as group discussion, role play, simulation, and others. And, this is different from lecturing in which students mainly become listeners (Teacher B).

When teachers were asked further to explain what they normally focus on in planning their SCL lesson, Teacher C noted that:

> The first thing I do is to look at the school syllabus which shows alternative teaching methods for various topics. Then, I select the methods that enable students to participate fully in learning the topic in question. You know, although the methods are there, I need to think about what I will be doing in the lesson and how my students will be fully involved in the learning process (Teacher C).

It seems that the teachers experienced SCL as a *methodological classroom orientation*. Teachers put much emphasis on particular methods during lesson preparation and teaching so that the students become active in the learning process. It was likely that the issue of "what is taught" was not emphasized. However, despite being trained to implement participatory methods, the teachers adopted lecturing teaching strategies due to the overcrowded nature of classes and scarcity of teaching and learning resource constraints. Teacher A had that to say:

> I am among the teachers who practise participatory methods less. And this is because of the large number of students in the class. It is difficult to use SCL when you have large classes. For example, in one of my classes, I have an average of 80 students. You find even the space to pass through checking the students' learning progress during instruction becomes difficult to obtain (Teacher A).

Although the teachers understood the need to practise the participatory instructional method in the SCL teachings, they found its implementation was impractical in the prevailing classroom realities. It seems the teachers had inadequate innovative knowledge to implement SCL in such school challenges.

Experiencing and practicing SCL during research lesson 1
The intended object of learning
The teachers selected the object of learning, "relationship between sides of a right triangle and trigonometric ratios". They agreed on developing students' computation skills in trigonometric ratios. They designed and administered the pre-test to explore student experiences on trigonometric ratios to Form Two students. Overall, the class scored an average of 10.5% (see Table 1). During the reflection on students' pre-test results, Teachers came up with four critical aspects for students to experience the sides of the right triangle and trigonometric ratios. These were directional, perpendicular, length and relational sides. Three levels of structuring the

lesson were identified: understanding the sides of a right triangle, computing and applying trigonometric ratios. Teacher C had that to say:

> We have to divide the lesson into three levels. We start with developing students' understanding of the sides of the right triangle: opposite, adjacent, and hypotenuse. Here we focus on directional, perpendicular, and longest sides. Second, we focus on developing student computation skills of sine, cosine, and tangent of an angle. That is, we focus on the sides' ratios or the relation of sides. The third is to develop students' ability to use sine, cosine, and tangent in estimating/finding the height of the wall/tree and the width of the river. We have to consider a variety of teaching methods and follow our pedagogical structure. But, what is important should be how our students are engaged in those aspects one after the other as we planned. They should work in pair groups and share their answers with other groups (Teacher C).

In the end, the teachers designed the lesson plan for this object of learning. They set three capabilities to be developed. These were understanding opposite, adjacent and hypotenuse sides; computing the sine, cosine, and tangent of an angle; and applying trigonometric ratios to estimate height, width, and length in various scenarios. However, the teachers did not set up patterns of variation in this lesson, particularly in those critical aspects they identified.

The enacted object of learning

Teacher A taught this lesson in class 2A. The lesson was divided into three stages: guiding students to experience sides of right triangles (opposite, adjacent and hypotenuse); computing trigonometric ratios (sine, cosine, and tangent); and applying trigonometric ratios (length, height and width). In the first stage, Teacher A labelled the right triangle sides **a**, **b** and **c**; and particular acute angle **θ** (see figure 1). He required the students to point out the opposite, adjacent, and hypotenuse sides of angle **θ**, but they failed. By using Figure 1a, Teacher A explained how the opposite, adjacent, and hypotenuse sides are obtained.
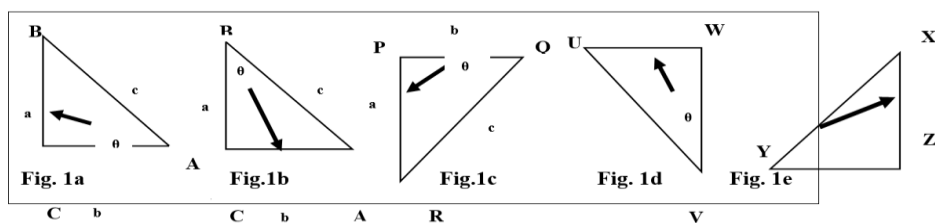
Figure 1: *The right triangle figures*
Source: Author creation

He also did the same by shifting the position of the acute angle of interest using Figure 1b; and changed the triangle orientation in Figure 1c. In those examples, he tried to vary the acute angle θ position as well as triangle orientation separately; to make students learn how opposite, adjacent, and hypotenuse sides shifted accordingly. Later on, he emphasized his explanations by using various right triangle figures in different orientations (see figures 1c, 1d &1e).

In the second stage, Teacher A guided students to unfold the trigonometric ratios formula by computing six ratios of sides in a right triangle concerning an acute angle 30^0. He provided students with a paper sheet that had 3 similar right triangle diagrams. These diagrams were designed by the learning study group. Each group dealt with only one right triangle. These triangles differed in size but the students were told to focus on an angle (30^0). From their results, he asked the students to identify three important ratios that relate to sine 30, cosine 30, and tangent 30 as stipulated in mathematical tables. Such practices enabled the students to come up with a workable formula SOTOCA/HAH presented below.

$$Sine\theta = \frac{Opposite}{Hypotenuse}; \; Tangent\theta = \frac{Opposite}{Adjacent}; Cosine\theta = \frac{Adjacent}{Hypotenuse}.$$

Later on, Teacher A guided students in using the formula through many examples. In the third stage, he guided the students to perform an application question that estimated the height of a tree to exemplify how tangent could be used. However, Teacher A was unable to provide examples of applications of sine and cosine. To create patterns of variation, he could have designed three different examples that require students to estimate the height of a tree; the width of the river; and the length of a ladder. In this way, students could have experienced uses of tangent, sine, and cosine simultaneously, and in a powerful way.

The lived object of learning
To explore further the manner students experienced sides of right triangles and trigonometric ratios a post-test (which was parallel to the pre-test) was administered. The t-test paired sample analysis was applied using the SPSS 16.0 version to compare the mean of pre and post-tests. The results showed the differences in students' performance between the two tests were statistically significant ($p<0.05$). Students had an overall

mean score of 10.5% and 42.6% in pre and post-tests respectively, which was a gain of 32 points as shown in Table 1.

Table 1: *Students learning outcomes in Lesson 1*

Lesson 1		Mean	N	Std. Deviation	Std. Error Mean	t	Sig.
Pair 1	PRETEST1	10.588	85	13.8033	1.4972		
	POSTTEST1	42.694	85	25.2006	2.7334	-14.237	.000

The researchers asked Teacher A to reflect on the lesson. Teacher A's responses seemed to focus much on the manner students were engaged *(student engagement)* in the content manipulations. That is a derivation and use of the mathematical convention SOTOCA/HAH.

> I think the lesson was good in the sense that students were engaged well in learning the sides of right triangles, opposite, adjacent, and hypotenuse sides. You see, they were able to come up with important sides' ratios themselves, which formed a SOTOCA/HAH formula, which they used to compute sine, cosine, and tangent. When they were through with those, they used this knowledge to estimate the height of trees and the width of rivers. In all stages, I was interested in enabling students to achieve what was intended. (Teacher A).

Moreover, Teacher A believed that his lesson was SLC-oriented because it involved students in important components of what was taught sequentially.

Experiencing and practicing SCL during research lesson 2
The intended object of learning
The learning study group decided to deal with a slope of straight lines. The slope was seen as among the problematic mathematical concepts that hamper student learning. Teacher C described some difficulties students faced in learning linear slope. These included inadequate manipulation skills and interpretation of slope as a rate of change. Therefore, the teachers administered a pre-test to explore students' prior experiences on slopes. Simple descriptive statistical analysis was done and obtained a mean score of 12.5% indicating poor performance. Based on student performance, Teacher B argued that students were not aware of the slope concept and lacked mathematical computation skills. Table 2 shows the four stages of the lesson plan and the identified critical aspects namely the angle of inclination, and vertical and horizontal distances that students should discern separately and sequentially.

Table 2: *The intended object of Learning Lesson 2*

Stage	Teachers intended activities	Vertical distance	Horizontal distance	The angle of inclination/ Slope
1	Design examples that vary the vertical distance while horizontal distance remains invariant. Guide students to experience slope in that situation.	V	I	V
2	Design examples and guide students to see the slope in the situation where horizontal distance varies while vertical distance is invariant.	I	V	V
3	Design an example and guide students to learn slope in a situation where that angle of inclination varies while either vertical or horizontal remains invariant.	V/I	I/V	V
4	Design examples and guide students to experience slope when all critical aspects vary (use teaching tool E$_4$).	V	V	V

The teachers had the view that the students did not discern vertical and horizontal distances as well as angles of inclination. As such, Teacher C suggested using real scenarios such as mountains/hills to familiarize students with the concept of slope.

The enacted object of learning
Teacher C taught this lesson and arranged the students in groups before his teaching. The lesson was divided into four main scenarios. In the first scenario, Teacher C asked students to volunteer to draw a graph on the board, locate points O(2,3), A(6,8), B(6,6), C(6,4) and, join three lines from point O to the rest. These straight lines varied in both angle of inclination and vertical distances but had invariant horizontal distances. He asked the students to describe why there were differences in slope. Responses from the students revealed that *height* (vertical distances) was a determinant factor of steepness differences. Although the angle of inclination (DOA >DOB> DOC) differed among the three lines, the

students did not experience it at this point and it was taken for granted. Teacher C realized that the students did not consider the angle of inclination as a determinant of slope variation. He used a mountainous diagram (see Figure 2) to show two sides A and B, which varied in steepness in his second stage. Teacher C required students to reason out factors influencing steepness differences in two hilly sides A and B.
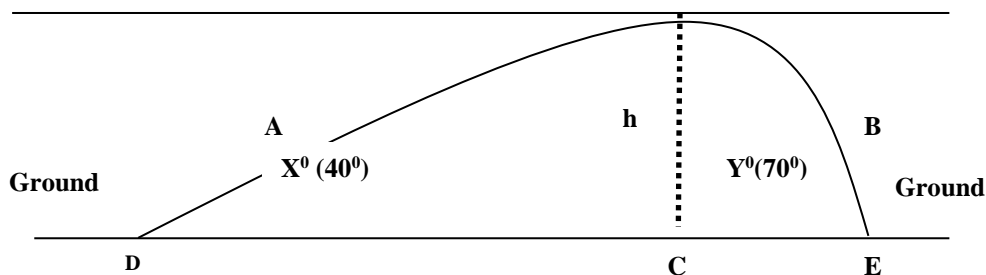
Figure 2: *Hilly diagram with sides A and B*
Source: Author creation

The students were able to identify the angle of inclination as another determinant of steepness variations but were unable to determine the horizontal distance, which, in this example, also varied. In the third stage, Teacher C skilfully employed another example to enable students to determine the horizontal distance as the determinant of the steepness variation of straight lines in the x/y plane. Students experienced this reality after being guided to draw lines starting from point O (0,0) to points A (4, 4), B (2, 4), and C (8, 4) in the x/y plane. The lines varied in horizontal distance but remained invariant in vertical distance. In stage 4, he asked the students in pairs to explore the vertical and horizontal units of each scenario so that they could discern the various horizontal critical aspects. Moreover, Teacher C used another example, as illustrated in Figures 3a to 3f, to enable students to discern the horizontal and vertical distances sequentially to understand variations in slopes. Teacher C did not use this opportunity to guide students in discerning all aspects of those figures simultaneously, as was expected. Instead, he focused mainly on Figure 3 (g, h, I, j, k, & l), which was intended to relate those diagrams with slopes in the students' environment.

Fig. 3a   Fig. 3b   Fig. 3c   Fig.3d   Fig. 3e   Fig. 3f

Fig. 3g (floor)   Fig. 3h (tree)   Fig.3i(wall)   Fig. 3j (ladder) Fig. 3k(staircases) Fig. 3l(hill)
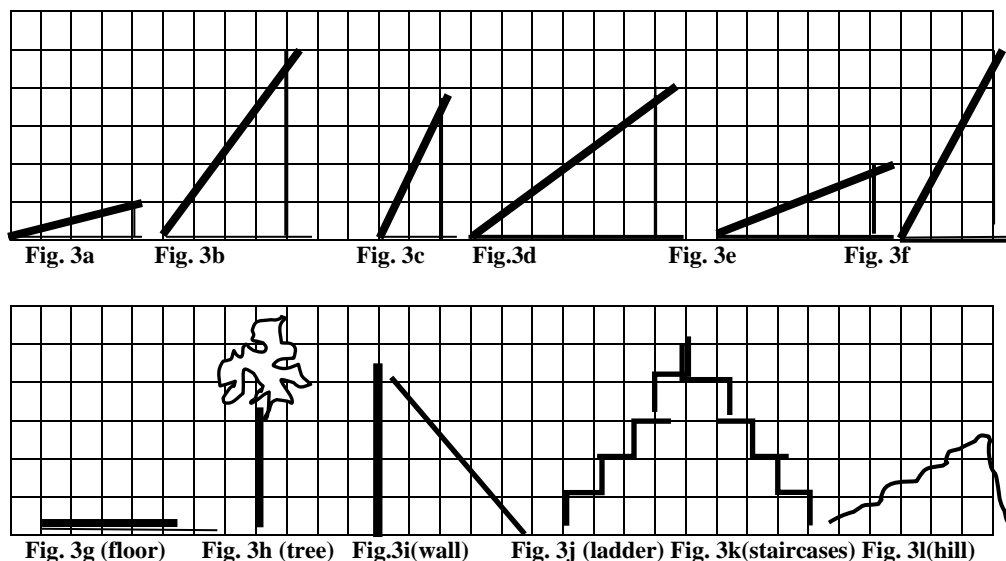
Figure 3: *The inclined scenarios in the x/y plane*
Source: Author creation

Then, he guided the students to experience slope as a ratio between vertical and horizontal distances, using line joining points (5, 2) and (8, 1) as an example. The students explore the vertical and horizontal distances of that line as well as its ratio. They were guided to derive by themselves the slope formula presented below.

$$\textbf{Slope} = \frac{\text{Vertical distance}}{\text{Horizontal distance}}; \quad \textbf{Slope} = \frac{Y1 - Y2}{X1 - X2}$$

Teacher C did not use this opportunity to guide students in discerning all aspects simultaneously as was expected. For example, figures 3(a, b, c, d, e & f) were not taken into account. These figures were intended to enable students to discern both the vertical and horizontal distance aspects simultaneously.

The lived object of learning
After the lesson, students did a post-test, which was parallel to the pre-test. The result from the t-test paired sample analysis (see Table 3) showed that the differences in students' performance between the two tests were statistically significant (P<0.05).

Table 3: *Students learning outcomes in Lesson 2*

	Lesson 2	Mean	N	Std. Deviation	Std. Error Mean	T	Sig.
Pair 1	PRETEST2	12.471	85	6.6826	.7248	- 16.547	.000
	POSTTEST2	59.024	85	27.8721	3.0232		

The researchers asked Teacher C to describe how he used the variation theory in his lesson and had to say,

> In my lesson, I guided students to draw three straight lines from a single point to different points, which differed in vertical distances and angle of inclination. However, those lines had the same horizontal distances. Here I wanted my students to focus on the vertical distance aspect. I also used a hilly figure diagram with two unequal slope sides. The vertical distances of the hill on each side were equal, but they varied in horizontal distances. I wanted students to focus on the horizontal distance aspect. I also planned an example similar to example 1 to make students focus on angle differences because, in the first example, the inclined angles also varied. This process made students experience how those aspects influence slope (Teacher C).

It seems Teacher C experienced SCL as teaching that *engages students* in experiencing critical aspects of what is taught. The role of the teacher in the process was to identify and organise critical aspects of the object of learning. In this lesson, the critical aspects identified include angle of inclination, and vertical, and horizontal distances and organized them in such a way that students attend to those aspects. This line of argument was also in line with teacher C's reflective journal.

Sharing with my fellow teachers helped me a little bit to improve my classroom teaching. Previously I provided mathematical formulas, demonstrated how to use them and provided students with some mathematical problems to solve... Now, I focus much on engaging them in various critical aspects they are supposed to learn in particular content. However, I still found it difficult to design examples that involve students in all critical aspects at the same time

Teacher C learned *(teacher learning)* from other teachers the way to improve his teaching. He was able to engage students in experiencing all critical aspects (vertical and horizontal distances) sequentially. That is, make each of the aspects vary while keeping invariant others for students

to focus on the varied aspects, one to the next. However, he failed to use opportunities apparent in his lesson to engage students in experiencing those aspects simultaneously. As such, it was difficult for students to experience the impact of all critical aspects (vertical and horizontal distances) on the slope at the same time. This implies that despite his improvement, Teacher C was not conversant enough on the use of the variation theory, especially in the area of structuring dimensions of variation.

Experiencing and practicing SCL during research lesson 3
The intended object of learning

At the first meeting, teachers selected the topic of circles from the Form III syllabus. The "determinants of arc length of circular objects" were the object of learning. Teacher B saw this topic as important because many students failed to differentiate circles with spheres and they were confused with the concept of central angle with 360^0. The teachers administered the pre-test to explore students' prior experiences on this object of learning, whereby the students scored the mean mark of 25.6%. Based on the student's responses to some of the questions, it was observed that students lacked an understanding of the influence of central angle and radius on arc length. Therefore, the teachers identified two critical aspects: a change in central angle and a change in radius. Table 4 shows the stages of involving learners in experiencing determinants of arc length.

Table 4: *Summary of the intended object of learning of lesson 3*

Stage	Teachers intended activities	Central angle	radius	Arc length
1	Guide students to draw a pair of equal circles (in size), insert two radii that subtend equal central angle, measure the resultant arc length and discuss the results.	I	I	I
2	Guide students to draw a pair of equal circles (in size), insert two radii that subtend unequal central angles, measure the resultant arc length and discuss the results.	V	I	V
4	Guide students to draw a pair of unequal circles (in size), insert two radii that subtend equal central angle, measure the resultant arc length and discuss the results.	I	V	V
4	Guide students to draw a pair of unequal circles (in size), insert two radii that subtend unequal central angles, measure the resultant arc length and discuss the results.	V	V	V

The enacted object of learning

In the first case, Teacher B required students in their pair groups to draw two equal circles and from them draw two radii that subtended equal central angles of their interest. Then, they were required to measure arc length by using rulers and threads. The students were fully involved in drawing, measuring and presenting results. The aim was to enable students to experience the magnitude of arc distances when subtended by the same central angles in two equal circles (all aspects were kept invariant). This was expected to create a contrast to the next cases, in which those aspects varied in different situations.

In the second case, the teacher required the students to draw two equal circles. From each of them, they had to draw two radii (AB and CD) that subtended different central angles by varying central angles while keeping the radius invariant. They were further required to measure the resultant arc length in each of the circles and provide the results they obtained. The aim was to enable students to discern the central angle as the determinant of the arc length of circular objects. The students drew circles and measured radii, angles as well and resultant arc lengths in the two circles. Teacher B encouraged as many results as possible and wrote them on the

board enabling students to learn from other groups. Subsequently, the teacher required the students to draw two circles of different sizes in their respective pair groups. He asked them to place two equal central angles in each circle and try to measure their resultant arc lengths. Contrary to previous cases, the teacher made students experience arc length in a situation where radii varied while central angles remained invariant. As he did in the previous case, he organized student results on the board and students studied them carefully. The results enabled students to experience that the arc distance was directly proportional to the radius.

In the fourth task the teacher required students to draw two circles of different sizes and from them measure different central angles in each circle. The students in their respective groups drew circles of different sizes with varied central angles (see Figure 4), measured their respective arc lengths, and presented their groups' results. He intended to enable students to experience the arc length in a situation where the radius and central angle vary simultaneously.
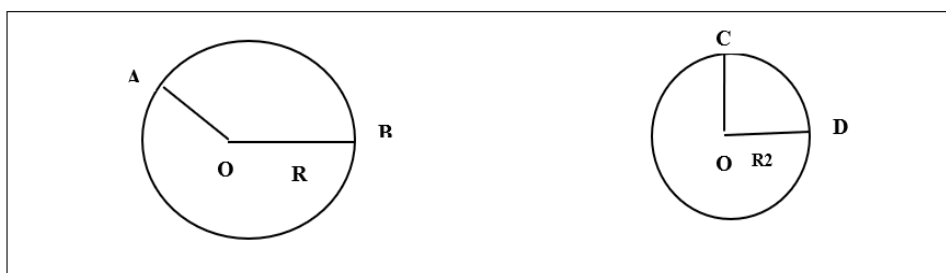
Figure 4: *Circles with varied central angles*
 Source: Author creation

Teacher B organized the data into two groups and required students to think of those results and explain what they learnt from them. To develop mathematical skills among the students, he engaged them to derive the arc length formula and contextualized the use of the formula to students' real environment. For example, he guided the students to think of various circular objects in their scenarios and try to figure out how the arc length formula may be used in obtaining the distance of arcs around the circular objects. Students reflected on arcs of roundabouts where cars move to their side to avoid collisions with others. They also think of arcs of bicycle tyres formed between two spokes from the central bicycle hub. The teacher also required students to brainstorm which car between the

taxi (small wheel size) and a bus (large wheel size) may cover a longer distance than the other provided that they move at a constant speed.

In a nutshell, Teacher B successfully involved students to attend to central angle and radius aspects in experiencing the arc length of circular objects separately and simultaneously. In each case, the teacher allowed the students to learn from others' group work results. They experienced diverse data, which enabled them to discern radius and central angle as determinants of arc length in a powerful way. The mathematical conventions developed thereafter improved students' potentialities in mathematical manipulative skills, reasoning, and applications. His ways of contextualizing mathematical problems using real examples were instrumental in enhancing student conceptual learning.

The lived object of learning
The post-test, which was parallel to the pre-test, was administered and the t-test paired sample analysis was performed using SPSS 16.0. The resultant data in Table 5 show that there were statistically significant differences ($p<0.05$) in students' performance between the pre-post-tests with an overall mean score of 24.6% and 56.8% respectively.

Table 5: *Students' learning outcomes in lesson 3*

Lesson	3	Mean	N	Std. Deviation	Std. Error Mean	t	Sig.
Pair 1	PRETEST	24.64	80	15.810	1.768	-14.687	.000
	POSTTEST	56.86	80	26.917	3.009		

The post-lesson interview was done and Teacher B filled in a reflective journal. The researchers asked Teacher B to explain how his lesson was SCL. The responses showed that Teacher B conceived SCL as engaging learners in attending to *critical aspects* of the *object of learning*.

> As I now know, SCL is a way of enabling students to experience critical aspects of what is taught. So, what I did was to ensure these critical aspects are well attained by students. In my lesson, I started with two circles with the same radius and central angle. I asked students to measure the resultant arc length of those circles, and they obtained the same arc length. Then, I varied the central angles of two circles while keeping the radius the same. When they measured the arcs they found a different length. I asked students why this was the case, and they pointed out confidently that it was because of differences in central angles. Later, I

varied the radii while keeping the central angle constant. They found that the circle with a big radius had a longer arc length than that of the small radius, even though, both had the same central angle. I asked students why exist these differences, some said it was because circles differed in size; and others said it was due to variation in radii, which means the larger the radius the longer the arc. In the end, I tried to problematize them in the case where two aspects, radius and central angle varied at the same time. Students came up with different arc lengths (Teacher B).

Similarly, in his reflective journal, Teacher B wrote: There are many things I have learnt through these rounds of learning studies. It includes how to engage students in critical aspects for them to learn what is taught. I learnt that varying some aspects while keeping invariant others was important for students to focus on a varied aspect(s). One thing I gained in this round is that critical aspects depend on students'" difficulties with what is to be taught. But, it is so challenging to frame them even if you know the students' difficulties (LSCTRJ).

Based on Teacher B's excerpt and reflective Journal, it seems he experienced SCL as *engaging students* to attend to critical aspects of the object of learning. The major focus of the teacher in this learning study was on the organization of critical aspects of what is taught. Although Teacher B experienced SCL as the object of learning, the subject content receded in his background. He used the pedagogy of variation and SCL framework as a means to engage students in discerning the central angle and radius of circular objects separately and simultaneously. However, Teacher B was still sceptical of his ability to identify and structure critical aspects of the object of learning using variation. It sounds like he still required much knowledge of the variation theory.

DISCUSSION

This study found that there is a considerable relationship between teacher's level of understanding of the learning study and their learning. Before the learning study, it was found that the top-down initiative (traditional TPD, such as seminars, and workshops) was used to train teachers on SCL innovation. As such, teachers understood SCL as a particular set of codified instructional methods to adopt. Nevertheless, they failed to practise SCL under the prevailing school challenges. It seems the technical way of understanding SCL did not enable teachers to use their day-to-day practical and reflective experiences in teaching. These experiences could have enabled teachers to modify, renovate or re-

adjust the SCL pedagogical strategies about their school and cultural context (Msonde & Msonde, 2019; Kiely & Davis, 2010; Poekert, 2011). However, the teachers maintained the traditional instruction practices, the result of which they became incapable of practising SCL with the focus on improving student learning. Thus, from the technical perspective view (see also Hargreaves, 2000; Poekert, 2011), it seems that the teachers had technical knowledge of SCL as prescribed by their teacher educators. Nevertheless, the day-to-day practices of SCL were marginalized. As such, their ability to develop new ways of experiencing SCL in their school context was very minimal.

However, it was found that teachers who were engaged in the research lessons 1, 2, and 3, learned how to design and practise SCL collaboratively. They shared their practical experiences with SCL and were allowed to renovate and/or modify it as deemed necessary. Given those opportunities, the teachers changed their way of experiencing SCL from seeing it as *methodological* per se, to subject *content* up to the *object of learning* orientations. Their understanding was gradual and hierarchical. This is because the more they were engaged in learning studies, the better their understanding became focused on student learning.

This study underscores what was found in previous studies that employed learning studies, premised on the variation theory. Previous studies (see Davies & Dunnill, 2008; Keung, 2009; Marton & LO, 2007; Pang, 2006) found that the learning study improved both student learning and teacher professional learning. However, one distinctive feature revealed from this study is the powerful influence of the variation theory in guiding teacher learning. This was particularly, true in designing and enacting SCL lessons focused on student learning of what was taught. The teachers were capable of developing new SCL pedagogical innovations that worked better with their school milieu. Their SCL pedagogical strategies focused on engaging students in attending to critical features of the object of learning'separately-then-simultenously' (KI, 2007). Through it, teachers had a new focus and a new way of experiencing and practising SCL. As Kwo (2010) argues "It is not just desirability, but the feasibility of teacher learning is when they break beyond institutional and mental boundaries to claim new focuses and embark on new paths". The teachers in the learning study group did not intend to develop a new theory, rather, they used the theory in practice to develop new ways of understanding,

designing and teaching SCL lessons based on their school's environment. Consequently, it extends a new strand of the theory in teacher's pedagogical understanding and implementation of SCL.

Findings from this study revealed that the variation theory is extremely powerful in the sense that it goes beyond improving student learning of the object of learning as found by previous studies. It also enhances teacher learning an effective way of designing and teaching SCL lessons. This is primarily with the focus on the manner students discern critical aspects of what is taught. This strand is contrary to the previous focus that teachers had on SCL lessons in enhancing student participation during instructions. It was evident that teachers used the theory practically to identify the critical aspects of what was taught. For example, through collaborative meetings, they identified critical aspects in mathematics such as directional, perpendicularity, length, sides' and ratios for improving student learning of trigonometric ratios in research lesson 1. This was because at this stage teachers had a partial understanding of the variation theory. In research lessons 2 and 3, they used students' experiences of the object of learning to identify critical aspects of what was taught. They found vertical and horizontal distances as critical aspects for student learning slope in research lesson 2. Similarly, in lesson 3, they identified the central angle and radius as critical aspects for students learning the arc length. Teachers learned how to create dimensions of variation. That is, they designed lessons in terms of patterns of variation and invariance of critical aspects. They also enacted their lessons focused on engaging learners in discerning critical aspects of the object of learning. It was in terms of what aspect(s) varied and what were kept invariant, even though, they improved gradually.

Thus, we see from this study that teachers in learning studies become, "interdependent innovators, problematizing and reflecting from their practices. Therefore, the variation theory guided teachers to come up with a new alternative pedagogy, which was practical under their prevailing school challenges of large classes, inadequate resources, and teacher overload. Even though the teachers' awareness of the variation theory seemed to improve gradually, there was much to be desired. Data showed that teachers had challenges in identifying and structuring critical aspects of the object of learning. They did not discern angle position, triangle orientation, and angle size aspects in teaching trigonometric ratios in research lesson 1, and used the pedagogy of variation intuitively. They

failed to use opportunities within their lessons to enable students to attend to the vertical and horizontal distances simultaneously in experiencing slope in research lesson 2. Moreover, the teachers partially involved students in discerning the central angle and radius simultaneously in experiencing arc length, especially in research lesson 3. These findings imply that the teachers' level of understanding of the variation theory is related to their ability to involve students in attending to critical aspects of the object of learning.

CONCLUSION

This study concludes that teachers engaged through learning studies guided by the variation theory, may improve their understanding of SCL with a focus on student learning of complex mathematics objects of learning. When teachers share their experiences with SCL, they come up with a wider understanding of the best pedagogical implementation of SCL. In doing so, they unfold the SCL teaching challenges, especially in clouded classroom settings. Such understandings and practices transform the teachers' superficial way of experiencing SCL as methodological oriented for enhancing students' participation in classroom transactions to perceiving SCL in a complex manner that focuses on students discerning critical aspects of the object of learning progressively. Moreover, the learning study is powerful as it transcends from improving student learning to teacher learning the pedagogy of SCL with the focus on enabling students to appropriate the object of learning sequentially and simultaneously.

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Security Assessment for Guest-to-Guest and Host-to-Guest Isolation in Type 1 and Type 2 Open-Source Hypervisors: A Focus on Attack Vectors

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Abstract

The global IT management landscape has shifted from physical to virtual computing. The transition process that makes virtualized execution environments possible is controlled by the underlying software apparatus known as a hypervisor. Based on the design architecture and configuration, hypervisors differ in the degree of virtual machine isolation, making security a serious concern for technology adopters. This paper presents the security assessment of open-source hypervisors using attack vectors for guest-to-guest (G2G) and host-to-guest (H2G) penetrations. The study uses Proxmox VE and XenServer for Type 1 hypervisors and Kernel Virtual Machine (KVM) and Oracle Virtual Box (OVB) for Type 2, with secondary data analysis based on software vulnerabilities and exposures retrieved from publicly available online databases. For clarity, the source codes of each hypervisor were scanned to identify vulnerable files in an experiment conducted on a Kali Linux testbed with prebuilt virtual machines, each hosting one hypervisor. The vulnerability level was determined using 11 attack vectors extracted qualitatively from relevant literature. The soft memory management unit was found to be the most common attack vector among all hypervisors. Type 1 hypervisors are far better at responding to virtual resource attacks, whereas type 2 hypervisors are more vulnerable to attacks that suffocate computational resources, especially virtual CPUs. OVB outperforms other hypervisors in terms of disk and network performance as it is more resistant to attacks involving I/O networking, interrupt and timer mechanisms, and hypercalls. The results also show that all hypervisors perform better against G2G than H2G attacks. For H2G attacks, the Proxmox VE and KVM have demonstrated better performance compared to other hypervisors. According to analysis, the most prevalent hypervisor flaws are mainly due to design faults rather than misconfigurations by adopters. To get rid of hypervisor weaknesses and fully capitalize on the technological shift from physical to virtual

computing, adopters should consider industry-accepted best practices when selecting, installing, and deploying open-source hypervisors.

Keywords: *Virtual Machine Isolation, Hypervisor Security, Open-Source Virtualization, Attack Vector*

INTRODUCTION

As more businesses become fully dependent on cloud services, IT infrastructure shifts from physical to virtual computing to maximize utilization of hardware resources while drastically reducing operational costs on space, labor, power, and cooling expenses. Virtualization is also popular because of its advantages in mobility, portability, and easy software management (Stoyanov, 2024). The value of open-source software (OSS) is growing dramatically (Hoffmann et al., 2024), with reports showing that it currently leads in server applications. Using OSS solutions in the virtualization process provides further economic benefits (Liang et al., 2024; Gentile et al., 2024; Duy et al., 2024), taking advantage of their General Public License (GPL-GNU), which permits free software access and source code modification (MacDonald, 2013).

Hypervisor software is a main apparatus used to virtualize server machines by creating, controlling, and managing multiple virtual machines running concurrently (Chen et al., 2023). A virtual machine is considered a fully functional computer with a guest operating system and virtual resources for processing (virtual CPU), memory (virtual RAM), storage (virtual HDD), and networking (virtual NIC) capabilities. Virtual machines are created to run on a single host system, with static, dynamic, and on-demand reallocation of server resources (Sinha & Thakare, 2023).

Hypervisors are classified into two types based on their operation mode (Popek & Goldberg, 1974), type 1 and type 2 (Basu et al., 2019; Đorđević et al., 2024). Type 1 runs on hardware (Singh et al., 2016) as embedded, native, or bare metal, while Type 2 is hosted by the operating system (Vojnak et al., 2019), as indicated in Fig. 1.
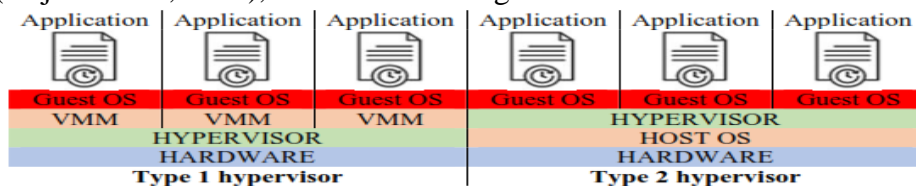
Figure 1: *Hypervisor structure*
Source: Vojtesek & Pipis, 2016; Pandey, 2020

Although type 2 hypervisor is less trusted than type 1 (Obasuyi & Sari, 2015; Felter et al., 2015) as it relies on the operating system, it is evident that the security of virtual machines remains uncertain in both types due to adopters' misconfigurations and hypervisor design faults (Ally et al., 2018). The flaws are largely dependent on the hypervisor-predesigned virtualization method, which includes full virtualization (FV), paravirtualization (PV), hardware-assisted virtualization (HW-aV), and OS-level virtualization (OS-lV) (Rodríguez-Haro et al., 2012; Masood et al., 2014; Zhang et al., 2024).

Both hypervisor types can fully control virtualized safety-critical embedded systems (Lozano et al., 2023), but because they place all files in a single target box to maximize resource utilization and server consolidation, they are considered vulnerable to high-risk attacks (Aalam et al., 2021).

The attack vectors exploit the existing bugs, particularly when the hypervisor source code remains accessible, and the default settings are not well customized to meet security standards. The risk is high in open-source software because of its freely accessible source code (Vainio & Vadén, 2012), its exponential growth, and inherent system bugs and vulnerabilities (Zajdel et al., 2022). Furthermore, when attackers gain full control of the hypervisor and its virtual machines in a cloud environment (Iqbal et al., 2016), which is a typical computing infrastructure, they pose a major security risk (Zoughbi, 2024) as it is complex to spot. Thus, this paper presents a comparative analysis of the security state of type 1 and type 2 open-source hypervisors using attack vectors in a virtual environment. Adopters who wish to reap the benefits of this technological paradigm shift can refer to this study to better grasp the hypervisor design strengths and security configurations from the outset of deployment.

MATERIALS AND METHODS
Extraction of Attack Vectors
To determine the degree of isolation between virtual machines (VMs) and their underlying hosts, the study is designed to use the most common hypervisor attack vectors, extracted qualitatively from relevant literature (Perez-Botero et al., 2013). Using a deductive approach, eleven attack vectors were identified: *soft memory management unit (soft MMU), virtual CPUs, interrupt and timer mechanisms, I/O and networking, hypercalls, remote management software, VM exits, hypervisor add-ons,*

symmetric multiple processors, para-virtualized I/O, and VM management. Each attack vector was mapped to a hypervisor for G2G and H2G penetrations to determine the vulnerability level.

Choice of Hypervisors

The study chose to use economically stable (Freet et al., 2016) open-source hypervisors released under the GNU/GPL license (Tu, 2000). Although different virtualization software provides varying performance (Morabito et al., 2015), the study is set to use the worldwide and most popular open-source solutions (Anwer et al., 2010; Kulkarni et al., 2012; Obasuyi and Sari, 2015; Ally, 2018). For type 1, the selected hypervisors are Proxmox VE (Proxmox VE, 2016, 2018, 2021; Goldman, 2016) and XenServer (XenServer, 2017; 2018). Proxmox VE combines Kernel-based Virtual Machine (KVM) and Virtuozzo (OpenVZ) to support full virtualization and container-based virtualization (Kovari & Dukan, 2012), which are necessary for provision of all major compute, network, and storage functionalities in a single package (Obasuyi & Sari, 2015). XenServer is the most well-known platform used by the world's largest clouds to host mission-critical applications (XenServer, 2017; 2018).

For type 2, kernel-based virtual machines (KVM, 2018, 2021; Hirt, 2010; Kiszka, 2010; Chirammal et al., 2016; Zhang et al., 2021) and Oracle VirtualBox (VirtualBox, 2011, 2018, 2021; Pandey, 2020; Reddy et al., 2022) were used. KVM is Linux-dependent and is the default virtual machine manager for Redhat Enterprise Linux (RHEL). It can run in the CPU's most privileged and protected zone, ring 0. The selected hypervisors include all the features of typical virtualization software. Table 1 compares basic virtualization features for each hypervisor.

Table 1: *Characteristics of the selected hypervisors*

SN	Supported Feature	Type 1		Type 2	
		Proxmox VE	**XenServer**	**KVM**	**OVB**
1	Virtualization Technique	FV, OS-lV	PV, HW-aV	FV, PV, HW-aV	FV, PV, HW-aV
2	Operating System	Linux, MS Windows	Linux, MS Windows	Linux, MS Windows, Unix	Linux, MS Windows
3	Server Architecture	x86, x64	x86, x64	x86, x64	x86, x64
4	Number of VMs	Varies	500	Various	128
5	Number of Virtual CPUs	160	160	Various	Various
6	Maximum RAM per VM	2,000 GB	128 GB	2 TB	1 TB, 16GB
7	Software License (OSS)	Yes	Yes	Yes	Yes
8	Software Version	4.4	4.5.x	2.6.20	5.2
9	Year Released	2016	2016	2007	2015

Vulnerability Analysis

Vulnerability analysis of the selected hypervisors was performed using two techniques: *text search* and *penetration testing tools*. The text search was used to extract the number of hypervisor attack vectors as secondary data from the national vulnerability database (NVD, 2021, 2022), a public repository maintained by the US government. The database uses a system of unique identifiers (Mitre, 2024) known as Common Vulnerabilities and Exposure (CVE).

Only vulnerabilities that matched the search criteria and keywords were returned, including the hypervisor product name, vendor name, CVE assigned unique number, and an open vulnerability and assessment language query. The retrieval process applied an advanced query processing model as a search technique to determine the degree of resemblance and correlation between attack vectors and hypervisor type using a similarity score (Panja, 2024). With an eight-year query period from 2015 to 2023, 11 items exactly matched the hypervisor attack vector for the four open-source platforms: *Proxomox VE, XenServer, KVM,* and *Oracle Virtual Box*. The detected vulnerabilities were rated based on their severity, with a focus on those with the most critical impact (Walkowski et al., 2021).

A vulnerability analysis was also performed using recursive penetration tests to assess virtual machine isolation levels and identify vulnerable source files, attack sources, and access methods. This is a high-coverage approach because text matching does not capture all vulnerabilities (Zheng & Li, 2024). Given that vulnerability analysis of open-source code can be performed in a dynamic (Ghelani et al., 2022) and real-time environment (Ghelani, 2022), a virtual test lab was set up with an Intel® CoreTM i7-8565 CPU@1.80GHz, a 1.99GHz x64-based processor, 16 GB of usable RAM, and a 64-bit operating system. The four hypervisors were installed as pre-built VMs to serve as attack targets.

Kali Linux is considered a holistic penetration test solution (Yarlagadda, 2024), with data capture from information gathering to exploitation of weak spots; therefore, the package was configured to run experiments concurrently (Ismaili, 2023; Nedyalkov, 2024) in both homogeneous and heterogeneous infrastructures. For clarity, each test was repeated three times, and vulnerabilities not directly related to hypervisors were treated as extraneous factors and so ignored and excluded from the analysis,

regardless of how they affected other layers of the virtual execution environment (Parast et al., 2022). These include, for example, security threats associated with the guest OS. The selected attack vectors are thought to be the most predominant issues that ideally affect hypervisor performance.

RESULTS AND FINDINGS
Hypervisor Attack Sources

Understanding attack sources and access methods is vital for assessing the security of virtual machines and their underlying hypervisors. The findings reveal that the sources of attack vectors vary between hypervisors. The attack vector in each hypervisor varied depending on whether the attack points were local or remote. Furthermore, attack vectors were found to originate from either hypervisor design faults or adopter misconfigurations. Regardless of these differences, each hypervisor was found with vulnerable source files. According to the vulnerability analysis, nearly two-thirds of the attacks (15) were caused by design faults and locally executed (16 attacks), as indicated in Table 2.

Table 2: Summary of Hypervisor Security Issues due to Attack Vectors

Hypervisor	Attack Vectors						Total
	Weak Point (Source)			Overall Attack Point			
	Configuration	Design	Both	Local	Remote	Both	
Proxmox VE	1	4	0	4	0	1	**10**
XenServer	1	4	0	3	1	1	**10**
KVM	2	3	0	4	1	0	**10**
OVB	2	4	0	5	1	0	**12**
Total	**6**	**15**	**0**	**16**	**3**	**2**	**42**

The results reveal that type 1 hypervisors are vulnerable to attacks that can occur both locally and remotely. Given the security state of all hypervisors, the Proxmox VE, XenServer, and KVM have slightly similar security strengths. On the other hand, OVB is more vulnerable than other hypervisors, with most attacks being caused by design flaws and locally executed.

While the clear design flaw in Proxmox VE is a failure in automatic RAM allocation, the XenServer suffers from modified file formats of the raw disk image in the guest VHD. For type 2, the most vulnerable part of KVM is the unsecured vCPU index in source files related to

arch/x86/kvm/, as well as the *core subcomponent*, *VDMA*, and *privilege escalation in guest machines* for OVB. Table 3 summarizes the effect of each attack vector on each hypervisor.

Table 3: Attack Vectors in each hypervisor

Attack Vectors	Open-Source Hypervisors				Total
	Type 1		Type 2		
	Proxmox VE	XenServer	KVM	OVB	
Soft MMU	Yes	Yes	Yes	Yes	**4**
Virtual CPUs	Yes	No	Yes	Yes	**3**
Interrupt and Timer Mechanism	Yes	Yes	Yes	No	**3**
I/O and Networking	Yes	Yes	Yes	No	**3**
Hypercalls	Yes	Yes	Yes	No	**3**
Remote Management Software	No	Yes	No	Yes	**2**
VM Exits	No	No	No	Yes	**1**
Hypervisor Add-ons	No	No	No	Yes	**1**
Symmetric Multiple Processor	No	No	No	No	**0**
Para-virtualized I/O	No	No	No	No	**0**
VM Management	No	No	No	No	**0**
Total	**5**	**5**	**5**	**5**	**20**

As shown in *Table 3*, all four hypervisors were found to be vulnerable to at least five attack vectors, with a soft MMU being the most prevalent. The interrupt and timer mechanisms, I/O and networking, and hypercalls all have an impact on Proxmox VE, XenServer, and KVM. The soft MMU in Proxmox VE is caused by a failure of automatic RAM allocation, whereas in XenServer, the main cause is the presence of vulnerable source files such as *include/asm-x86/debugreg.h* and *arch/x86/physdev.c,* which modify the file formats of the raw disk image in the guest VHD. The soft MMU in type 2 hypervisors is caused by the failures in both the core subcomponent and VDMA for OVB, as well as the presence of vulnerable source files such as *drivers/net/virtio_net.c* and *virt/kvm/ioapic.c* for KVM. In all hypervisors, the attack vector is locally executed due to design weaknesses.

Guest-to-Guest and Host-to-Guest Attacks
According to the analysis, all four hypervisors are vulnerable to guest-to-guest (G2G) and host-to-guest (H2G) attacks, whether performed locally or remotely, and whether caused by adopter misconfigurations or design

flaws. The G2G and H2G attacks help to determine the level of virtual machine isolation. Vulnerability analysis reveals the possibility of a host attack from the guest machine, resulting in the breakout of the underlying internal physical kernel isolation. Table 4 shows the attack possibilities for the G2G and H2G in each hypervisor.

Table 4: Summary of Hypervisor G2G and H2G Attacks

Attack Vectors	Type 1				Type 2				Total (%)
	Proxmox VE		XenServer		KVM		OVB		
	G2G	H2G	G2G	H2G	G2G	H2G	G2G	H2G	
Virtual CPUs Symmetric	√	√	X	X	√	√	√	√	75
Multiple Processors	X	X	X	X	X	X	X	X	0
Soft MMU	√	√	√	√	√	√	√	√	100
Interrupt and Timer Mechanism	√	√	√	√	√	√	X	X	75
I/O and Networking	√	√	√	√	√	√	X	X	75
Para-virtualized I/O	X	X	X	X	X	X	X	X	0
VM Exits	X	X	X	X	X	X	√	√	25
Hypercalls	√	√	√	√	√	√	X	X	75
VM Management	X	X	X	X	X	X	X	X	0
Remote Management Software	X	X	√	X	X	X	√	X	25
Hypervisor Add-ons	X	X	X	X	X	X	√	√	25
Total	**5**	**5**	**5**	**4**	**5**	**5**	**5**	**4**	

Analysis also shows that the rate of G2G attacks is consistent across all hypervisors, implying that they offer the same virtual machine isolation level. However, Proxmox VE and KVM are significantly more resistant to H2G attacks than XenServer and OVB. Fig 2 depicts G2G and H2G attacks across all hypervisors.
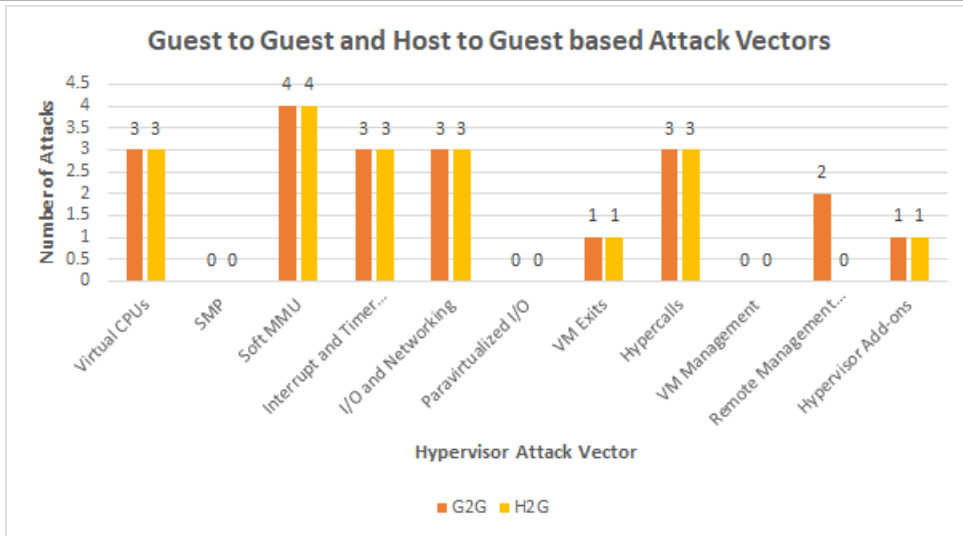
Figure. 2: G2G and H2G based on hypervisor attack vectors.

DISCUSSION

Essentially, all hypervisors are vulnerable to attack vectors, with the soft MMU being the most common. For attacks on computing resources such as virtual CPUs, XenServer was proven to be more secure than all other hypervisors. The result ties well with other studies that have reported optimal CPU performance in XenServer (Poojara et al., 2018). Unlike other hypervisors, the OVB is not vulnerable to interrupt and timer mechanisms, I/O and networking, and hypercalls, meaning that it provides better services for disk security and network performance.

All four hypervisors have shown a similar pattern of results with a possibility to break down into an attack on the host hypervisor from the guest machine. This is consistent with what has been found by Bazm *et al*. (2017), who claimed that distributed side-channel attacks are true for H2G attacks and have more weight in terms of isolation violation in the virtual environment. From these results, it is clear that attacks due to design faults occur on all hypervisors, regardless of type, with major parameters being virtualization method, maximum capacity of virtual resource allocation, software maturity status, and host and guest OS compatibility. On the other hand, common parameters with impacts on security configurations include the incorrect choice of virtual infrastructure between homogeneous and heterogeneous, preloaded and prebuilt hardware-specific and open-source drivers, resource allocation

mode between static and dynamic methods, vulnerable default configurations and patches, nesting, virtual machine states between dormant and active, and guest unavailability.

The prevalence of H2G attacks is also explained by Cheng et al. (2018) as the general breakout of physical kernel isolation. The study validates the two most infection layers (VM—VM and VM—OS) of the virtualized physical server, namely inter-virtual machine isolation (G2G) and VM-hypervisor isolation (H2G) (Cheng et al., 2018; Ara et al., 2020). The finding was quite surprising that all four hypervisors are not vulnerable to symmetric multiple processors, para-virtualized I/O, or VM management attacks, implying that not every attack vector can penetrate at the G2G and H2G levels.

While attacks on virtual CPUs are common in type 2 hypervisors, KVM adopters should pay close attention to interrupt and timer mechanisms, I/O and networking, and hypercalls throughout the configuration process, in line with KVM's large vulnerability quantity stated by Chen et al. (2023). OVB adopters should be keen on attacks related to VM exits, remote management, and hypervisor add-ons. When all four hypervisors are screened, G2G attacks outnumber H2G attacks, meaning that penetration attacks between virtual machines occur more frequently than between virtual machines and their underlying hypervisors. This implies that all hypervisors are more vulnerable to G2G attacks than H2G, although they offer the same isolation level against G2G attacks.

An important implication of these findings is that although type 1 hypervisors are more secure than type 2 hypervisors due to the security state and overhead factor of the host OS, any hypervisor type can be considered vulnerable to security threats if major design flaws and software misconfigurations are not properly addressed by software vendors and adopters. Thus, the findings are of direct practical relevance for adopters in ensuring that all essential security parameters are addressed throughout the deployment and adoption process, regardless of the chosen hypervisor type.

CONCLUSION
In conclusion, it is evident that hypervisor security is critical for adopters to attain maximum performance in virtual machines. While the shift from physical to virtual computing is constantly becoming popular with the use

of OSS solutions, the choice of an appropriate and secure hypervisor that is free from vulnerabilities and capable of responding to attack vectors is vital for an effective deployment process. This study has clearly shown the isolation strength between virtual machines for G2G and H2G attacks provided by the open source-based type 1 and type 2 hypervisors. The main conclusion that can be drawn is that all four hypervisors are vulnerable to security breaches, mostly due to design flaws and adapters' misconfigurations.

The study serves as a valuable resource for businesses and open-source adopters with a strategic plan to virtualize their computing resources. Further research should be conducted to explore isolation issues associated with container virtualization so that adopters can make informed decisions for the transition from physical to virtual computing.

RECOMMENDATIONS

Given the open-source nature of hypervisors and their widespread use in creating and managing virtual infrastructure, adopters should make significant efforts to overcome the possibility of G2G and H2G attacks, especially when open-source virtualization technology is used as a backend solution. Adopters should verify vulnerable source files on a regular basis, taking advantage of free access to open-source code. Throughout the deployment process, adopters should consider both software design and server configuration attributes, such as hypervisor upgrades, patching, and trusted software support sources. Adopters should also consider industry best practices, technology compliance and compatibility, feasibility studies, business process reviews, as well as a physical-to-virtual conversion plan.

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Hospitality Corporate Sustainability: How Intertwined are the Practices?

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Abstract
This study aimed to examine the nature of corporate sustainability practices and how such practices fit with traditional nested model of sustainability in developing country-context. The study is based on thematic analysis of in-depth-interviews with hotels' managers in the Coastal and Northern tourist circuits of Tanzania. It broadly reveals that, sustainability practices at corporate level embrace economic, environmental and social dimensions. Hotels' practices vary from being modest (energy and resource saving, employees and guests' education, local employment); moderate (sustainable growth, customer satisfaction, community engagement, biodiversity conservation); to intensive (long-term profitability focus, waste reduction, water conservation, local sourcing) implementation levels. Moreover, findings indicate sustainability practices do not fit well in the traditional nested model. Challenging the simplicity of a linear nested model, results exhibit an intricate interconnection between economic dynamics as a foundational aspect deeply intertwined with both environmental and social issues. The study's findings imply that to reap significant sustainability benefits, businesses should strive for sustainability approaches that integrate sustainable principles holistically into all aspects of the business. Moreover, it uplifts a theoretical relevance and practical applicability of nested sustainability model. Hospitality practitioners are also expected to benefit from practical implications presented in this study.

Keywords: Corporate sustainability; hospitality practices; nested sustainability model; Tanzania

INTRODUCTION
Research on the role of sustainability practices on corporate financial performance continue to capture interests of several hospitality scholars (e.g., Wang et al., 2008; Hirsch et al., 2023; Lee et al., 2023). Findings from such previous works have however remained inconclusive with little consensus. Such mixed and contradictory findings can be attributed to disparity and ambiguity in studied variables (Modica et al., 2020; Shi and

Tsai, 2020); differences in research methodologies applied (Allouche and Laroche, 2005); exclusion of relevant mediators or moderators (Orlitzky et al., 2003; Margolis and Walsh, 2003); and little recognition of idiosyncratic industrial characteristics and heterogeneity across sectors (Wang et al., 2008; Lee et al., 2023).

Most hospitality studies focus largely on sustainable-environmental related issues (Kularatne et al., 2019; Han, 2021; D'Arcy, 2023; Lee et al., 2023) leaving other sustainability aspects largely unresearched. Even for the few authors such as Njoroge et al. (2019) who dealt with sustainability from economic angle failed to inclusively explore social and environmental aspects. Only meta-analysis studies have been inclusive in covering both environmental, social and economic issues (Modica et al., 2020; Elkhwesky et al., 2022). In similar efforts, this study empirically explores the nature of hospitality corporate sustainability practices in an inclusive manner. It focuses on sustainability practices at corporate level in developing country-context.

On the other hand, previous researches portray a huge disparity on specific practices that are claimed to belong within the same sustainability dimensions (Njoroge et al., 2019; Modica et al., 2020; Shi and Tsai, 2020). This is probably why some studies (e.g., Jones et al., 2016; Oriade et al., 2021) claim that sustainability concept in hospitality field remains ambiguous and represent different things to different people. It is from this truth that sustainability is traditionally being illustrated using nested and intersected models of sustainability. This is despite these models lacking theoretical basis and traceable originality (Purvis et al., 2018). In effort to contribute in filling this theoretical gap, the present study chose to examine how hospitality sustainability practices fit with nested model. This choice is made with the understanding that, intersected model is often linked to weak form of sustainability and it will critically be examined in the paper next to this.

The present inquiry is expected to elevate the theoretical relevance and practical applicability of the model within hospitality research. Data from in-depth interviews are thematically analysed using NVivo followed by comparative analysis for statistics of sustainability dimensions. Study's findings are crucial for theoretical contribution and practical relevance on sustainability management within the industry. Subsequent to the introductory section, section 2 conducts a review of literature on corporate sustainability practices. In section 3, the methodology utilized in the study

is articulated. Then, section 4 presents the discussion of findings. The paper ends with implication section in which relevant conclusions are drawn.

LITERATURE REVIEW
Revisiting Nested Model of Sustainability
Nested model of sustainability is illustrated in Figure 1 in which the three pillars of sustainability namely the social, economic and environmental are embedded within each other.

The economic aspects are nested within the social circle, and the resulting socio-economic issues are in turn nested within the environmental dimension. In this model, the smaller systems are embedded within the larger ones. Thus, creating a hierarchy of sustainable practices. At least in theory, sustainability is said to operate at multiple scales, in which each level influences and is influenced by the others, forming an intricate nesting structure. For instance, sustainability policies at the national or international level can affect local communities and individuals. This model encourages a nuanced understanding of sustainability by acknowledging the diversity of contexts and scales involved.
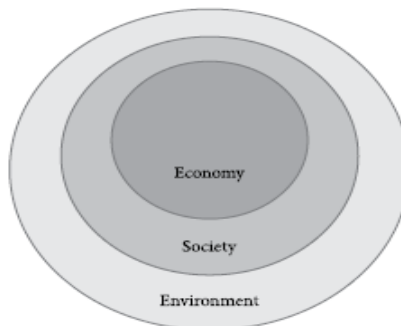
Figure 1: Nested Model of Sustainability
Source: Pryn et al., 2015

The nested paradigm is often linked to strong form of sustainability (Pryn et al., 2015) as it can be characterized by a) holistic approach that recognizes the interconnectedness of systems, emphasizing that sustainability should address ecological, social, and economic aspects simultaneously; b) recognizing the nested nature of systems, this model promotes adaptive and resilient strategies. Local solutions are embedded within broader frameworks, allowing for flexibility in addressing specific challenges while remaining consistent with overarching sustainability

goals; and c) long-term perspective in addressing sustainability at various levels. It thus aims to create enduring and adaptable systems that can withstand changes and uncertainties over time.

Scholarly articles have traditionally visualized sustainability based on nested model of sustainability (Pryn et al., 2015; Njoroge, 2021). Whether such representation is theoretically grounded and/ or practically relevant is still an open and unexplored question. Purvis et al. (2018) for instance, examined the origin and theoretical foundations of a three-pillar sustainability conception and revealed that there is no single point of origin for this conception, and that the model is not theoretically grounded. Despite such criticisms, this model has severally been used in scholarly writings, thus calling for research on its theoretical relevance and practical applicability as articulated in this piece of work. Thus, next section goes beyond theoretical arguments to review sustainability practices within the hospitality industry.

Corporate Sustainability Practices in the Hospitality Industry
Several studies continue to explore sustainability practices in the hospitality industry (e.g., Prud'homme and Raymond 2013; Kasim et al., 2014; Njoroge et al., 2019; Oriade et al., 2021; Njoroge, 2021; Elkhwesky et al., 2022; Sharma, 2023; Shereni et al, 2023). Several terms are interchangeably used by previous studies to imply sustainability practices-sustainable development practices, environmental-sustainable practices, green practices, sustainability initiatives, eco-friendly practices, sustainable practices, and sustainability management practices. The most documented sustainability practices in hospitality research are aspects that focus on actions to conserve environmental resources (Kasim et al., 2014; Horng et al., 2017; Shanti and Joshi, 2022; Shereni and Rogerson, 2023). Literature further suggests that, most hospitality businesses are largely interested in undertaking sustainability issues for business-case reasons in order to enhance their competitiveness, reputation and customer loyalty (Scheyvens and Biddulph, 2018; Njoroge et al., 2019). Such practices are limited to activities that bring firms' direct benefits such as cost-saving activities and public relations (Hughes and Scheyvens, 2016). Moreover, firms engage in improving energy efficiency, waste management and consumption reduction (Sloan et al., 2014; Kularatne et al., 2019) and purchase of local products (Niederle and Schubert, 2020; Pereira et al., 2021).

The need to understand how innovative processes can be utilized to help firms achieve sustainability agenda has motivated many scholars. For example, Prud'homme and Raymond (2013) and Kasim et al. (2014) proposed a framework for waste management which embraces 3R strategy (Reduce-Reuse-Recycle) which was extended to include another R (Reaching). This framework that requires firms to innovatively apply the existing knowledge and technological capabilities to reduce, reuse, recycle or reach water resources for commercial benefit. The 3R framework is however criticized for direct, minimalist nature and its narrow scope to capture sustainability practices fully (Oriade et al., 2021). In manufacturing, for example, 3R approach was extended to a 6R model which emphasize on reduce, reuse, recover, redesign, remanufacture, and recycle approaches (Joshi et al., 2006).

Prakash et al. (2023) examined hotels' critical performance indicators for green and sustainable practices. Utilizing Hotel Carbon Management Initiative framework, it was revealed that firms focus on water conservation as the first and foremost objective for the implementation of sustainability practices. Next in the order of priority minimizing air pollution by maintaining an eco-friendly environment; effective waste management techniques in their hotels; construction designs that prevent noise pollution and energy conservation. Prakash et al. (2023) however, focused on only suburban luxury and large-scale hotel chains situated in of India. Impliedly it acknowledges on the disparity in sustainability practices even within the same country.

On the contrary, empirical studies in hospitality (e.g., Njoroge et al., 2019) confirm that innovation strategy promotes economic sustainability within the industry. In that study, innovation strategy was measured by intensiveness in technology usage; provision of standardized services; emphasis on service quality as well as product introduction readiness. On the other hand, Oriade et al. (2021) revealed that the reuse of towels, temperature control, and noise pollution reduction as sustainability practices are not popular and are not actively applicable in Nigerian hotels. This is contrary to 3R model which was developed to offer guidance to hospitality players. In Sri Lankan hotel industry, Kularatne et al. (2019), concluded that being environmentally responsible enhances the efficiency of hotels, specifically in terms of improving energy efficiency and waste management but not for water consumption. In similar settings, Khonje et al. (2020) also affirm such contradictory findings based on

Malawian hotels which seem to lack policies focused at sustainable environmental practices.

In Italian context, Modica et al. (2020) investigated how economic, social and environmental sustainability practices in the hospitality supply chain impact on consumers' satisfaction, loyalty and willingness to pay premium prices. Likewise, Shi and Tsai (2020) demonstrated that corporate sustainability practices implemented by hotels in China were economic, social, and environmental. However, there is a difference between the two studies regarding what constitute economic sustainability practices. Modica et al. (2020) sub-categorized economic sustainability practices to include revenue growth, cost control, and market share growth. On the contrary, Shi and Tsai (2020) found that economic sustainability related to issues such as promoting local products among customers, contracting preferentially local community, purchasing from local suppliers, remunerating employees' salaries above industry average. Moreover, in developing country context, studies (e.g., Njoroge et al., 2019) empirically measured economic sustainability to embrace sustainable growth, resource management, long-term profitability, customer satisfaction and value chain management.

On the other hand, there exist several factors that enhance or inhibit firms to successfully implement sustainable practices. In some incidences, tourists' expectations on level of comfortability contradict with sustainability efforts (Butler, 2008), thus compromising customer satisfaction and experience (Ricaurte et al., 2012; Zengeni et al., 2013). point out that guests are interested in sustainability practices that do not compromise their experience. Some scholars argue that sustainability is often not the core priority of tourists, many of whom exhibit pleasure-seeking mind-set on their visits or are not necessarily driven by sustainability agenda and there is a wide gap in their behaviour towards sustainable practices (Baddeley and Font, 2011; Ricaurte et al., 2012).

METHODOLOGY
The objective of this study is two-fold, first it explores what exactly are the hospitality sustainability practices at corporate level in developing country-context. It also examines how hospitality sustainability practices fit with nested model. Tanzania is used as a case for developing economies where in-depth interviews were conducted with hotels located in Coastal (Dar es Salaam, Zanzibar) and Northern (Arusha, Kilimanjaro) tourist circuits in 2023. Purposive sampling was used in selection of

hotels consistent with Prud'homme and Raymond (2016). In particular hotel attributes (hotel type, ownership, location and rating) guided the selection of hotels. Interviews were conducted in Zanzibar (5), Dar es Salaam (6), Arusha (5) and Kilimanjaro (4) for the purpose of getting richer understanding on corporate sustainability practices. So, a total number of 20 hotels were interviewed, consistent with previous literature (Saunders et al., 2012) which recommend a minimum of 5 cases and maximum of 25 cases for qualitative studies.

The interview consisted of 10 audio recorded interviews, 1 video recorded interview and 9 notes taking interviews. With recording, the interviewer concentrated in listening to managers without being distracted by taking extensive notes. Written notes were used in instances where managers were not willing to be recorded. Then, theoretical thematic analysis was employed in identifying, analyzing and generating patterns (themes) within data in line with Braun and Clarke (2006), Njoroge et al. (2019) and Pereira et al. (2021). NVivo software was used at this stage. Finally, a synthesis of the analysed literature reviews and interviews resulted into 11 themes for corporate sustainability practices. These findings are discussed in the forthcoming section.

FINDINGS AND DISCUSSIONS

The objective of this study is two-fold. First, it examines the nature of hospitality corporate sustainability practices in developing country-context. In this respect, this study explores what exactly are hospitality sustainability practices at corporate level. Secondly, it examines how hospitality sustainability practices in the studied context align with nested model. The findings for the studied objectives are discussed in subsequent sub-sections.

4.1 Nature of Hospitality Corporate Sustainability Practices

Findings on the nature of hospitality corporate sustainability practices are summarized in Table 1. Thematic analysis indicates that hospitality practices in the studied-context consist of 11 major themes (practices) that revolve around economic (4), environmental (4) and social (3) dimensions. Based on proportional of hotels which execute a particular practice, the implementation level ranges from being *modest*, *moderate* and *intensive* (as illustrated in the last column). These aspects of corporate sustainability are in turn discussed.

Table 1: Corporate Sustainability Practices

Sustainability Practices (Themes)	Number of Hotels (Sources)	Sustainability Concepts/ Patterns (Coded Items)	Proportional of Hotels per Theme	Level of Implementation Intensity *
Economic				
Energy and Resource Saving	6	12	30	modest
Long-term Profitability	15	85	75	intensive
Sustainable Growth	10	28	50	moderate
Customer Satisfaction	13	88	65	moderate
Environmental				
Community Engagement	12	18	60	moderate
Biodiversity Conservation	15	22	75	moderate
Waste Reduction and Recycling	16	50	80	intensive
Water Conservation	14	65	70	intensive
Social				
Local Sourcing	16	75	80	intensive
Employees and Guests Education	5	45	25	modest
Local Employment	4	15	20	modest

Source: Generated from NVivo based on interview data
Assumptions: *modest: $0 \leq HPT < 50$; moderate: $50 \leq HPT \leq 75$; intensive: $75 < HPT \leq 100$*

Economic Sustainability

Economic sustainability consists of four measures: Energy saving programs; emphasis on profit maximization with long-term focus; sustainable growth which considers future generations; and focus on customer satisfaction. Energy saving initiatives are crucial part of hospitality economic sustainability in the studied context. It involves the use of energy-efficient technologies in lighting, heating and ventilation. Moreover, firms make efforts to encourage and educate their employees on energy conservation practices. Hospitality firms also use renewable energy sources mostly solar panels and biogas systems. This is in line to what Galbreath (2011) generally labelled as firms' creating value in a way that ensures their economic viability for indefinite time by applying facilities and processes that minimize operational costs through optimal use of resources (Turker, 2009; Njoroge et al., 2019). Although *modestly* implementable, these initiatives aim to reduce operational costs and enhance efficiency.

Theoretically, profit maximization under corporate sustainability perspective, goes beyond traditional financial gains achieving economic success while balancing social and environmental considerations. Although results reveal that firms *intensively* put emphasis on long-term profitability, deep examination of specific practices reveals a contrary picture. Similar to a study conducted in Zimbabwe (Shereni et al., 2023), this current study also finds that an objective on profit maximization focuses largely on normal operations that aim to reduce costs, increase efficiency and profitability. In a different context, Tuan (2015) also found that, companies' economic sustainability is largely focused on profitability. Hospitality firms in the studied context strategize to adopt resource-efficient, practices to reduce operational costs, energy saving measures, waste reduction and risk mitigation associated with regulatory compliance on environmental and social issues.

Likewise, firms emphasize on responsible sourcing that can lead to cost saving in the long-run. For instance, the hotels are not very much concerned with local sourcing but on suppliers' reliability and quality of supplies. In fact, a manager of ZES Hotel commented that:

> *"...as part of our sustainability efforts, this hotel ensures that the supplies of goods and services come from local community, except for goods that do not meet our quality standards. I do not believe there is a manufacturer in Zanzibar or even in mainland Tanzania who can produce for example crockery, glassware and bed linens to our standards. So, we import from outside specifically because of standards".*

Similarly, a manager at SLH hotel stressed that:

> *"...what is important for us is the reliability of the suppliers, our guests need to be served as per the agreed menu and no excuses are entertained in the business. We give business to one who can deliver. This is how we sustain our business".*

Sustainable growth for hospitality businesses requires a holistic approach that considers the well-being of the community, preservation of the environment, and ethical business practices. According to Turker (2009) sustainable growth entails businesses' growth which considers future generations by prioritizing on sourcing locally (Njoroge et al, 2021). Despite these previous findings, this current study reveals that hospitality firms in developing country-contexts like Tanzania put serious emphasis on reliability of input supplies in terms quantity and quality, certainty and predictability as well as timeliness to avoid compromising the quality of

services they offer. For instance, General Manager for DHD hotel noted that:

"...not all supplies are procured locally, some are sourced from overseas. Certain local suppliers are a bit primitive (not to hotel's standards), so we are forced to source from overseas especially for products not available locally. The hotel hires a lot of Tanzanians and we support local entrepreneurs, for example, we receive a big part of our food, drink, uniform as well as stationery supplies from local. If we fail to get supplies locally, we go international".

In response to customer pressure and expectations towards sustainability concerns, some hotels studied note that:

> *"...every year we receive Rate for Proposals (RFP) from big companies travelling all over the world. In bidding, RFP requires a lot of information and sustainability is the first one. RFPs demand issues like tax payments; inspections and compliance to government regulations; giving back to the society; hotel rating from respective authorities, among others. In case the hotel cannot provide evidence regarding sustainability issues is automatically disqualified. For example, in last year's RFP one of the evidences submitted by our hotel was an award received for offering our support on Kagera earthquake" (SGT hotel).*

Results of this study further affirm that the interviewed hotels capitalize on relationship management and differentiation. For example, DSR hotel noted that:

> *"...we visit corporate customers regularly and invite them to the hotel and take initiatives to assist them when they have difficulties. Maintaining close customer relationship management is vital in sustaining our market shares".*

Such findings suggest that customer satisfaction is also an important component of economic sustainability. This finding indicates that customer satisfaction practices are *moderately* implemented. Likewise, scholars (e.g., Zengeni et al., 2013 and Shereni et al., 2023) contended that sustainability is often not the main decisive and priority factors for guests when making their tourism choices.

Environmental sustainability
Core environmental-sustainable practices in the studied context include community engagement in environmental preservation, biodiversity conservation, waste reduction and recycling as well as water

conservation. The implementation level for these practices ranges from *moderate* to *intensive*. Findings indicate that environmental-sustainable practices tend to differ depending on the type of tourist activities (coastal, parks or mountains). Firms in coastal touristic regions such as Zanzibar engage in collaborative approach involving government agencies, tour operators, tourists and local communities. Such collaborations are meant to protect and preserve the unique biodiversity both local flora and fauna in the Archipelago. In similar collaborative initiative, international tour operators (such as TUI17) are also demanding hotels move more towards environmentally sustainable practices. The findings concur with previous studies which suggest some hospitality firms engage environmental scanning and information processing efforts (Rogers and Bamford, 2002). SCH hotel, for instance, comment that:

> *"The sales and marketing team work to look for new companies and new opportunities opening up. We are very up to date with market trends and opportunities. Internationally we use international travel agents who look for our markets overseas. Last year we joined with Preferred Hotel and Resorts, which looks for our markets internationally".*

Moreover, some hotels (e.g., Zuri Zanzibar) engage in local partnerships to make re-cycled products out of waste material that mostly comes from the tourism industry. Such products are sold to tourists thus creating employment to local artisans and craft workers, most of them women while conserving the environment. Despite such efforts, the share of hotels adopting environmental practices remains small. A worse part is that most of these initiatives are philanthropic in nature rather than being mandatory. It therefore remains questionable as to when and how such sustainable practices form and diffuse throughout the hospitality industry. Hotels also implement sustainable building designs that preserve local culture and history. For instance, coastal areas such as at Mji Mkongwe in Zanzibar hotels are proactive in tapping opportunities based on historical uniqueness of their location as noted by ZSH hotel that:

> *"We derive our uniqueness in the sense that this is a reclaimed and a renovated old building in Zanzibar. Zanzibar being a UNESCO tourism site, we are proud to be associated with that history, so how we attract tourists is that we derive our uniqueness from the history of Zanzibar and being in Stone Town we associate ourselves with the history of Zanzibar. I can tell you, the new buildings that are coming up, definitely cannot compete with us because we are part of the history".*

On the other hand, SLH hotel commented that:

"...to exploit our market opportunities effectively and attract more visitors we capitalize a lot on our location. As you can see, we have the scenic oceanic beach just in front of us. The beach is very strategic and an attraction for visitors to enjoy our services".

On the other hand, hotels commit resources for continuous improvement. A manager of PIX hotel indicated that:

"...regular maintenance and improvements are vital in attracting and retaining market opportunities as well as sustaining the business".

In other words, technology usage is an inseparable component to sustainability agenda and exploration of market opportunities. For example, a manager of SHH hotel noted that:

"...we are proactive and aggressive in any market opportunity coming up. In a search for the opportunities, we utilize several tools including internet search engines like hotel.com; Expedia; American Express etc and pay the associated monthly fees". Likewise, marketing manager of NACH hotel informed that "the hotel participates in local and international exhibitions in search of market opportunities. We also host celebrities and handle airline crews to talk about our business".

Social Sustainability

Social sustainability in hospitality industry refers to actors' commitment to meeting the needs of the present without compromising the ability of future generations to address their own needs, with a special focus on social aspects. Hotels' concern on societal issues is found to be another important aspect of corporate sustainability the studied context. Social aspects are mainly focused on sourcing locally, employees and guests' education on sustainability issues, emphasis on local employment and philanthropic initiatives. Results indicate that the formal two practices are *intensively* implemented, while the latter two range between *modest* to *moderate* level of implementation.

In Brazil, Niederle and Schubert (2020) showed that restaurants apply sustainable food systems, including using self-produced food, purchasing directly from farmers and using ecological packaging. On the contrary, findings of this present study indicate that local sourcing involves less direct purchasing from farmers but rather from intermediaries who benefit

at the expense of farmers' efforts. This is largely attributed to weak logistical systems connecting producers and end markets; poor supply capacity by individual producers as well as market information asymmetry. The latter finding is similar to what Shereni et al. (2023) commented that knowledge and capacity gaps are critical issues in Zimbabwean hospitality supply chains. Moreover, it is revealed that, local production and supply capacity is seasonal in nature and is associated with numerous challenges including limited menu consistency, supply chain reliability, unmet guest expectations and cost fluctuations.

Results further reveal that several major issues related to employees' training and guests' education. Employees' training in hospitality is challenged by lack of understanding among employees about the importance and benefits of sustainability practices and insufficient knowledge about how roles among different teams and staff members contribute to overall sustainability goals. Firms have limited training materials that cater to different learning styles and levels of expertise. It also seems challenging to ensure consistent implementation of sustainability practices across all departments. This can be associated with lack of policies that support sustainability efforts for hospitality enterprises in developing countries. On the other perspective, it is difficult employees to put into reality the practical application of sustainable principles in their specific roles and operational routines. Lastly, finding indicate that, quantifying the contributions of individual employees to overall sustainability efforts is near to impossible. Likewise, Shereni et al. (2023) availed evidences that, major challenges on implementing sustainable practices in Zimbabwe were lack of knowledge and management motivation towards sustainable practices accompanied with absence of quantifiable targets.

While from stakeholders' perspective it lightly follows that customers and pressure groups are core in sustainability implementation, to the contrary findings in the studied context do not full support this theorization. In this study, it is revealed that there is a gap between striking a balance between educating guests about sustainability and providing an enjoyable guest experience. Additionally, management is confronted with the dilemma to balance information overload on educational efforts without detracting guests' experience. These findings are consistent with Ricaurte et al. (2012) who found that guests are largely interested in sustainability practices that do not compromise their tourism experience.

Findings as presented in Table 1 local employment practices are *modestly* implemented in developing countries like Tanzania. Around 20 percent of hotels interviewed regard employing staff from local community as crucial component of their sustainability efforts. In destinations like Tanzania, tourism and hospitality industry employs around 10 percent of total employment above global average (WTTC, 2013). Despite such impressive figures, in developing country contexts the industry largely employs semi and non-skilled labour. In Kenya for instance such low profile jobs amount to about 64 percent (Ondieki and Samson, 2015). Findings of this present study in Tanzania shows enterprises employ local people mostly in lower levels opposed to managerial positions. In such context, local employment may not go beyond job creation but to only foster positive and mutual beneficial relationship with local communities. Low job skills profile leads to low status, low pay and poor working conditions of staff hired locally. Moreover, the decision to hire internationally is largely influenced by specific needs and characteristics of hospitality business as well as the nature of the destination or clientele it serves. This can be necessary to guarantee the standard and quality of services in sustaining the business (Njoroge et al., 2019).

4.2 Alignment of Hospitality Practices in the Nested Models

In this sub-section, findings on how hospitality sustainability practices align with nested model are discussed. Table 1 (3rd column) shows the number of sustainability concepts mentioned by each hospitality firm on various sustainability practices under the economic, environmental and social aspects. These concepts were obtained after coding and thematic analysis of interview transcripts. The magnitude on the extent (how much) on which all firms implement each of the dimensions is provided by the simple average of sustainability concepts (counts) under every category. Therefore, the averages under economic, environmental and social dimensions are respectively 53, 45 and 39. Making a comparison of these statistics, a visual model (based on data) is generated as illustrated in Figure 2 (b) besides what is often purported theoretically [Figure 2 (a)].
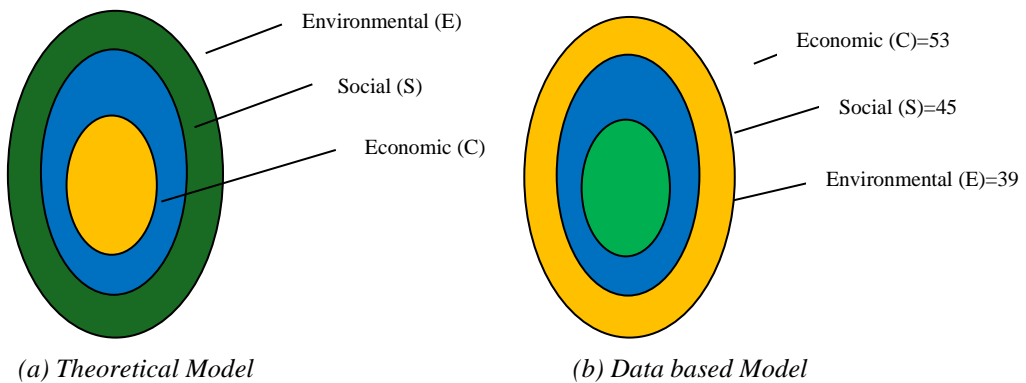
(a) Theoretical Model   *(b) Data based Model*
Figure 2: Theoretical Model and Model Based on Data

Traditionally, nested model envisions environmental sustainability as the foundational pillar, with social sustainability nested within it, and economic sustainability nested within both. This can imply that environmental considerations form the base, supporting social initiatives, which in turn support economic goals. On the contrary, comparative analysis between the two models [(a) and (b)] portrays a deviation from traditional nested model, indicating that the relationships between environmental, social, and economic aspects are more intricate and interconnected. This finding highlights the dynamism and interconnectedness of the three aspects of hospitality sustainability at corporate level. The deviating from the traditional theoretical nested model can be attributed to the complexity and interdependence of environmental, social, and economic factors suggesting that their relationships are not strictly hierarchical but rather exhibit intricate mutual influences. It reflects the real-world nuances where environmental issues are deeply intertwined with social and economic dynamics, challenging the simplicity of a linear nested model.

Another crucial finding is that, economic aspects are positioned as the largest layer in the nested model for corporate sustainability practices in hospitality. A plausible interpretation to this, is a recognition of the significant influence that economic considerations have on the industry's sustainability. Economic sustainability is prioritized as a foundational element, possibly due to its crucial role in the success and viability of hospitality businesses. This doesn't however necessarily diminish the importance of environmental and social dimensions but it highlights the understanding that without economic viability, it becomes challenging for hospitality businesses to invest in and uphold environmental and social

initiatives. This is similar to what Giddings et al. (2002) noted that, the business reality is that economic part largely dominates environment and society aspects, though this should be at the expense of neglecting environmental and social responsibilities (Jones et al., 2016; Njoroge et al., 2021). The challenge lies in finding synergies where economic success aligns with positive environmental and social impacts, fostering a more sustainable and resilient hospitality industry.

CONCLUSION

This paper examined the nature of corporate sustainability practices and how such practices fit with traditional nested model of sustainability. The focus is on the hospitality industry in Tanzania as a case for developing country-context. Findings reveal that, the implementation of corporate sustainability practices varies across a spectrum of modest, moderate, to intensive levels. This reflects businesses' differential commitment and integration on environmental, social, and economic sustainability issues. Modest sustainability implies that, hospitality businesses capitalize on basic initiatives such as energy-efficiency and resource saving, provision of sustainability education to guests and employee as well as emphasis on local employment. Engagement with stakeholders (employees, local communities, guests) is limited and focuses on meeting regulatory requirements related to environmental and social responsibility without extensive additional measures.

Firms with a moderate sustainability often have comprehensive sustainability policies that go beyond basic requirements. Implementation include investment in advanced waste management systems, and emphasis on sustainability related-customer satisfaction. Moreover, they engage with the local community through initiatives like environmental and biodiversity projects. Moderate implementation on waste management is often geared at cost saving, operational efficiency and long-run financial benefits. However, firms in this category position themselves as environmentally conscious to attract a broader audience without extensive investments.

On the other hand, hospitality firms that capitalize on more intensive approaches demonstrate a deep-seated commitment to minimizing environmental impact, fostering social responsibility, and ensuring long-term economic benefits. In so doing, businesses strive for holistic sustainability integration that integrate sustainable principles into all aspects of the business, from operations to guest experiences. Intensive

sustainability is associated with competitive edge in tapping marketing opportunities that require extensive sustainability initiatives. Similarly, intensive sustainability practices adequately position hotels to adapt to future trends and regulations that demand higher sustainability standards.

Research finding on fitness of nested sustainability model also presents interesting conclusions. The traditional nested model, which views environmental sustainability as the foundational pillar, is not universally applicable. While the traditional model (environmental → social → economic) implies a straightforward, hierarchical relationship, in the studied context dimensions exhibit a complex and non-hierarchical interdependencies. Instead, economic sustainability serves as the foundation, supporting social sustainability, which in turn supports environmental sustainability. In other words, sustainability within the hospitality industry is economic-driven, implying that without economic viability, neither social nor environmental sustainability can be effectively achieved. This reflects a pragmatic approach where financial health and profitability are seen as prerequisites for broader sustainability efforts.

Another conclusion that can be drawn is the interconnectedness of sustainability pillars. The embeddedness of environmental sustainability within both social and economic sustainability underscores the interdependence of sustainability dimensions across different sectors. It is thus legitimate to assert that, environmental initiatives in the hospitality industry are integrated into economic and social strategies, rather than being treated as separate or secondary concerns. This also reflects the dependency of hospitality industry on natural environment, particularly in this developing country-context.

Implications of the Study
The conclusion that, corporate sustainability practices in the hospitality industry do not fit well in the traditional nested sustainability model of highlights the need for a re-evaluation of existing theoretical nested model of sustainability. A more flexible and interconnected model is essential, one that can accommodate the reciprocal influences and trade-offs among these dimensions. For instance, economic gains might come at an environmental cost, or social initiatives might require economic investments without immediate financial returns. Hospitality management education should incorporate these revised models, training future leaders to understand and apply a nested approach where economic sustainability

supports social and environmental goals. Curricula should focus on the interdependencies and integration of these pillars.

The nested model assumes static relationships and fails to account for dynamic and context-specific nature of sustainability practices in the hospitality industry. This is due to the industry's uniqueness, characterized by fluctuating demand, seasonality, and diverse geographic and cultural contexts. Sustainability strategies must be dynamic and adaptable, reflecting the evolving nature of the industry. This necessitates continuous monitoring, flexible policies, and adaptive management practices that can respond to changing circumstances and new information.

In developing-country context, businesses and policymakers in the hospitality sector, economic sustainability should be the primary focus. Ensuring profitability and economic stability can create a stable base for implementing social and environmental initiatives. Policies should support economic resilience to facilitate sustainable practices. Likewise, investments in sustainability should prioritize economic aspects first, followed by social initiatives, and then environmental projects. This sequence can maximize the overall impact of sustainability efforts, leveraging economic gains to fund social programs and environmental protection.

On the other hand, hospitality businesses might need to re-evaluate their corporate social responsibility strategies. Instead of treating environmental sustainability as an independent goal, they should embed it within their social and economic agendas. For example, eco-friendly practices should be part of the business's economic strategy to reduce costs and improve marketability. Similarly, engaging stakeholders, including employees, customers, and investors, should emphasize the economic benefits of sustainability practices. Demonstrating how environmental and social initiatives contribute to economic goals can enhance stakeholder buy-in and support. Policymakers should also design regulations and incentives that reflect the specific needs and challenges of the hospitality industry. Create policies that promote sustainable tourism practices and provide support for green certifications. Develop incentives for businesses that adopt and excel in sustainability practices, such as tax breaks, grants, or recognition programs.

The theoretical and practical implications derived in this study suggest a paradigm shift in how sustainability is understood and implemented in the hospitality industry. By developing new theoretical models, adopting holistic and adaptive management practices, engaging stakeholders, and designing tailored policies, the industry can better navigate the complexities of sustainability and achieve more meaningful and lasting outcomes.

Suggestions for Further Research

The variation in degrees of sustainability implementation suggests a heterogeneous adoption across the industry. This calls for an in-depth analysis of the factors influencing different levels of sustainability practices. Future research could focus on identifying the key determinants that lead to varying degrees of sustainability adoption. This could include organizational size, geographic location, corporate culture, regulatory environment, and customer demand.

Empirical studies can also be conducted to understand how varying levels of sustainability practices affect the financial performance of hospitality businesses. This could help in establishing a business case for sustainability in the industry, highlighting the potential for cost savings, increased revenues, and improved brand reputation. Similarly, the dynamic nature of sustainability practices warrants longitudinal studies. Long-term studies tracking the evolution of sustainability practices in the hospitality industry can provide insights into trends, progress, and the long-term impacts of sustainability initiatives. These studies can help in understanding how sustainability practices develop over time and the factors driving these changes.

On the other hand, nested sustainability model is too generalized to capture the specificities of the hospitality industry, such as the importance of guest experience, employee satisfaction, and the operational aspects unique to hospitality services. Future research can aim at developing new models that specifically address the nuances of the hospitality industry. These models should integrate factors like service quality, guest satisfaction, employee well-being, and the environmental impact of hospitality operations.

Overall, the varying degrees of sustainability implementation in the hospitality industry indicate a complex interplay of factors influencing these practices. Research in these identified areas can provide a

comprehensive understanding of the drivers, barriers, and impacts of sustainability in the hospitality sector. This, in turn, can guide policymakers, industry stakeholders, and researchers in promoting more effective and widespread adoption of sustainable practices in the hospitality industry.

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Milk Value Chain, Gender Equity and Poverty Alleviation in Tanzania

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Abstract
Literature reveals that there is no consensus about how value chain interventions contribute to gender equity and poverty alleviation among different gender groups. This study was conducted to assess the prospect for enhancing gender equity and alleviating poverty under formal and informal market arrangements within the milk value chain in Tanzania. The study also examined changes in gender roles and relations in the chain. A cross-sectional research was designed and conducted in Tanga City and Iringa Municipality. Proportionate and systematic sampling techniques were used to identify respondents to participate in the study. Descriptive statistics were computed using SPSS and ethnographic content analysis was used to analyse qualitative data. The study found that men and women are important actors in the milk value chain but the extent of their participation differ significantly. The participation of men and women in the milk value chain has increased both their earnings and workload. There are gender specific constraints that hinder the performance of men and women in the milk value chain such as limitation on mobility, access to and control of resources, and decision making over income accrued from dairying. Some traditional social norms and practices also hinder women's participation in some activities within the value chain like engaging in more rewarding milk markets. The study recommends that market development programmes should understand location specific gender contexts to avoid generic intervention that may exacerbate the existing gender inequity.

Keywords: *Value chain participation, Milk Value Chain, Gender relations and equity, Poverty alleviation*

INTRODUCTION
Promoting gender equality and empowering women remains a priority The development agenda, Women empowerment is, ranked third in the Millennium Development Goals and many countries in the world aim to

improve women's economic power and access to markets as crucial aspects for achieving sustained economic growth and poverty reduction (UN Women, 2023). Many interventions in the agricultural sector that aim at reducing poverty increasingly adopt the value chain approach as a strategy to increase the income of small-holder fanners and producers, However, gender equity and the impact of women's participation in value chain have remained poorly understood and difficult to generalize (FAO, 2022).

The importance of agriculture in fostering socio-economic development of developing countries like Tanzania cannot be overstated. The Tanzanian government has invested considerable efforts and resources in transforming agriculture, with a focus on improving agricultural production and market access for poor producers (United Republic of Tanzania [URT], 2020). The multipronged approach adopted in improving agriculture has also incorporated the value chain approach, anticipating that it will allow farmers to have more access to local, regional, and global niche markets for their products, thereby enhancing their potential to increase earnings and reduce poverty. Gender reflects all aspects of activity, including access to resources for production, rewards or remuneration for work, and distribution of benefits.

While agriculture is a predominant economic activity in rural Tanzania, the growing trend of rural-urban migration has also resulted in urban agriculture becoming an important economic activity. Despite competition with other, arguably more lucrative enterprises, urban agriculture is crucial to the urban economy because it provides employment and investment opportunities while also reducing food insecurity for a large proportion of the urban population (Orsini et al., 2020). Some studies have indicated that urban agriculture has the potential to stimulate growth in rural areas because people moving to urban areas tend to maintain social and economic relationships with their original rural areas, and these relationships tend to be symbiotic (Tacoli & Agergaard, 2021).

People engaged in urban agriculture in many towns and cities in Tanzania earn income by growing vegetables, producing milk, and raising poultry for meat and eggs. It has been established that in many cases, livestock keeping and the sale of milk are even more important activities as income sources than crop cultivation (Ngaira & Omukuba, 2019). Such trends

suggest that milk production is an important economic activity in Tanzania and has the potential to contribute to household wellbeing and food security. However, gender inequalities that exist in many areas may undermine the benefits that women and children receive through their participation in the milk value chain.

Although there is extensive literature on gender and value chains (e.g., Laven et al., 2019), such literature is insufficient with respect to opportunities for value chain participation and how such opportunities work differently for men and women who are involved. Thus, there is no consensus about how value chain interventions contribute to gender equity and poverty alleviation among different gender groups. Women's empowerment has been identified as an important issue that occurs when pro-poor avenues for value chain participation are designed and implemented. Therefore, it is crucial to understand where gender and value chains intersect. It is at these intersection points where opportunities for empowerment occur, avenues for more wealth accumulation and control over resources and major decisions exist, and transformation of gender power relations takes place (Laven et al., 2019; Jeckoniah et al., 2023).

According to Laven et al. (2019) such intersections are found in different aspects. The first is the sexual division of labour within the chain and within the households. This intersection questions the impact of newly created work that women and men take up within the chain and its impact on gender relations and wellbeing. The second interaction involves the sexual division of labour as well as access to opportunities and management roles within the chain. These intersections seek to understand where within the chain women and men are actively involved and the differential impact of such participation on control of income earned from value chain activities. These intersections are also bench marked for exploring other gender issues encompassing decision-making processes within the household. It has also been reported that when women's income increases, men tend to withdrawal their contribution from some household expenditures (Jeckoniah et al., 2013), thus imposing an extra financial burden on women.

Men's withdrawal from contributing into household expenditure undermines women's benefit from their participation in income generating activities such as participation in value chain activities. Thus,

while women involvement in milk value chains might be high, the impact of such participation on welfare could be lower among women than men however; there have been few attempts to discern the effects of different options for value chain participation among smallholder fanners (men and women) on their earnings and poverty levels.

This paper adopts the conceptual framework on gender, value chain, and women's empowerment developed by KIT et al. (2016) and Laven et al. (2019) to investigate gender issues within the dairy sector in Tanga and Iringa regions, Tanzania. Under this framework, it is important to understand how men and women adopt different strategies for value chain participation and the impacts of such decisions on their welfare.

According to this framework, gender issues and dynamics are not restricted to the arena of the chain itself. Hence, one has to take the household and community context into account to assess what issues constitute critical constraints for women or how changes in the chain impact on gender equality. The framework can potentially highlight the intersections between gender and value chains in agriculture to underscore the impact of different strategies for value chain participation on gender equity.

Conceptually, equity is a state of fairness and justice, where the unique needs of specific groups such as men and women are recognized and addressed. Unlike gender equality, which advocates for equal access to opportunities regardless of gender, equity acknowledges the different life experiences, needs, and levels of power held by men and women (UN Women, 2023). These differences necessitate tailored approaches to achieve equitable outcomes. For instance, policies may require different treatment for men and women to ensure fairness in achieving similar results (Crush & Battersby, 2019). From a policy perspective, gender equity implies that development initiatives should take into account the different realities faced by men and women. Interventions must be designed in a way that recognizes their respective interests and needs (Jeckoniah et al., 2020). This approach can enhance the effectiveness of gender-focused policies by ensuring they cater to the diverse experiences and challenges faced by each group (Ministry of Agriculture, 2021).

The paper is based on a project that was designed to reduce income poverty among people who are involved in two dairy value chains in

Tanga City and Iringa Municipality in Tanzania. The paper examines gender roles in the dairy sector to discern the impact of value chain activities on gender equity and poverty alleviation focusing mainly on roles performed, its implication on workload and participation in the value chain. The paper offers a comparative case between the two study areas on how gender dynamics differently affect value chain participation and actor's welfare. Findings of this study give insights with respect to how market development initiatives to improve the wellbeing of chain actors may identify, affect and be affected by gender dynamics.

The paper is structured in four sections including this introduction. Section two describes the methodology while section three highlights the main findings. The last section gives concluding remarks and policy implications.

METHODOLOGY
This study was conducted in Tanga City and Iringa Municipality in Tanzania. These urban areas represent two distinct milk collection and marketing arrangements. In Tanga, milk collection centers organized by farmer groups are well developed, supported by the Tanga Dairy Development Programme (TDDP). The TDDP has been supporting the Tanga Dairies Co-operative Union (TDCU), an apex organization consisting of 10 primary co-operatives in five districts to promote joint marketing of milk produced by small-scale dairy farmers. In contrast, milk processors in Iringa Municipality have established their own milk collection centers to source milk from producers. These two cases represent market arrangements found elsewhere in Tanzania and were considered appropriate for drawing specific lessons with respect to gender issues encompassing the role of actors, their access to resources, involvement in decision-making, and control over production resources as well as earnings from dairying.

The study adopted a cross-sectional research design, collecting both quantitative and qualitative data. The main tools for data collection included a questionnaire for household interviews and a checklist of questions for focus group discussions and interviews with key informants. Data were collected between November 2021 and February 2022. Ten wards that were actively involved in dairying and milk marketing were purposively selected. The wards selected from Tanga City were Nguvumali, Mzizima, Tanga, Pongwe, and Makorora; while those from

Iringa Municipality were Mtwivila, Gangilonga, Kitwilu, Mwangata, and Isakalilo.

The sample size was established using the formula developed by Fisher et al. (1991), which is still widely used in social science research (Taherdoost, 2017). A combination of proportionate and systematic sampling techniques was used to select respondents who participated in the study. The list of farmers comprising names of all dairy keepers in respective wards was obtained from Ward Extension Officers and served as a sampling frame. Other actors involved in the milk value chain such as processors, transporters, retailers, and extension officers were identified for in-depth interviews to capture their specific knowledge and experience in the value chain. They were also invited to participate in focus group discussions and interviews as key informants.

Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 26, where descriptive statistics for quantifiable variables were computed. Content analysis was used to analyze qualitative data from focus group discussions and interviews with key informants, following the guidelines outlined by Erlingsson and Brysiewicz (2017). This methodology allowed for a comprehensive examination of gender roles in the dairy sector, discerning the impact of value chain activities on gender equity and poverty alleviation. The comparative case between the two study areas provided insights into how gender dynamics differently affect value chain participation and actors' welfare.

FINDINGS AND DISCUSSION
Gender Roles and Relations in the Dairy Value Chain
Although the study was conducted in Tanga City and Iringa Municipality, the sampled respondents revealed characteristics of typical fanning communities in Tanzania where agriculture (including keeping animals) is the main economic activity.

About half of the respondents in both study areas depended on farming as the main economic activity (59% and 48% for Iringa and Tanga, respectively). Other important economic activities included business (32%) and employment (29%) as civil servants, self-employed, and employment by different NGOs. These findings align with recent studies on urban agriculture in Tanzania (Mkwela, 2020; Mwakalalila &

Mwansasu, 2021), which highlight the continued importance of farming in urban areas.

Dairy value chains in Tanga City and Iringa Municipality are generally smallholder-based whereby the average number of dairy cattle was two and three for Tanga and Iringa, respectively. In general, there is marked fluctuation in milk production during low and high seasons. For example, during the high season, majority (69.5%) of the households in Tanga City produced 11 - 20 litres of milk per day, while during the low season only 45.8% of the respondents were able to produce this quantity. In Iringa Municipality, 37.3 % of the respondents produced similar quantity during high season while during the low season only 16% of the respondents managed to produce such a quantity. Free grazing was the most common form of livestock keeping, although some supplementary feeds, especially fortified feeds and minerals were provided. Zero grazing was also practiced where animals remain indoors and feeds are brought into the animal's shed. Milk production and marketing entail some labour intensive activities. The majority of households often use family labour to do most of the activities. Table 1 presents information on how different members of the household participated in activities related to dairying.

Table 1: Proportional participation in dairy value china activities (n=118)

Activities	Tanga City (%)					Iringa Municipality (%)				
	M	F	MC	FC	HL	M	F	MC	FC	HL
Herding	28.8	11.0	11.0	1.4	47.9	35.5	11.3	7.9	0.0	45.2
Cutting grass	42.6	0.0	11.5	3.3	42.6	19.4	2.8	18.0	5.6	54.2
Feeding	18.8	15.9	17.4	4.4	43.5	9.8	17.0	9.8	8.6	54.9
Giving Drinking water	17.4	13.1	18.8	4.4	46.4	7.4	15.3	12.2	11.1	54.0
Shed cleaning	21.2	8.1	17.7	2.4	50.7	12.5	13.6	17.0	4.6	52.3
Milking	25.8	9.3	19.6	2.1	43.3	14.4	12.0	19.3	3.6	50.6
De-worming	65.4	10.4	0.0	0.0	24.2	42.3	11.6	15.4	3.9	36.9
Purchases feeds	58.8	5.9	11.8	3.9	19.6	34.7	17.3	19.2	7.7	21.1
Selling milk	28.3	23.0	14.9	5.4	28.4	1.6	36.4	16.6	6.1	30.3
Record Keeping	64.8	16.2	5.4	2.7	10.8	25.9	32.2	9.7	13.0	19.2
Contractual Agreement	84.3	11.2	2.3	0.0	2.3	13.1	73.8	8.7	4.4	0.0
Payments Collection	72.7	20.5	2.3	0.0	4.6	20.4	57.7	11.6	6.8	3.4

Key: M=Male, F=Female, MC=Male Child, FC=Female Child, HL=Hired Labour

The findings presented in Table 1 reveal gendered patterns in performing different activities, which also varied across the two study areas. The results reveal marked difference in activities that men, women children and hired labour perform within the milk value chain. For example, in Tanga City, hired labour and men dominated in all activities while in Iringa region hired labour and women dominated in activities such as feeding the animal, giving drinking water, selling milk, engaging in contractual agreements and collecting payments. Children (particularly male children) were also involved in some activities especially in selling milk and feeding the livestock, but the combined contribution of children was not dominant in any of the activities. Traditional gender division of labour and cultural differences playa part in deciding what men and women should do. This was revealed during focused group discussions at the two sites. One participant in Tanga said:

> *"It is the culture of people living along the coast that most of the economic activities especially those involving moving away from home are done by men; women are responsible for all other activities that are done at home, including housekeeping and taking care of children. "(FGD participant, Tanga)*

This study found that most of the activities at the production level were dominated by men, for example 25.8% men as compared to 9.3% women in Tanga were responsible for milking whereas in Iringa 14.4% of men as compared 12% of women were involved in milking. These findings show that the practice in terms of division of labour in the study area differs from that in Maasai pastoral communities in Tanzania where milking is traditionally perceived to be an activity for women. It has also been reported in the literature that many activities that are usually done by women are taken over by men when they acquire more monetary value and become the main source of cash income or when technology improves (Chenyambuga et al., 2020; Makindara et al., 2022). Generally women involvement in other nodes in the dairy value chain was relatively low especially in activities that reflect control of assets and final decision over resource use. For example, 84.3% of men as compared to only 1l.2% of the women in Tanga were responsible for contractual agreements. In Tanga, men were also more responsible for collecting money than their women counterpart (72.7% and 20.5% for men and women, respectively). The study also found that both in Tanga City and Iringa Municipality, hired labour were involved in many production activities. This reflects the

level of commercialization where incomes from dairy activities are used to pay for the hired labour.

At the processing node, especially for activities done within the households; women undertake most of the activities such as boiling fresh milk. At the household level women were also identified to have more control over the use of equipment for milk processing, which included normal household utensils such as jars for boiling and cans for storage.

Milk Outlets and Changes in Workload

The dairy value chain in Tanga and Iringa represent two distinct milk marketing systems for dairy fanners. Most of the milk produced in Tanga was sold through collective arrangements involving farmer's organization. However, many dairy fanners in Iringa Municipality sold milk individually to neighbours, street vendors as well as hotels and restaurants. The study established that only 27.1 % of the dairy farmers in Iringa sold milk through established collection centres operated by a major processor compared to 71 % in Tanga who sold milk through collection centres managed by the cooperative (Table 2).

Dairy fanners that produce low quality milk for the informal market cannot produce beyond what the market can take and this reliance on local spot markets normally leads to losses during surplus production. Furthermore, dairy fanners under this category are often uncertain about securing markets as they rely on spot market where the demand and earnings fluctuate over time. These problems may particularly be more severe to women, who are constrained to search for alternative markets as they assume more family obligations and means of transportation (e.g. ox-cart) are not appropriate.

Table 2: Size of Milk Markets in Iringa and Tanga (n=118)

Location	Market	Market share (%)
Iringa	Vendors	42.4
	Restaurants and neighbours	30.5
	Milk collection centres and processors	27.1
	Total	100
Tanga	Vendors	16.9
	Restaurants and neighbours	11.9
	Milk collection centres and processors	71.2
	Total	100

In terms of workload, women's involvement in the dairy value chain has been an additional activity to what they normally do within the households, which leads to increased work load. This study found that 84.4% of women and 73.3% of men reported that their involvement in the dairy value chain has increased their workload. Generally, less than a quarter of all respondents (22.9%) reported reduced work load with respect 'to their participation in dairy value chain. However, such changes in work load have been reported more by men than women (26.7% and 15.6% for men and women, respectively). Relatively, there were more cases of increased workload for men in Tanga City than Iringa Municipality. Such differences were attributable to the influence of culture and traditions.

The results presented in Table 2 show that many respondents (71.2%) in Tanga sold milk through established collection centres for further processing while in Iringa only 27.1 % of respondents sold their milk to this market outlet. In Tanga city 16.9 of milk was sold to vendors and 11.9% to restaurants or neighbours while in Iringa Municipality 42.4% of respondent sold their milk to vendors and 30.5% sold to restaurants or neighbours (Table 2). Other studies show that milk markets in Tanzania rare predominantly informal (Kilima et al., 2020; Msalya et al., 2022).This study found that the preference for informal market was particularly high among inefficient small scale dairy farmers (the majority in both sites) who produced limited amount of milk that could be -, easily sold to consumers in this market. Medium and large scale dairy farmers (estates) preferred the formal market (processors) with sufficient capacity to absorb surplus milk.

In addition to the problem of limited options for marketing channels, other factors were also reported to influence the selection of marketing channels. Finding presented in Table 3 reveal that marketing arrangements, particularly the reliability of market outlets, influence producers' decision regarding where they sell milk. However, other factors such as limited means of transportation hindered some chain actors to access lucrative markets. About a quarter (27.1%) of respondents in Iringa Municipality. were unable to sell milk in places that offered better prices due to difficulties they faced in transporting milk to such places.

Table 3: Reasons for selecting a Market (n=118)

Factor/Reason	Tanga City %	Iringa Municipality %	All %
Reliability of the market	55.2	30.5	42.7
Relatively high price	15.5	33.9	24.8
Seasonality in production	12.1	8.5	10.3
Inability to transport milk to places with high price	17.2	27.1	22.2
Total	100	100	100

Gender Roles in Milk Marketing

Results in Table 4 show that more women were engaged in selling milk except at the level of hawkers and when milk had to be. transported to distant markets. There was higher participation of women in milk marketing' in Iringa Municipality than Tanga City. Such differences reflected the variation in market arrangements where collective marketing was dominant in Tanga City while individual sales were common in Iringa Municipality. Moreover, it is culturally uncommon for women to engage in activities that require travelling as they assume dual roles-as caretaker of families and producers of milk and other agricultural products.

Furthermore, dairy farmers residing far from collection centres use bicycles, animal carts and other means of transportation to take milk to the collection centres. These means of transport are commonly used by men, thereby imposing a constraint for women to participate. Women's participation in milk marketing in Tanga was relatively higher than that of men in Iringa Municipality where a significant proportion of milk was sold to neighbours around their homestead and to milk vendors who collected the milk directly from producers.

Table 4: Participation in milk marketing (n=118)

Marketing channel	Tanga City %	Iringa Municipality %	All %
Men participating	25.4	11.9	18.6
Women participating	28.8	40.7	34.7
Both Men and Women	35.6	22.0	28.8
Hired labour/children	10.2	25.4	17.9
Total	100	100	100

Milk marketing is an important income generating activity that allows women to improve their livelihood. In Iringa Municipality, where more

women sell milk directly to their customers, they have a better chance of using part of the money to meet immediate family needs unlike in Tanga where contractual agreements for selling and collecting the money are predominantly men's responsibility. Many milk hawkers in both Tanga and Iringa were men. The predominance of men in milk vending and long distance sales was mainly an outcome of their ability to travel long distances in search of milk or customers, which was among important factors for one to venture into this business. It is important to note that milk vending entails staying out of the home for long hours, thereby constraining the participation of married women who are expected to do all other household chores. A similar trend has also been reported in relation to low participation of women in milk vending in Dar es Salaam, Arusha and Kilimanjaro due to their limited mobility (Nombo and Sikira, 2019).

Access to Resources and Decision Making in Milk Value Chain
Access to and control of important production resources normally determines the performance and impact of an activity on participants' gains. Table 5 present findings on who makes the final decision over the assets owned in the household. The findings show that women and men had equal access to resources in both Tanga City and Iringa Municipality. However men had an upper hand in controlling and using important resources that are necessary for dairying. Such difference in control of resources reduces women benefits from their participation in dairying. Similar trends on women's ownership of resources have been reported in recent studies (Mwaseba & Kaarhus, 2022; Sikira & Rwegoshora, 2023). During focus group discussions it was revealed that gender differences in access to and control of resources is rooted in cultural values and practices where men are expected to make final decision in all household matters.

Table 5: Control over resources (n=118)

Resources	Tanga City (%)				Iringa (%)	Municipality		
	Male	Female	Both	Total		Female	Both	Total
Cattle	50.8	5.2	44.0	100	40.7	18.7	40.6	100
Equipment	66.1	3.4	30.5	100	39.0	15.2	45.8	100
Hired Labour	50.0	5.2	44.8	100	32.2	15.1	52.7	100
Credit	72.8	5.2	22.0	100	30.5	13.5	56.0	100
Income	20.4	8.5	71.1	100	17.0	15.2	67.8	100

The study also found that gender differences are deeply rooted at the family and society levels. For example, among Wahehe tribe a man who allows his wife to make final decisions over household matters is looked down at and labelled as "Msogose" meaning a weak person who is controlled by his wife. Religious teaching was also mentioned maintaining traditional gender division of labour and participation in decision making at the household level. For example, one participant in a focus group discussion in Iringa insisted "... we are frequently told and reminded in the churches and mosques that a man is the head, leader, the owner of the family and a woman is a helper ... ". Such beliefs deny women the option to fully participate in decision making at the household and community levels. Nonetheless, women in Iringa Municipality appear to have higher control over resources for dairying than those in Tanga City, an indication of ongoing changes in gender relations and division of labour, to reflect prevailing economic realities. This study did not establish reasons for this difference although land tenure systems and the way land and other resources are passed over from one generation to another may account for the difference.

CONCLUSION

This study has underscored that both men and women play important roles in milk value chain development. However, the involvement of men and women differ significantly across locations and there is a clear gender division of labour in the value chain. The study has also identified major challenges that need to be addressed to bringing about gender equity and poverty reduction among women and men in the milk value chain. Such challenges include socio-cultural issues and practices which influence and reinforce division of labour where there is less women participation in value chain activities. Men assume predominant roles in production, marketing and making decisions regarding the use of resources for dairying and distribution of income earned from this activity. The study also established that apart from improving households' earnings, participation in the value chain has also increased the work load of both men and women; a reflection of increased adoption of recommended dairy practices pioneered through project interventions.

The study has also identified a number of gender specific constraints that hinder the performance of both men and- women in the milk value chain. Poor access . to improved transportation, unequal access to and control of resources required for milk production, and participation in decision

making regarding the use of income accruing from dairying are the main gender based constraints in the milk value chain. Gender constraints related to conservative social norms and practices were also identified. Hence, apart from addressing income poverty, market development programmes should also address women and men empowerment in order to facilitate equitable participation and benefit sharing between women and men participating in the milk value chain. There is also a need to develop simple and appropriate technologies, which will improve the performance of milk value chains and reduce the workload, especially among women.

Having reliable marketing arrangements and enhancing the participation of women and men in milk marketing has been identified to be crucial in boosting income at the household level. The study has also noted that some of the transformation in gender roles has increased the workload for men in Tanga and women in Iringa. However, in both cases, men still have an upper hand in decision making over the use of income. Understanding the position of women and men in the dairy value chain should therefore be the focal point when designing and piloting value chain development interventions. Market development programmes need to understand and adapt to location-specific gender context to avoid proposing generic intervention, which may exacerbate prevailing gender inequity.

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Exploring Paradigmatic Philosophical Foundations for Better Research Quality in Tanzania Universities via Grounded Theory

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Abstract
This study investigated how Tanzanian Master's students' research paradigms impact their dissertation composition, supervision, defense, and final grades. It highlights that researchers often neglect the importance of paradigm clarity and relevance in the knowledge creation process, affecting thesis assessments. Using Charmaz's 2006 Grounded Theory (GT) with inductive logic research, a qualitative approach, and multivariate descriptive design were employed. The study saturated sampled size involved 67 students, 6 external examiners (EEs), and 14 supervisors through triangulated sampling techniques. The Kaiser Oklin Measure (KMO) and Bartlets' tests ensured sample size adequacy and data relevancy. Multiple methods of: interviews, primary documents, and observations collected data. Data were collected via multiple methods of: semi structured interviews, documents, and observations. Interviews, primary documents, observation schedules and non parametric Likert scale intruments collected data. Multiple methods of: sorting, coding, memoing, theme building analysed qualitative data. The triangulated descriptive analysis techniques analysed the ordinal and nominal data. The analysis revealed that students who clarified their research paradigm and design theme received higher grades (A or B+), boosting their GPA. In contrast, students who failed to clarify these themes were graded lower, with scores implying B (Flat), C, D, or E grades, reducing their GPA. The findings suggested that examiners implicitly base their grading on paradigm clarity. The study three outcomes included: generated a mid-range Grounded Theory, three fresh hypotheses and a holistic model to address the lack of clarity in paradigms within universities. It urges

further research to improve a substantive theory emerged, test the three new hypotheses and to try a constituted holistic model of: paradigm, ontology, epistemology, methodology, axiology, logic, rhetorical language (POEMALoR) for easening paradigm attributes' clarity among university novice researchers .This paper is organised on subsections of: Introduction covering: study background, objectives, literature review, significance and methodology. Then follows data findings and discussion, it ends with conclusion and recommendation.

INTRODUCTION

This study investigated the confusion surrounding research paradigms in higher education, focusing on whether university faculty in the natural and social sciences possess sufficient knowledge to effectively guide students, and the extent to which paradigms influence dissertation quality. Additionally, it examined how often universities educate postgraduate students on research paradigms. Originally, Kuhn is said to have invented the term paradigm, where he was referring to ever emerging new concepts among scientists and technocrats in their daily works. The innovator noted how such new concepts; replace the old ones, hence causing the unending scientific revolutions. Kuhn (1962) thus, introduced and popularised the term "paradigm", referring to shifts in scientific thought that lead to the emergence of new concepts capable of replacing outdated ones. These shifts can drive scientific or technological revolutions, such as the transition from analogue to digital technologies. Despite criticisms, Kuhn's idea of paradigm shifts remains vital for understanding changes across diverse fields such as history, economics, politics, and culture. Originally associated with the natural sciences, paradigms now encompass broader worldviews, influencing key research decisions in methodology, epistemology, and ontology (Guba & Lincoln, 1994; Omari, 2011; Kivunja & Kuyini, 2017). Daniel and Yosoff (2005) and Kikula and Qorro (2007) also contribute to this discourse, highlighting the growing importance of paradigms in shaping academic research across disciplines.

Thales (624-548 B.C.E.) challenged European mythological beliefs and founded formal philosophy (Walsh, 1987). This does not mean Africans and Orients lacked mythical and critical thinkers; however, there are no written records. Philosophical and theological paradigms dominated

intellectual thought until the Enlightenment introduced metaphysical abstractions like gravity and nature (Walsh, 1987). Post-positivists believed that truth stems from social production and lacks objectivity, whereas positivists like Augustine Comte placed a high value on empirical knowledge. The "paradigm wars" of the 1970s to early 2000s involved positivists, anti-positivists, and post-positivists' disagreements over merging qualitative and quantitative methodologies. Philosophical problems about reality, knowledge, and values in study design persist (Tashakkori & Teddlie, 1998). In studies from UDSM and Malaysia University, the lack of a unified conceptual framework for education has caused confusion and incorrect research designs (Omari & Sumra, 1997; Daniel & Yosoff, 2005). Most research texts don't sufficiently explain paradigms, leaving new researchers unguided (Guba & Lincoln, 1994; Mackenzie & Knipe, 2006). Paradigm ambiguity affects dissertation and thesis quality, hindering scientific advancement. To improve higher education research outcomes, the study recommends a paradigm model that includes ontology, epistemology, and methodology (Collis & Hussey, 2013). Some scientists say science and philosophy have always been separate, but this is uncertain. They say that discussing paradigms and their philosophical basis wastes natural and social scientists' time (Silverman, 2010). The nature of scientific concepts intertwines metaphysics and the sciences. After Auguste's invention of induction, logical positivists questioned its practical applications. As if those are the only roles of ideas in study, philosophy is not irrelevant because it cannot solve problems quickly and practically. Crawler (2013) believes each study improves positivism, post-positivism, feminism, critical theory, or constructivism. Crawler says philosophy helps researchers understand the inquiry system and their prejudices. Philosophers can challenge topic groupings (Dobson, 2002; Web Crawler, 2013). Philosophy must be analytic to be scientific, according to Auguste Comte (1798–1857) (Walsh, 1987, 476). Carr (1995) questions if educational researchers may abandon their philosophy to support their findings on teaching and learning processes. Carr claims that education borrows from psychology, sociology, and philosophy. According to Dobson (2002), researchers use philosophy to justify their decisions by understanding alternative philosophical viewpoints. Carr suggests that educational scholars may study educational principles but still have philosophy and values (Carr, 1995, 90–97). Globally, research philosophy was scarce, and until the eve of this study, the researcher failed to find adequate studies on the topic, forcing the researcher to shift from using deductive logic to exploring empirical research to identify knowledge gaps. The majority of the

theoretical literature reviewed included the following: Shapere, 1972; Copleston, 1976; McNamara, 1979; Patton, 1990; Teays, 1995; Walonick, 1993; Omari & Sumra, 1997; Bogdan & Biklen, 1998; Day, 1998; Tashakkori & Teddlie, 1998; Williams, 1998; Ratzsch, 2000:45; Weidhorn, 2001; Dobson, 2002; Agrwaal, 2003; Daniel & Yosoff 2005; Dronen, 2006; Starr-Glass & Ali, 2012; Hussain None of those theoretical authors wanted to do an empirical investigation on how research paradigm clarity affects dissertation and thesis quality.

Nevertheless, the researcher encountered a few deductive studies including: Daniel and Yosoff (2005) reporting, about confusion observed about the wrongly emerging research paradigms, where research approaches and designs are also perceived by students as paradigms in Asia, at the university of Malaysia. Anderson (1993) studied social and political science students at Alaska University, to investigate on whether there existed the relationship between the self-directed learning and performance. Specifically, it determined whether there were possible areas of student individuality, and uniqueness that might contribute to successful completion of the traditional classroom courses. At Hellenic Open University (HOU) in Greece Panagiotakoupoulos & Vergidis (2004) studied, the root causes of students' increase rate in dropout. Specifically, it established the extent at which students dropped out. It assessed the student and non-related reasons for the dropout. That study too, found out that most of the learners at Hellenic Open University (HOU) were the employed workers, though no statistical significant was shown on whether being employed was a factor for dropout or not. Starr-Glass and Ali (2012) in Czech Republic did another study, about double standards in assessing dissertations. That study examined the Czech students from undergraduate accredited American college degrees in the state universities, in which dissertation writing skills is a part of the course. It unveiled that assessment the process is a part of pedagogical beliefs and axiological components regarded as paradigms. The researchers found out that there existed competing and conflicting paradigms, which dominate educational evaluation of dissertations. In the United Kingdom, the other study Bloxham *et al.* (2011) investigated the gap between UK policy practices in relation to the use of set criteria for allocating grades. Through interviews they studied twelve lecturers on the role of set criteria in assessing learners' assignments. The researchers found that tutor assessors used holistic approach rather than analytical judgment. Also, the study found that a good number of assessors were not using the prescribed criteria during the marking of examinations and

assignments. In Africa, Nigerian researchers Olakulehin and Ojo (2008), repot about factors for low completion of the dissertations by students of the postgraduate diploma (PGDE) programme by distance mode at the Open University of Nigeria (OUN). It found that many respondents were faced with problem of identifying suitable research topics and supervisors. In Tanzania Kikula and Qorro (2007), the trend of acceptance rates for each categories applying research funds, found that the M.A degree graduates' proposals applying the fund for research on poverty alleviation, had the highest rate of errors, than those of Bachelors and PhDs degree holders. Surprisingly, on the acceptance criterion, the rejected rate of the M.A higher, though their accepted rated overshadowed those of PhD degree holders. All these studies reviewed had strengths in studying, the theme related to this study. However, critically speaking, the empirical studies reviewed fell short of not addressing the raised research study, inquiring, how is researchers' clarity of the educational research paradigm philosophical conceptions a factor among factors influencing alteration of quality completion for dissertations, final grades, and graduation rates performance? Until this study was conducted, there was scarce of literature addressing the philosophical puzzle in form of the raised grand research question on how the clarity of paradigm not only could raise or lower students' performance but also their completion and graduation.

 So, inductively on one hand, the researcher encountered with the first phenomenon at the Open University of Tanzania in a primary document named the Facts and Figures labeled OUTFAFI (2014) for this study portrayed in Table 1.

Table 1: Post graduate Masters Process Enrolment versus Completion Progress of Faculty (X)

Years	ENROLMENT TREND					COMPLETION (GRADUATION) TREND				
	M Dist. Ed.	M.Ed. Thesis	MED. APPS.	MED. ODL	G.Tot.	M.Dist. Ed.	M.Ed. Thesis	MED. (APPS)	MED. ODL	G.Tot.
2001	5	22	0	---	27	---	---	---	---	0
2002	14	9	0	---	23	---	---	---	---	0
2003	30	5	0	---	35	---	---	---	---	0
2004	35	0	0	---	35	---	---	---	---	0
2005	38	1	0	---	39	---	2	---	---	2
2006	0	0	52	---	52	---	0	---	---	0
2007	129	0	50	---	179	---	2	---	---	2
2008	20	0	140	---	160	---	2	---	---	2
2009	14	0	90	---	104	3	0	---	---	3
2010	4	0	269	---	273	8	0	4	---	12
2011	20	0	541	---	561	5	0	9	---	14
2012	20	0	539	74	633	0	2	20	---	22
2013	0	0	711	79	790	3	0	48	1	52
Total	**329**	**37**	**2392**	**153**	**2911**	**19**	**8**	**81**	**1**	**109**

Source: Source: OUTFAFI (2014).

The data presented in Table 1 highlights the early development of faculties at the Open University (OUT). The researcher at the Open University (OUT) selected two primary faculties, X and Y, based on their larger student enrolments compared to other faculties, as revealed in the initial documentation (OUT, 2014). The researcher compared these faculties based on two key processes: student enrolment and course completion, followed by the construction of knowledge through dissertations or theses. Successful completion of a dissertation or thesis is a prerequisite for graduation. Table 1 also outlines the history of the master's programs at OUT, which began in 2001. By 2014, Faculty X had enrolled 2,911 Master's candidates (OUT FAFI, 2014). OUT's policy expects students to complete their master's programs within five years (OUT, 2014:183). However, the data in Table 1 shows that only 2 out of 27 candidates (7.4%) who began in 2001 graduated within the expected

timeframe, while 25 students (92.6%) failed to do so (Table 1.7; OUT FAFI, 2014). This represents a significant underperformance trend.

Further data from Table 1.7 shows that by 2013, out of 2,911 enrolled candidates, only 109 graduated within the prescribed five-year period, leaving 2,802 (92.52%) who did not complete their degrees on time (OUT FAFI, 2014). This analysis suggests a major discrepancy between the high enrolment rates in Faculty X and the low completion rates. Despite significant student intake, the vast majority was unable to complete their coursework and dissertations within the set deadline, signaling an ongoing underperformance issue (OUT FAFI, 2014). The underperformance scenarios in terms of mismatching enrolment versus completion rates at OUT emerged from this initial analysis. For the sake of clarity, the researcher compared two OUT X and Y faculties on the same processes of enrolment and the graduation rates in the same period as per OUTFAFI (2014) document in Table 2 reveals.

Table 2: Post graduate Masters Enrolment versus Completion Progress (FBM)

Years	Enrolment trend				Completion (graduation)trend			
	MBA	MHRM	MPM	G.Tot.	MBA	MHRM	MPM	G.Tot.
2001	0	0	0	0	0	0	0	0
2002	12	0	0	12	0	0	0	0
2003	12	0	0	12	0	0	0	0
2004	236	0	0	236	0	0	0	0
2005	169	0	0	169	0	0	0	0
2006	553	0	0	553	0	0	0	0
2007	857	0	0	857	9	0	0	9
2008	333	0	0	333	22	0	0	22
2009	493	0	0	493	97	0	0	97
2010	629	0	0	629	122	0	0	122
2011	585	125	0	710	192	0	0	192
2012	321	183	0	504	132	20	0	152
2013	369	294	0	663	143	30	0	173
Total	**5171**	**602**	**0**	**5, 773**	**708**	**50**	**0**	**758**

Source: OUTFAFI (2014).

Table 2 shows the evolution of Faculty Y's enrollment and graduation rates. From 2001 to 2013, faculty Y enrolled 5,773 candidate researchers in Masters degree programs. In terms of enrollment, faculty Y outnumbers faculty X by twice as much. After five years, the official

duration for completion, which OUTFAFI (2014:183) depicts, leads the Y on both enrolment and completion rates, while faculty X lagged behind as its enrolment rate increased, which mismatched with its completion rate. In addition to the first meeting with students enrolled in Master's programs (Tables 1 and 2), the researcher also came across another phenomenon in a primary source: the pass, completion, and graduation rates for dissertations as shown in the External Examiners' Assessment Form dissertations (EEAFs 2014). Figure 1's data presentation and analysis section will explain this phenomenon's connection to the assessment process. This interaction revealed the study paradigm theme, prompting the researcher to clarify it among university researchers, including lecturers, supervisors, students developing research knowledge, and dissertation and thesis examiners as reflected in Table 3 presented hereunder.

Table 3: Themes Assessed and Subthemes as well as Criteria for Performance Emerged

EEAFs Themes	EEAFs Subthemes
6.1. Abstract	i) Abstract.
6.2. Theoretical background	i) Clear identification of statement of the problem. ii) Clear hypotheses/questions. iii) Clear objectives. iv) Well defined significance and scope. v) Background knowledge/literature review.
6.3. Methodology	**i) Clear explanation of research paradigm and design.** ii) Research design is appropriate. iii) Full description of sampling. iv) Sampling procedures/methods are appropriate. v) Clear explanation of unit of inquiry, measurement, and methods. vi) Clear description of data collection procedures/methods is appropriate. vi) Data collection procedures are appropriate. vii) Clear formulation of research instruments.
6.4. Analysis of findings	i) Explanation of data cleaning. ii) Testing of reliability and validity assessment. iii) Appropriate. iv) Analysis/presentation-of methods. v) Systematic analysis and interpretation of results. vi) Conclusion: implications of research findings to knowledge research and policy.
6.5. Presentation	i) Well presented, text and exhibits well organised. ii) Notes, Bibliography and appendices well presented. iii) Overall presentation of the dissertation well done.

Source: Field Notes (2014).

Table 3 presents the content and six themes of a university educational research proposal, from the abstract to the Methodology chapter, with further details in subsequent chapters not included in the EEAF document. The research utilizes Grounded Theory, specifically Charmaz's (2006) constructivist approach, focusing on initial data collection and analysis. The EEAF, guided by the Open University of Tanzania (OUT), is used to evaluate the quality of students' dissertations based on criteria such as paradigm clarity. The themes identified in Table 3 include: Theme 6.1 (Abstract), Theme 6.2 (Theoretical Background), Theme 6.3 (Methodology), Theme 6.4 (Data Analysis), and Theme 6.5 (Data Presentation). The study centers on Theme 6.3, particularly its sub-themes 6.3.1 and 6.3.2, which address the research paradigm and design. Core categories identified from Table 3 include: paradigm, clarity, design, quality, performance, and dissertations. The term 'paradigm' first encountered by the researcher at the University of Dar es Salaam (UDSM) was used frequently by lecturers but without explicit clarity. Table 3 represents a second significant instance of the term in academic contexts. Charmaz (2006:178) highlights that Grounded Theory theories arise from emerging processes in lived interactions. The researcher applied rigorous inductive analysis to the EEAF documents, leading to insightful findings detailed in Table 4.

Table 4: Inductive Analysis of Contents from Assessment Document Insightful Lessons Emerged

Substantive area/theory Emerged	Multi general conceptual categories/ constructs emerged	Themes
Foundational/philosophical conceptions of the scientific educational research.	Clarity Paradigm Design Dissertation	Five-themes: Abstract, background theories,
-Clarity of paradigm influences dissertation research design quality performance.	Quality Performance	methodology, analysis and presentation.

Source: Field Data (2018).

From Table 4 one sees three columns each having its contents. The GT building requires identification of the substantive study area, and emerging categories of mere and core concepts as well as substantive. The emerged substantive area in the first column is the, "foundational conceptions underpinnings in educational research." Likewise, the substantive emerging theory seems to emanate from the earlier said

phrase 6.3.1 *"...candidate researchers' clear explanation of the research paradigm influencing the dissertation design quality performance…"*

The initial inductive analysis of clarity and paradigm constructs reveals that one of the themes, the external examiners are guided to assess rigorously, became one of the catchy words forming the title for this thesis. It was preliminary learnt that the paradigm construct cannot be neglected, when discussing about the methodology chapter content in dissertations knowledge constructed in universities. To this end, the philosophical puzzle in form of research grand question emerged inquiring; how has researchers': candidates, supervisors, external examiners' clarity of research paradigm philosophical conceptions, been a contributory factor among factors altering students' completion, graduation, and quality final grade pass rates for Master's degree dissertations in Tanzania Universities?

The initial theoretical sampling began right from the start of this study as per the GT, which helped the researcher to select relevant concepts and materials, such as essential documents related to the phrase emerged in the first phase paving the way to entire study as seen in (Tables 1, 2, 3). Elaborating how to go about the procedure in the GT Charmaz' (2006) proposes that the theoretical sampling means to start with data, constructing tentative ideas about the data, and then examines the themes emerging further, to enlighten the empirical inquiry (Charmaz, 2006:102&113). This suggestion assisted the researcher to select the substantive area, themes, and refine core conceptual categories emerged to focus on. The analysis of Table 1,2,3, and 4 gave the researcher a statement of ongoing core social problem that the association between students' clarity on the theme of paradigm in their research designs chosen, and how it contributes to alter dissertations and theses quality scores performance was inadequately known prior to this study. Even some few researches available including: Daniel & Yosoff (2005); Dronen (2006); Starr-Glass & Ali (2012); Hussain, Elyas & Nasseef (2013); Kivunja & Kuyini (2017), had not explored the theme of paradigms in this study so little was known about it in universes studied. This knowledge gap prompted the need to conduct this study in two sister universities located in Dar es Salaam. This was why this study was about, Exploring Paradigmatic Philosophical Foundations for better Research Quality in Tanzania Universities: Grounded Theory Perspective.

The main objective of this study was to explore university research

participants' understanding as well as perceptions of how one's clarity paradigms contributes to alter students' quality dissertations scores, completion and graduation rates, capable of generating substantive theory, fresh hypotheses as well as holistic model for easening paradigm's theme clarity. Specific objectives were; i) To examine if the studied universities context teach explicit research paradigm as "worldview" conceptions to Master's degree candidates in the course of doing their educational research; (1) To assess the context in which the paradigms underpinned with philosophical conceptions are given due attention in universities studied. Four exploratory sub research questions under this objective inquired: 1(a) what ongoing specific core pressing issue emerged in the studied context? 1(b) what core categories emerged reflecting paradigm construct? 1(c) what core processes emerged from the field related to the paradigms conception when constructing research knowledge among Master's degree candidates in the studied universities context? (id) what core participants were found to involve in the processes involved in constructing research knowledge among Master's degree candidates in the studied universities context? Objective two determined the contribution of clarifying the theme of paradigms in raising and lowering students' constructed knowledge quality scores and their General Point Average (GPAs) in the studied universities context. Objective three determined the degree at which the studied universities lecturers are in consensus in informing the Master's degree programme students in terms of paradigm: clarity, primacy, holistic contents, influence and relevance, in the processes involved to construct research knowledge found in dissertations/theses in the studied universities context.

The significance of this study is timely, since its basic purpose is to contribute to inductively creation of knowledge through educational research to the existing stock of empirical studies in the higher learning institutes. The study is significant since it unveils the unpopular phenomenon in the universities, on how the identification of the research paradigm has been very complicated in postgraduate studies because of its inseparability from the philosophy of field of science. It is in this inadequately emphasised field, where most students are uninformed of philosophical foundations of research. Consequently, the students studied, unconsciously choose and use the paradigm of choice wrongly in the process of conducting the studies. If this study were not conducted, then the universities could not be informed of how clarity of research paradigms as a foundation of all categories research contributes to

dissertations and theses quality rise or fall, hence be given due attention. The substantive theory, fresh hypotheses and model of how to solve the problem of lack of clarity of paradigms theme could not have been brought forward.

In order to arrive at the fruition of this study methodologically, the researcher employed the constructivist paradigm and pragmatic philosophy to thoughtfully and logically select subtopics within the methodology chapter, thereby completing this investigation. This study utilised qualitative research approach because it fits the paradigm of choice. The researcher too, opted for triangulated multivariate exploratory descriptive design. This approach fitted the study's principal goal of evaluating participants' research paradigm comprehension and perspectives. According to Charmaz (2006), this design can inductively generate grounded theory (GT) and new hypotheses at the end of the investigation. According to Charmaz, a GT researcher should start with exploratory questions in the first phase of simultaneous data collection and analysis to easily search for core issues, categories, processes, and participants and guide subsequent phases. Therefore, this study involved three simultaneous data gathering and analysis phases. Phase one focused on four exploratory questions, while phase two focused on objective two, and phase three focused on objective three. This very study used triangulated purpose criteria and saturation sampling to sample two institutions, research participants, and primary documents in Dar es Salaam. This study involved saturated sample size of 68 Master's in education degree programme students, their dissertations, external examiner reports as units of analysis, 14 supervisors, and 6 external examiners from the Open University of Tanzania (OUT) Faculty X and the University of Dar es Salaam (UDSM) School Y. The descriptive Kaiser Oklin Measure (KMO) and Bartlets' tests ensured sample size and data relevance. The researcher collected data through primary documentary, face-to-face, online semi-structured interviews, phone calls, and live defence observations. The researcher too, employed methods such as: sorting, coding, categorising, continuous comparison, and contrasting to analyse qualitative data. Instruments such as: documentary, observation schedules collected data too. The basic calculator helped analyse descriptive nominal and ordinal data. The researcher assured the study findings' reliability, credibility, and dependability, including multiple: triangulated study instruments, data collection and analysis methodologies, and peer review specialists' critiques ensured the trustworthiness and credibility of this study's conclusions. Multiple

experts too from university's internal and external reviewers, editors, supervisors, critical literature reviewers, and critical faculty graduate seminar panelists were all involved to critique this study. The large sample size in this study may transfer conclusions rather than replicate them in case studies on similar themes at other colleges' context.

Study Findings and Discussion

The first objective of the study sought to assess the context in which the paradigms underpinned with philosophical conceptions were given due attention in the studied universities. Four exploratory sub-research questions were derived: 1(a) what ongoing specific core pressing issue emerged in the context studied? 1(b) what core categories emerged reflecting paradigm construct? 1(c) what core processes emerged from the field related to the paradigms conception when constructing research knowledge among master degree students in the studied universities? (id) what core participants were found to involve in the in processes involved in constructing research knowledge among master degree students in the studied universities context?

Ongoing Core Pressing Issue Emerged

A single encountered rubric document labeled as the External Examiners' Assessment Form (EEAFs) as it appears in Figure 1.1 part A, prompted this study to discover the pressing issue inductively in the contexts of the two studied universities as follows.

PART A

ASESSED ITEMS	EEAFs Subthemes	%	Maximum	Actual
6.1. Abstract	i) Clear statement of abstract	4	4	
6.2. Theoretical background	i) **Clear** identification of statement of the problem.	22	3	
	ii) **Clear** hypotheses/questions.		3	
	iii) **Clear** objectives.		3	
	iv) Well defined significance and scope.		3	
	v) Background knowledge/literature review.		5	
	vi) Empirical studies.		5	
6.3. Research Methodology	i) **Clear** explanation of research **paradigm** and **design.**		5	
	ii) Research design is appropriate.		2	
	iii) Full description of sampling.		3	
	iv) Sampling procedures/methods are appropriate.		2	
	v) **Clear** explanation of unit of inquiry, measurement, and methods.		2	
	vi) Clear description of data collection procedures/methods is appropriate.	25	3	
	vi) Data collection procedures are appropriate.		5	
	vii) **Clear** formulation of research instruments.		3	
6.4. Analysis of findings	i) Explanation of data cleaning.		2	
	ii) Testing of reliability and validity assessment.		5	
	iii) Appropriate.		7	
	iv) Analysis/presentation-of methods.		6	
	v) Systematic analysis and interpretation of results.	40	14	
	vi) Conclusion: implications of research findings to knowledge research and policy.		6	
6.5. Presentation	i) Well presented, text and exhibits well organised.	9	4	
	ii) Notes, Bibliography and appendices well presented.		3	
	iii) Overall presentation of the dissertation well done.		2	
	Total		100	

*Letter Grade * **Quality Letter Grades: A=70-100; B+=60-69; B=50-59; C=40-49; D=35-39, E=0-34**

Name of Examiner...............................Signature..........................Date.....................

Figure 1.1: Contents of OUT External Assessment Rubric Form for Dissertations
Source: Field Notes (2018).

Figure 1.1 shows core emergent issues from EEAFs, a sampled assessment rubric form discovered by the OUT researcher. The same document shows multiple emerging assessed items in the column with significant themes in serial Arabic numbers from 6.1 to 6.5. Sub-theme 6.3(i) of the methodology theme highlights a comprehensive explanation of the study paradigm and design (Figure 1.1). While heading the Open University of Tanzania (OUT) Faculty of Education (FED) postgraduate unit between 2011 and 2016, the researcher discovered the rubric. This team prepares dissertations and theses for the Postgraduate Directorate's external examination. The text contains several popular words; however, the researcher was unfamiliar with the term "paradigm." Contributors often emphasized paradigms, as the researcher represented the FED at postgraduate proposals and dissertation presentation seminars. Upon further exploration, the basic construct emerged as an umbrella word, firmly rooted in philosophical principles. The researcher discovered that competent panelist researchers, including lecturers, supervisors, and students, rarely discuss paradigms during proposal presentations or dissertation and thesis defenses. External Examiners (EEs) focused on sub-theme 6.3(i) in accordance with the OUT rubric but did not address the same theme in previous research processes, such as lecturing, supervising, writing, and defending dissertations and theses.

Extent to which other University Researchers are informed of Paradigm Underpinnings
After analyzing the first one, the researcher found 68 EEAF rubric papers, totaling 64 out of 88 primary documents in the postgraduate directorate. The examined document also recommended that the researcher locate a comparable Master in Education degree program rubric document from the University of Dar es Salaam (UDSM) School of Education, for the purpose of grading dissertations by coursework and thesis. One of the Grounded Theory (GT) nomenclature methods advises constant comparative analysis; therefore, finding identical documents from another university with similar context was necessary. Table 5 shows UDSM assessment tool rubrics with identical content to OUT in Figure 1.1. As shown in Table 5, part A of that form labeled as UDSM/PG.F9.

UNIVERSITY OF DAR ES SALAAM
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PART A

Table 5: UDSM similar External Examiners' Assessment Form FE699 (Dissertations)

Candidate's Name..

Areas Assessed	Out of	Marks	Grade	Remarks
Preliminaries	05			
Introduction	10			
Literature Review	15			
Methodology	20			
Data Presentation & Discussion of Findings	35			
Conclusions	10			
References/Bibliography	05			
Total	100			

Source: Field Notes (2018).

In Table 5 The reader also notes a clear similarity in the two compared rubrics on the course code of dissertations symbolised and numbered as OED 699 at OUT, while at UDSM it was FE 699. The contrast in codes showed that one was symbolised OED while the other FE (Tables 5; 6; 7).The weighing of different grade scores for the UDSM EEs' rubric revealed five items. Eight contents were assessed and weighted variously in four columns beginning with column two that was awarded scores out of 100. Others were columns labeled marks, grades and remarks as indicated in Table 1.1 and compared to that of OUT in (Figure 1.1). Such weights were further interpreted in a key in Table 6 with the range of grades and their scores as follows.

Table 6: Varying Weights in UDSM EEs' Rubric Assessment Tool

A	B+	B	C	D	E
70+	60-69	50-59	40-49	30-39	-34

 Source: Field Notes (2018).

*Signature of Examiner........ Date......... Print Name...

*Date passed to coordinator of Post Graduate Programmes................................

Emerged Core Categories of Conceptions Related to the Research Paradigm

From previous Tables 5 and in Table 6, one observes the similar sample of the assessment form tool of the UDSM labeled with similar role of assessing master degree students' dissertations compared with that of OUT. Unlike the OUT tool which has three columns as shown in Figure 1.1, that of the UDSM has five columns, whereby the first has portions to

be assessed, the column with marks out of 100 statistical score grades that are in grade letters with the examiner's remarks (Table 6). The simultaneous field analysis of both documents has more details in part B, which is symbolised second part of these compared assessment tools illustrated in Table 1.2. Next is Part B, which consists of the EEs' recommendations for the dissertation and category of verdicts in both universities of OUT and UDSM as indicated in subsequent Table 7.

PART B

Table: 7: OUT Emerged Categories from External Examiners' Tool Verdicts

7.1	PASSES	Tick appropriate Verdict
	7.1.1 Dissertation PASSESS AS IT IS (No revision or typographical corrections required).	
	7.1.2 Dissertation PASSES SUBJECT TO (No revision or typographical corrections and other minor changes as detailed on separate sheets(s) or in the dissertation. Dissertations PASSES SUBJECT to major changes as detailed on separate sheets(s) or in the dissertation.	
7.2	NOT ACCEPTED AS IT IS BUT MAY BE RESUBMITTED after one or more of the following items (specify) or in the dissertation. a) Additional data collection b) Additional analysis c) Additional literature review d) Re-writing e) Others (specify).	
7.3.	REJECTED OUTRIGHT 7.3.1. Dissertation is rejected outright, specify reasons on separate sheet.	

Source: Field Notes (2018).
External-Examiners (EEs)…………………………Signature…………...........................

From Table 7, one sees the second part B of the assessment form tool for assuring quality of dissertations and theses for the Open University of Tanzania at FED as detailed in later constant comparison of part B with similar contents from the UDSM as illustrated further in Table 8.

UDSM/PG.F9

PART B

Name of Candidate.............**Degree registered**.............**Dissertations/ Theses Title**...................

Table 8: UDSM Categories Emerging from External Examiners' Verdicts

1.	Thesis PASSES AS IT IS (No revisions or typography)	**(Tick)**
2.	PASSES SUBJECT TO typographical corrections or typographical corrections and other minor changes (list the errors/changes on separate sheet).	
3.	NOT ACCEPTED AS IT IS BUT MAY BE RE-SUBMITTED after one or more of the following. Please (V). *	
	✓ Additional data collection (...)	
	✓ Additional analysis (...)	
	✓ Additional literature review (...)	
	✓ Re-writing (...)	
	✓ Other (specify on separate sheet) (...)	
4.	Thesis REJECTED OUGHTRIGHT (Specify) reasons on separate sheet)	

Source: Field Notes (2018).

Key: (*) Minor changes refer to editorial corrections, slight re-organisation of sections and minor modifications of tables, programs or sentences (Table 8).

Comparatively, from contents of Figure 5 and Tables 6, 7 and 8, one observes similar details in part B of the UDSM assessment form as those in part B of the OUT assessment tool (Table 5). One could sum up some emerged major themes and sub-themes as the result of comparing two universities' assessment tools' contents from the field as Table 9 illustrates.

Table 9: Comparison between Assessed Universities Major Themes and Sub themes

OUT Assessment tool with eight assessed detailed major themes	UDSM assessment tool with undetailed eight assessed major themes
✓ Abstract (with single subtheme). ✓ Background to the problem (with six sub themes) ✓ Research methodology (with eight sub themes, ne is ***clear of research paradigm and design*** ✓ Data presentation (with six sub themes) ✓ Analysis of the findings (with three sub-themes)	✓ Preliminaries ✓ Introduction ✓ Literature review ✓ Methodology ✓ Data presentation ✓ Data Discussion ✓ Conclusions ✓ References/Bibliography
Key Parametric value scores from 0-100 and Non-parametric letter grades A-E (Figure 1.1). **From part B** The tool has examiners' the dissertation and category of	**Key** Parametric value scores from 0-100 Non-parametric letter grades A-E (Table 1.1a). Examiner's remarks **From part B** Similarly, the tool has examiners' recommendations, for the dissertation and category of verdicts.

Source: Field Notes (2018).

From Table 9, the reader observes the compared and contrasted contents from the previous analysed Figure 1.1 and Tables 5-8. Having contents obtained and compared, the researcher followed the advice of the GT nomenclature suggesting to a researcher to first search key or unique emerged construct categories and transform them from empirical level to abstraction level. The researcher reminds the reader that in building, the GT multi concepts need to be downsized first from the empirical observable phenomenon to abstraction non-observable noumenon. The downsizing analysis assisted to identify the most general concepts relating to operational concrete phenomenon. The aim of this stage was to obtain very few manageable core constructs from multi-emerging categories for this study. Consequently, the researcher identified three unique and core constructs repeated in the analysed documents as illustrated in Table 10.

Core Conceptual Categories Emerged

Table 10: Emerged core Constructs and Categories with wider Scope

Core construct codes	Categories constituting constructs
Clarity	Definition, scope, semantic relations, and coherence
Paradigm with Underpinnings	Positivism, anti-positivism, post positivism, axiology, epistemology, logic, methodology, ontology, philosophy, and rhetoric
Design	Case studies, grounded theory, ethnography, evaluation, historical, grounded theory, evaluation exploratory, even action research (Qualitative designs). survey, experimental, quasi experimental…. (Quantitative designs)

Source: Field Notes (2018).

From Table 10, three core constructs namely clarity, paradigm, and design appear in the first column. The second column shows the other accompanied conceptions along identified sub-constructs from the same analysed primary field documentary data in (EEAFs, 2004-2015). Clarity construct has high frequency with its four properties appearing in (Figure 1.1; Table 10).

The researcher identified the construct of clarity because it had the highest frequency by being repeated five times compared to the rest of the emerged criteria for performance such as appropriateness (Figure 1.1). This construct became one of the catchy words of the title in this study. Further exploration of the construct of clarity revealed that it comprised four properties as indicated in Table 11.

Table 11: Emerged Clarity Core Category Criterion with Its Four Properties

Clarity construct	Operationalised properties at empirical level
Definition	Denoting (strict meaning) and connoting (broad meaning) boundary
Scope	Considering concept's, depth, breadth or dimension
Semantic relations	Relating words by what they share in state of common affairs
Coherence	Organising the content logically or consistently

Source: Field Notes (2018).

Looking at Table 11, one notes the operationalised construct of clarity emerging with its four sub-constructs at the empirical level in form of the gerund form of the action verbs. These were indicators of emerging processes as detailed later in this article. Corresponding to this finding, Charmaz (2006) contends that once the researcher achieves the gerund verbs, s/he has attained ongoing processes in the studied context. The

researcher sought to understand the manner of how clarity construct core category varied in the processes involved in research for dissertation at OUT. This construct frequently appeared in the assessment tool of OUT EEAFs, while it lacked in the similar UDSM assessment tool (Table 1.7). The compared frequency of clarity amid other emerged criterion conception is illustrated in Figure 1.2 as follows.

Criteria	Emphasis frequency
Clarity	Eight times
Appropriateness	Five times
Wellness	Five times
Reliability	Only once
Validity	Only once
Systematisation	Only once
Cleaning of data	Only once

Figure 1.2: Criteria for Dissertations Performance found in Assessment Tool
Source: Field Notes (2018).

From Figure 1.2, one observes the emerged frequencies of repeating seven criteria constructs namely clarity, appropriateness, wellness, reliability, validity, systematisation and cleaning of data as revealed in the OUT assessment criteria for dissertations performance (Tables, 5; 6; 7; 8; 9; 10; 11; 12 Figures 1.1). From those illustrations, it was evident that the frequency of each criterion category was determined.

Emerged Research Design Construct Properties along Paradigm
The second and third core construct conceptual category that emerged from the analysed document was the research design accompanying sub theme 6.3 (i) clarity of paradigm in (Figure 1.1). The researcher selected the paradigm as the second core catchy construct appearing in the study title. This is because, the analysis of the documentary data showed that the emerged research paradigm construct had rare uses among the studied researchers, when compared to the rest of the other common constructs like clarity. The researcher investigated the properties that also were illustrated in Figure (1.1) and subsequent Tables are further illustrated in Table 12 as follows.

Table 12: Emerged Research Design Properties Scope Operationalised

Research designs per paradigm approaches	Operationalised properties of study designs
Quantitative approach	Objective/statistical facts for positivists' related designs: surveys, quasi-experimental, and experiment means.
Qualitative approach	Respondents' subjective views for post positivists' groups related designs: Case studies, diagnostic, longitudinal, constructivists' grounded theory, historical, historical, evaluation, ethnography as well as historical.
Mixed approaches	Sequential Exploration: QUAL-Quan; Explanatory: QUAN-Qual; QUAL-; QUAN-Survey…..

Source: Field Data (2018).

The researcher chose research design as emerged core construct because it complements the research paradigm in sub-theme 6.3 (i) (Figure 1.1; Table 12). In this study, methodology refers to a whole framework for doing research. In Table 12, three groups of research methodologies and designs are shown: the positivists' research designs (experimental, quasi-experimental survey) versus the post-positivists' research designs (case study, evaluation, GT) mixed approaches.

Thick Descriptions on Emerged Core Processes of Research: Lecturing and Learning

When inquired about the knowledgeability of the term paradigms in relation to the field of research for constructing knowledge found in dissertations and theses, a student symbolised CAND#32 responded by saying;

> *"…If I understood the question right, you requested me to clarify on what the paradigm refers to in regard to educational research.*"[You are correct!] *To begin, I have no understanding of what a paradigm is or how it relates to research..."* [When probed further as per why this was the case, despite the fact that familiarizing oneself with many research paradigms is necessary before starting any research project, the response was], *"...But how could I have known its significance if my superior hadn't asked me about it...*? (CAND#87:32:7.5.014).

The other student responded on phone by rationalising,

> *"...Mheshimiwa mtafiti [meaning honorable researcher] ...in your semi-structured interview, I read your list of paradigm components, I can tell you that neither once did my facilitator's research lecturer nor my supervisor challenged me or bothered to clarify the term paradigm in the research method course..."* (CAND#87:32:7.5.014).

The same candidate's online interview schedule wrote;

"...Your document's related phrases reveal my lack of what a paradigm entails in research. Whether this contributed to my lack of "B" grades award rather than adorable scores of A and B+ "I'm not sure! By paradigm did you imply the study's design and methods? (CAND#32:7.5.014).

Emerged Dissertations and Theses Assessment and External Quality Assuring Processes

Responding to my probes, one of the supervisors symbolised OVSEER #8 responded by saying;

"...Yap, am familiar with the phrase paradigm though I use it infrequently in my presentations! Enough is said about the research paradigm. In Tanzania higher learning institutions where I lecture educational research, academics utilise it selectively when teaching the research course. Distinctive research paradigms and research philosophies are required before entering a research field, unlike other institutions elsewhere. Paradigms are essential to me because they provide a framework for writing research questions, methodologies, and justifying why and how judgments made affect methodological components..." (OVSEER#8:17.3.2014).

Emerged Dissertations and Theses Assessment and External Quality Assuring Processes

The other external examiner symbolised EE# 2 at the UDSM curiously said;

"...Duh! You have raised a very difficult area in research that culminates into a dissertation product. In fact, even at the level of the PhDs, it is not well articulated by several inexperienced researchers. Fortunately, I am marking one of the dissertations for the Ph.D. of my university, hence, I can tell you that no mention of paradigm anywhere across the dissertation. The researcher has only provided the philosophy of pragmatism. Do you know pragmatism? Is it a philosophy or a paradigm? But I suppose it is not a paradigm, is it? (EE# 2: 16.5.014).

Furthermore, when probed to say something on the familiarity of what paradigm refers to, the external examiner symbolised as EE#2, a lecturer at the UDSM had this to say;

"...Well, to me paradigm is just a parameter that determines a scope of the study. It has to do with positivists', interpretivists, and post-positivists' schools of thought translated in the qualitative or quantitative or mixture of both, I suppose. However, the term paradigm is not commonly used in our universities in particular at UDSM, though its relevance cannot be questioned in the research course..." (EE#2: 16.5.014).

From the précis of compared assessment rubrics, EEs' dissertation score report contents for two studied universities in Figure (1.1); Table (5); Table (11) and from interviews further issues emerged for further discussion. These were the unique trend emerged about the potential close relationship from paradigm subtheme and dissertations scores compared signaling crude substantive GT. Other core constructs emerged in the context studied, were sub-construct categories in the context, studied main respondents in the processes and core ongoing activities and processes emerged.

Emerged Insights Reflecting Paradigm Mention Lacks in Dissertations Oral Defense
The researcher further explored the exploratory question in objective 1(c) research question which sought to find out the core processes that emerged in the studied universities reflecting the paradigm construct. Table 13 reveals the encountered issues related to oral defense process as follows.

Table 13: General Surfaced Insights from Live Observed Oral Defense Process

Panelists' Mandate to alter EEs' Scores (NO)

	Crossed examined themes	Theoretical background	Literature	Methodology	Methods	Data an alysis	Data Present ation	Verdict	Comment
Panelist	Panelist A	X	-	X	v	X	v	Pass	-
	Panelist B	X	-	X	v	v	X	Pass	-
	Panelist C	v	x	V	x	X	X	-	-
	Panelist D	X	X	X	x	v	X	-	-

Source: Field Notes (2018).

Table 13 illustrates a four-row, nine-column document. The oral defense pathways listed remained active. Subtheme 6.3(i) motivated this study to clarify Figure 1.1's research paradigm and design. The picture and Table 13 revealed several other more sub-themes. At live oral dissertation and thesis defenses, saturation and criteria sampling were used to select OUT students. The defence paper included a greeting, self-introduction, and column check. Upon the arrival of the panel chair, we distributed the assessment forms along with the external report in (Figure 1.1). The process prioritised transparency, work ownership, and defender confidence. The internal examiners of OUT dissertations evaluate a student's dissertation based on clarity, ownership, and confidence, then decide whether to accept it as is, require a defender to make minor or

major changes, or reject the entire document. The researcher observed the defence process and found no reference to an explicit paradigm or implicit underlying ideas. The researcher was also curious about how well defending students and their panelist supervisors met Figure 1.1 of sub-theme 6.3(i) requirement that pupils clarify the study paradigm and design. The researcher conducted this study to understand the expectations of the OUT institution and examiners regarding sub-theme 6.3(i) (Figure 1.1). Even without explicitly defining the paradigm theme, it was not mentioned in the teaching, learning, or live-observed dissertation defence procedures during the eight live-observed meetings of the Faculty of Education's internal quality assurance panel at OUT. Implicit university participants were revealed through documentary, interview, and observation studies. Table 14 displays the categories of eligible participants in dissertations and theses for the universities under examination, including those involved in.

Table 14: OUT Studied Participants: Supervisors/Overseers' Profile Emerged

S/N	Sex	Levof eleducation	Rank	Role atOUT	Experience
Symbol # **7**	F	Ph.D.	Senior Dr.	Overseer	Five yrs
Symbol # **8**	M	Ph.D.	Dr.	Overseer	One yr
Symbol # **9**	M	Ph.D.	Full professor		Seven yrs
Symbol # **10**	M	Ph.D.	Dr.	Overseer	Three yrs
Symbol # **11**	F	Ph.D.	Senior Dr.	Overseer	Five yrs
Symbol # **12**	M	Ph.D.	Associate professor	Overseer	Four yrs
Symbol # **13**	F	Ph.D.	Facilitator	Overseer	Three yrs
Symbol# **14**	F	Ph.D.	Associate Prof	Leader	Seven yrs

Source: Field Data (2018).

Table 14 depicts fourteen out of twenty supervisors popularly referred to as overseers' profiles in this study, are labeled OVSEER#. Majority of the fourteen studied overseers were found having double roles of lecturing and supervising. The process of writing dissertations and theses revealed that the main actors were the students and their supervisors in the process of constructing knowledge that of course begins from classroom research theory learning. The process of defending the constructed knowledge in the dissertations revealed further the main participants being students who from the defense attained the status of prospective graduands. It was revealed further that some overseers formed a panel of defense under the autonomy of the directorate of the postgraduate. Table 14 discloses participants profile on socio-economic roles such as sex, education, rank,

job at OUT, and experience of guiding inexperienced researchers towards graduation. Besides those, Table 14 shows further that all overseers studied had doctorate degree qualifications when compared to the EEs. Majority of the studied staff members were lecturers, some of whom were senior lecturers, associate professors and a full professor. The overseers were found to have more than one year in playing the role of supervising dissertations and theses. Also, some had a role to guide the students through the educational research process (Table 14). Keen analysis revealed that lecturers in education field held the PhDs degrees to qualify for the supervision role. It emerged that, though all those who had doctorate qualifications rank varied as previously elaborated.

While some lecturers were junior others were senior lecturers, associate professors and full professors as illustrated in Table 15.

Table 15: Emerged External Examiners' (EEs') Profile

Respondent's Sex		Level Education	Rank	Role at OUT	Experience of assessors
Symbol #1	M	Ph.D.	Full Professor	External	Five years
Symbol # 2	M	Ph.D.	Full Professor	External	Four years
Symbol # 3	F	Ph.D.	Associate Professor	External	Five years
Symbol # 4	F	Ph.D.	Senior Dr.	External	One year
Symbol # 5	F	Ph.D.	Senior Dr.	External	One year
Symbol #6	M	Ph.D.	Senior Dr.	External	Three years

Source: Field Data (2018).

The analysis of Table 1.5 reveals that the UDSM provides majority of external examiners for OUT, since the randomly sorted assessment forms revealed that all 6 external examiners for OUT dissertations and theses originate from UDSM (Table 15). The rationale could be, since OUT's founding, the two universities have reciprocally started and taught part-time courses interchangeably. The study revealed that 68 out of 88 students pursued Master's degree program, with the majority opting for coursework. One student chose a by thesis mode. During research, overseers were discovered. The major participants in the knowledge constructed evaluation were shortlisted internal reviewers from lecturers and invited external examiners (EEs) who evaluated dissertations and theses (Figure 1; Tables 14, and 15). The final group, which included the new researchers, was coded as STUDs #1 in the study. All participants worked for the faculty under study. Unlike the UDSM, which was incorporated into course outlines, the external examiner's assessment

procedure form of OUT displays the research paradigm subtheme. The students in the study had BED, B.A. Ed., or PGDE degrees. The Open University Facts and Figures (OUTFAFI, 2015) reported 61 graduates and 48 potential graduates in early 2014. We used theoretical and purposeful criteria to shortlist 68 out of 109 candidates. The researcher only sampled students who satisfied his or her criteria. According to Charmaz's (2006) GT nomenclature guides, after the first phase of data analysis for exploratory sub-research questions for objectives 1(a), (1b), 1(c), and 1(d), the researcher used the results to guide phase two of collecting and analyzing data at the same time for objective two. The researcher labelled the selected student participants as STUDs#, indicating their lack of experience in research. The primary documentation study revealed that the Faculty of Education had 109 master's degree graduates as of 2014, of which 61 were actual graduates and 48 were potential graduates (OUTFAFI, 2015). We chose 68 applications from 109 using theoretical and purposeful criteria. The researcher only selected students who met his criteria.

Objective 1(a), (1b), 1(c), and 1(d) exploratory sub-research questions were completed in phase one of simultaneous data collection and analysis.

Comparison between Research Textbook Writers on Paradigm and University Texts
Objective 1(b) addressed an exploratory sub-research question on what key conceptual categories arose in the realm of studied university contexts (Figure 1.1).

This study examined how researchers viewed explicit research paradigms' denotation, scope, semantic relationship, and coherence. It was also critical to examine the arguments of secondary and elementary textbook authors, as well as those of university experts. We gathered data through interviews and documentaries. In the postgraduate education research course, the researcher evaluated the extent to which candidates were educated about the research paradigm by the research secondary books from OUT's main library. The researcher selected five study texts from a broad list using criterion sampling and found six authors: Mason (2007), Flick, Descombe, and Silverman (2010), and Marvasti and Gilbert (2012). The analysis of library documents revealed that three out of five (60%) secondary text books mentioned the paradigm in various ways. Mason (2007) and Descombe (2010) ignore it. Lack of detailed textual materials,

such as compendia, contributes to inexperienced researchers' lack of research paradigm understanding (Mackenzie & Knipe, 2006).

Presence of Paradigm Conception in University Research Teaching Resources

Despite ADM's #14 claim that OUT had no written notes in place to graduate students, the researcher found the Director of Research for Postgraduate Studies (DRPS) having the research teaching resource book co-authored by Kitula, Ngaruko, and Swai (2012) at OUT. Thus, the analysis of the that text indicates that it is relevant for the postgraduate students in the Faculty of natural sciences but less so for students in the humanities and social sciences such as: education, law, and business studies, and history because it does not adequately cover varying research paradigms such as the post-positivists' except the sole positivists' approaches of quantification. However, on page one of that book, there is a superficial mention of philosophy (Kitula et al; 2012). The textbook at OUT for research course evidences the manner of how the concept of explicit inquiry paradigm that is anchored by philosophical foundations lacks adequate attention during the writing process of research, consciously or unconsciously. The finding regarding Kitula's et al. (2012) attempt to educate students about paradigms and philosophical underpinnings during the research course is crucial as it echoes the argument that, whether we are aware of our philosophical assumptions or not, we use them implicitly during the research process (Carr, 1995; Crabtree, 2012).

Paradigms Construct Knowledgeability among Studied University Students

The findings from exploratory research question 1(a) directed the researcher to interview research participants on their views about what they understood on research paradigm. When asked to provide their own understanding of what research paradigms were, the participant symbolised as CAND#35 responded*:*

> *"...What a paradigm entails, as well as its dimensions and relationship to research procedures, is unclear to me. I recall reading that in one of my research books, albeit I cannot recall which one. I am not sure whether I used this word in my dissertation because it has been quite some many days since I graduated. It is challenging me to articulate paradigm in my own words... (*CAND#35:03.8.014).

Another student symbolised as CAND#23 contributed by stating,
> *"...To be honest, I am familiar with the phrase paradigm in research as it*

applies to the area of research and this is where I first met it. Nonetheless, I am perplexed on how it connects to the dissertation's quality. That is, I am unable to elucidate how it works. Though I spent much time with my supervisor, we never explored such a topic throughout my study, or perhaps we did so in an indirect manner..." (CAND#23:6.5.2014).

Paradigm Constructs among the University EEs and Administrators

One of the external examiners symbolised as EEs #6 commented on the investigated topic;

"...Despite my expertise of assessing OUT dissertations, I find the concept of paradigm new and difficult to understand among students and university professors alike." This is despite the topic being part of the postgraduate research lectures even here at UDSM. Prior to teaching research methodology components, paradigms should be taught, however, this is rarely done in Tanzanian institutions. Our UDSM research course outlines exclude this critical issue on paradigm, but let me cross-check. Certainly not!! However, allow me to demonstrate that no one can get anywhere without first comprehending the route. For me, the paradigm serves as a road map, directing a researcher in the right direction. In general, teaching and application may vary according to individuals. I believe there is a void about this theme at UDSM and in particular the School of Education where I lecture..." (EE#6:19.9.014).

Yet another EE# 2 wondered about my selected this research topic and said;

"...Duh! You've selected a particularly challenging field of research. Indeed, numerous novice PhD scholars struggle to articulate this issue even here at our UDSM's School of Education where I work. Fortunately, I am grading one of my university's Ph.D. dissertations, and there is no reference of the paradigm elsewhere in the dissertation. Come and read this section independently to verify my assertions. The PhD student gave solely the philosophy of pragmatism. Are you familiar with pragmatism? Is this a paradigm shift? However, I am assuming that this is not a paradigm..." (EE# 2:16.5.014).

Regarding the familiarity of the terms paradigm and research design in relation to the observed underperformance scenarios, the respondent symbolised as EE#4 argued saying;

"...Yes, let me say that I was pleased to discover that the subtheme of paradigm is receiving attention in the processes of educational research, even though I do not see it reflected in students' dissertations. Personally, I believe that the paradigms one chooses are determined by the university one attends. The majority of academics adhere to what they learned at their colleges, where they encountered the propensity of organizational cultures such as phenomenology, psychology as defined by the American Psychological Association (APA), and behaviorism. As a result, you will see that we have established entrenched norms of conducting research rather than listening to students' developing

ideas. However, variations in paradigms should not prevent supervisors from assisting research supervisees in developing their own frameworks in response to research challenges..." (EE#4:16.5.014).

One of overseers symbolised as OVSEER#14 was asked to respond on the same issue and critically said;

"...If our students' assessments include a paradigm notion by coincidence, I believe it is due to our habit of employing terms without much study or explication. The expression "paradigm shift" has recently become popular at the Ministry of Education, but no one can explain it. I am sure some fellows attending such courses in those ministry seminars picked up the word paradigm and put it in our assessment form. Paradigm shift in teaching and learning is a word that many, including me, are unfamiliar with. I believe they don't know what it means. Nevertheless, I never refer to my consulting experience when my students do research or write their dissertations. I don't see a problem if my students don't use it and finish their course without it. My main guidance is the university's prospectus..." (OVSEER#14: 29.3.2014).

Responding to researcher's question, a newly graduated PhD graduate argued:

"...Paradigm is situated in research field but it is not a commonly applied term especially at the level of M.A, where it is used sparingly and within Tanzanian universities. Nevertheless, in established universities like the one where I studied, research paradigm conceptions are explicitly emphasised in the research course and in dissertations defenses. To me, paradigms are important since they are ways, where one finds a guide on how to write appropriate set up of research problem, appropriate methods, and to rationalise why and how made decisions on methodological part are arrived at..."(OVSEER #8: 17.3.2014).

Responding to the very category of sub-questions about awareness of the paradigm construct, the administrator and supervisor respondent ADMN#20 said;

"*...What I know is that each faculty has a course for research methodology, so students are expected to be informed of it so that they have prior knowledge on basic concepts in research. One expects faculties to have included a topic on paradigm in the course outlines, since this component is examined by the EEs in students' dissertations. It is not the mandate of the DRPS to dictate the faculties on what to include in their research courses. However, it is the role of responsible deans and departmental heads to ensure foundation concepts are within the course outlines for students to study. Isn't it so?* (ADMN #20: 29.3.2014).

The detailed descriptive analysis revealed that the studied students did not demonstrate explicit understanding of research paradigm in relation to writing of their dissertations and theses. Furthermore, the students failed

to describe the explicit research paradigm holistically as required by the evaluation form, including definition, larger scope, semantic link and coherence (Figures 1.1; 1.2). The interview findings with the postgraduate students, supervisors, and examiners revealed that inadequate attention was given to paradigm construct processes involved in the construction of research knowledge found in dissertations in Tanzanian universities involved in this study. Consequently, the theme of paradigm was unpopular among the majority of the researchers who decided to avoid it as exhibited in the findings (Jacob, 2009). Much more, it was found that the confusion among the researchers on the same theme was worsened by writers of research textbooks who write shallowly and using interchangeable synonyms in clarifying the concepts of research paradigms. By so doing, they lead learners into the dilemma on what exactly it is, where it fits in the research process as noted by Mackenzie and Knipe, (2006). The findings of this study echo another study about paradigms in Malaysian universities, where Daniel and Yosoff (2005) reported that there was a confusion leading to emerging pseudo mixed paradigms among students in Malaysia's universities. Consequently, the construct of paradigm has remained as a mystery to inexperienced researchers (Mackenzie and Knipe, 2006). Contributing to the primacy of paradigm and how experienced assessors mark dissertations, another study found that paradigm is a significant factor influencing examination of theses in universities (Mullins & Kiley, 2007).

From the descriptions analysed too, one notes that from the universities studied on the processes of constructing research knowledge, emphasis on paradigms of choice should not be neglected. This decision of OUT to include the paradigm in examining processes, not only was applauded by the studied EEs from the UDSM but also several gurus of social research researchers have acknowledged it. For instance, Efinger, Maldonado, and Adler (2004) conducted a study among two students' groups experimentally, where one group studied philosophy of research, while the other group had not opted that course. That study confirmed that exposing students to clarity of paradigms underpinned with philosophical underpinnings prior showed excellent results to the experimental group when compared to the controlled one. The students in the studied group discovered the relevance of learning philosophy of research before one proceeds to the field. Much more, scholars including Bogdan and Biklen, (1982); Carr, (1995); Williams, (1998); Tashakkori and Teddlie, (1998); Agrwaal, (2003); Chilisa and Preece, (2005); Guba and Lincoln, (2005);

Mackenzie and Knipe, (2006); Omari, (2011) are in consensus that the choice of paradigms prior to conducting research is paramount.

Compared Paradigm Subtheme versus Excellent Scores for Dissertations Trend

Objective two of this study determined the contribution of clarifying the theme of paradigms in raising and lowering students' constructed knowledge quality scores and their General Point Average GPAs in two studied universities. Therefore, the following analysis reflects previous given key grades in the two universities' EEs' rubrics of assessing dissertations and theses (Figure 1.1 and Table 6). In those scores' key ranging between 70 and 100 culminated not only into the highest quality grades of A, but also into abrupt rise in excellent GPAs of the entire course. Scores ranging between 60 and 69 out of 100 lead to higher and very good GPAs with quality letter grade B+. Moreover, scores ranging between 50 and 59 out of 100, lead to good GPAs with average quality grade B (plain). The rest scores ranging between 0 and 49 out of 100 lead to marginal lowest GPAs with grades C, D, and E (in (Figure 1.1 and Table). Having collected 68 External Examiners (EEs)' reports from the studied EEs totaling 88, only 63 dissertations and one (1) thesis amounting to 64 reached saturation in the two studied universities,. These were initially subjected to the manual analysis. In this analysis, four (4) dissertations out of 68 were discarded after the criterion sampling showed the saturation. The simple calculator tool aided the analysis of the emerged descriptive statistical data as illustrated in Tables 16, 17, 18 and 19. Table 16 is presented first as follows.

Table 16: Excellent Grade- "A" Dissertations versus Paradigm Sub theme

Dissertations performed Grade	Achievers	Paradigm Theme Performed	Achievers
A	**05**	**A**	**03**
		B+	01
		B	01
		C	----
		E	**05**
Total	**05**		

Source: Field Data (2018.

From Table 16, some dissertations are awarded with excellent grade titled "A" quality grade on paradigm subtheme, the analysis revealed variations. In this analysis two calculations were done, the first involved five (5) scores allotted to a single subtheme 6.3(i) that was partly calculated as (x/5 x 100) to discover what a student was awarded by the EE on the

paradigm theme. The second calculation was holistic, where the researcher calculated x/26 x 100 scores for 26 sub-themes, so as to discover the trend of the extent to which each theme contributed to the entire dissertation or thesis awards from the EE (Figure, 1.1; Table 16). The results had surprising insights as indicated in Table 16. The analysis of the very Table 1.12 presents a category of five out of 64 students who were assessed by varying EEs as grade A achievers. Surprisingly, in that category, majority 3(60) percent out of 5 achievers, who were awarded grade A for their entire dissertations, likewise they were awarded 5/5(100) percent scores for clarifying the sub-theme 6.3 (i) of paradigm and design. In that category of A achievers, 1 student (20) percent) out of five students was awarded quality letter grade B+ for clarifying the paradigm and design theme in a very good way. Still yet, in that very category only 1 student (20) percent) out 5 achievers, despite his/her dissertation having scored grade A, the EE awarded low scores for clarifying the paradigm theme averagely (Table 16).

Comparison of Very Good Quality for Paradigm Sub-theme with Entire Study Scores
The next category of achievers was that of very good with grade B+ achievers for the entire dissertations in constructing research knowledge in their dissertations and theses as portrayed in Table 17.

Table 17: Grade- B+ Dissertations versus Paradigm Score Performance

Actual Dissertations Performed Grade	Number of Achievers	Paradigms/Theme Performed Grade	Number of Achievers
	18	A	04
B+		B+	11
		B	---
		C	03
		D	
		E	---
Total	18		18

Source: Field Data (2018).

Table 17 shows eighteen achievers in the very good grade B+ category for entire dissertations and theses. The analysis revealed that few 4 students (22.22) percent out of 18 achievers in that category were awarded quality letter of grade "A" for clarifying the paradigm and design sub-theme excellently while the majority 11 (61.11) percent out of 18 achievers in that category had achieved Very Good B+ quality grade for

explaining the very sub-theme in a good manner in their entire dissertations. Surprisingly still, none in this category of performers performed with low marginal B (plain) quality grade. However, 3 (16.66) percent out of 18 achievers were awarded marginal lower quality letter grade of C for clarifying the sub-theme paradigm sparingly. No candidate was awarded the marginal lowest quality letter grades of D or E(Table 17).

Comparison of Marginal High Scores for Paradigm Subtheme with Dissertations Trend

The other category of achievers is Good quality with letter grade B (Plain) in their entire dissertations or thesis as portrayed in 18 as follows.

Table 18: Marginal Grade- B Dissertation versus Paradigm Theme scores

S/N	Actual Dissertations performed Grade	Number of Achievers	Paradigm Theme Grade	Number of Achievers
		34	A	02
			B+	11
	B (Plain)		**B** **08**	
			C	12
			D	---
			E	01
	Total	**34**		**34**

Source: Field Data (2018).

From Table 18, it is indicated that 34 studied students had similar results by scoring a B (Plain) grade as a score for the entire dissertation. However, these students showed differences in the paradigm theme score, whereby two students (2) scored the highest grade with letter A, eleven (11) students scored higher grade with letter B+, eight (8) students scored marginal high grade with letter B (Plain) grade, and twelve (12) scored marginal low C grade. No candidate scored marginal lower grade with letter D. Nevertheless, only one (1) candidate scored the marginal lowest grade of all with letter E. In this research paper, grades B, C, D and E for dissertations are labeled as the marginal grades (Table 18).

Marginal Low Scores for Paradigm Subtheme and Dissertations Trend

The fourth category of achievers was of those students whose category scored low, lower, or the lowest quality letter grade with C, D, and E. Table 19 illustrates the marginal awards as follows.

Table 19: Lower and Lowest Grades C and E Dissertations versus Paradigm theme

S/N	Actual Dissertations Performed Grade	Number of achievers	Paradigm theme performed Grade	Number of achievers
		07	A	---
			B+	02
			B	----
	C		C	02
	D		D	01
	E		E	02
	Total	07		07

Source: Field Data (2018).

Table 19 shows that seven (7) students out of 64 achievers scored low, lower and the lowest scores, hence, putting them into the categories of quality letter grades labeled marginal low C, lower D, and lowest E on their entire dissertations and thesis (Table 19). Further analysis revealed that the majority, 5(71.42) percent) out of 7 achievers, in this category had either marginal low, lower, or lowest scores, with the exception of a very few, 2(28.57) percent out of 7 achievers, with very good quality letter grade of B+ (Table 19). Data analysis revealed furthermore that the marginal awards for dissertations and thesis from the EEs in this category, tasked these achievers to do major changes after achieving the verdict of either resubmitting or outright rejection, hence, redoing the entire study as implied verdicts in Tables 7; 8; 9. Consequently, such results lowered their GPAs for their entire courses. The researcher's determination of the marginal low, lower and lowest quality in this study was further obtained from researched students' cumulative assessment progressive report trends document labeled as SARIS, as depicted in Tables: 20. Table 20 is presented first.

Table 20: Candidate's Number HD/E/XXX/T.20xx M.Ed-(APPS)Code

Code	Course Title	Unit	Grade	Point	GPA
OED 626	Research Methodology, Computer Application and Statistics	2	B	6.0	
OED 617	Gender Development and Education	2	A	10.0	
OED 627	Policy Analysis, Implementation and Evaluation	2	B+	8.0	
OED 625	Educational Planning	2	B+	8.0	
OED 699	**Dissertation**	**6**	**B+**	**24.0**	
OED 624	Development of Organization	2	B+	8.0	
OED 632	Economics of Education	2	B	6.0	
		18		**70.0**	**3.9**

Source: OUT ARMIS 5.0.1 (2013/2018).

Table 20 presents what the researcher collected from the field. One notes one of the encountered general reports for a student whose number is symbolised as HD/E/XXX/T.20xx (Table 20). Fortunately, the SARIS document provides more enlightening information in columns. Course code is in column one, course title in column two, units are in column three, grades in column four, points in column five and the GPA in column six. The analysis indicates that this student had seven courses; with each course being worthy of weight of two units except for the dissertation which had 6 units alone and in total it contributed to 24 points (Table 20).

The very student passed the dissertation with excellent 70 scores out of 100 with quality letter grade which raised her entire cumulative coursework with the GPA to 3.9 (Table 21). Fortunately, the outstanding performance of the candidate tallied with excellent scores for the sub-theme of paradigms and design as well as higher GPA for her dissertation. The analysis of the various Tables (16; 17; 18; 19) exhibited that, despite other subthemes being assessed, several students lost 5/5 marks because of less clarity of research paradigms theme (Figure 1.1). Consequently, that loss denied some students higher scores, grades and GPAs for their dissertations.

Table 21: Candidate HD/E/yyyy/T.200xx SARIS Report Level: III

Code	Course Title	Unit	Grade	Point	GPA
OED 617	Gender Development and Education	2	B	6	
OED625	Educational Planning	2	B+	8	
OED 624	Development of Organisations	2	B	6	
OED 626	Research: Methodology, Computer Application	2	B+	8	
OED27	Policy Analysis, Implementation of Primary and Secondary Education	2	A	10	
OED 632	Economics of Education	2	B+	8	
OED699	**Dissertation**	**6**	**B**	**18**	
		20		**70**	**3.5**

Source: Field Data (2014).

From Table 21, one notes another candidate's SARIS report symbolised HD/E/yyyy/T.200xx for more clarity. The SARIS has the same contents as the former one. From the two tables, one notes similar emerged sub-

themes as in the previous table: course codes, course titles, course units, course grade points and attained general course GPA (Tables 21). From the analysis of the data in the two compared Tables 20 and 21, one sees that although candidate HD/E/XXX/T20xxx had an outstanding results in entire coursework between quality letter grades of A and B+, though with two average quality letter grades of B (Plain), in entire coursework, when compared to his/her counterpart student symbolised as HD/E/yyyy/T.200xx who both scored 70 in dissertations which is worthy quality grade A. However, the later achieved average second class with GPA of 3.5 when compared to the previous one (Tables 20; 21).

Emerged Conceptual Categories of course Codes, Units, Grades Points and Attained GPAs

The report summarises by listing course codes, the names of the covered courses, and their unit weights. Once again, one must consider the grades and points assigned to each course. A dissertation score of 10 points is considered the best quality of all the other grades, and followed by a B+ grade of 8 points, which is considered a better achievement. Next, is the B (Plain) quality letter with six points that is considered as good average achievement (OUT ARMIS, 2014). The researcher used this tendency to rationalise the values of the other grades, which are C with four points, D with two points, and E with zero (0), considered as low, lower, and lowest points of all as illustrated in (Table 19).

Paradigm Underpinned with Philosophical Conceptions in University Strategic Plans

The Directorate of Research for Postgraduate Students (DRPS) had created an evaluation tool for dissertation quality in order to strengthen quality control and assurance of research reports both internally and externally. One of the tools found was the EEs assessment forms (EEAFs 2004-2016; Table 5; OUT, 2008). This field article provided the impetus for the paradigm subtopic. The EEAFs tool was explicitly deduced from the OUT quality assurance policy strategic plan which established the instrument's use. Students are required to "...clearly outline the research paradigm of choice and design..." in subtopic 6.3(i) of the policy paper. As a result, students' dissertations must explicitly describe the research paradigm, as external examiners will realistically scrutinize it (Figure 1.1). Kairembo and Mwereke (2012) describe a vision statement as a component of metaphysics, a cohesive general statement that explains why an institution, such as a university, exists (Kairembo & Mwereke, 2012: 12,138).

Universities' Lack of Consensus on Level of Including Research Paradigms Theme

Objective three of this study examined how well institutions agreed on master's dissertations, as well as these paradigms for clarity, priority, holistic content, influence, and relevance. How often do the two universities teach master's students about research knowledge generation paradigms for dissertations and theses? EEAF evaluation rubrics and course outlines were crucial to the UDSM and OUT documentation studies (Figure 1.1, Tables 5, 6). These showed that the two universities agreed to include philosophical themes in education students' dissertation course designs for inexperienced researchers. At Dar es Salaam University, the researcher discovered the FE: 600a: Research Methods in Education course overview. The report found that 12-credit coursework-based master's students completed Core 1 in their first semester. UDSM (2018) recommends learning ontological and epistemological assumptions in module 1:1. 3. Field documents contradicted the Open University of Tanzania (OUT) Faculty of Education course plan. OED 626: Methodology. This course is for education master's or postgraduate diploma students, unlike UDSM. This course outline introduces students to various disciplinary approaches to education, with a particular emphasis on item 1.4: the Research and Theoretical Field course. Field examines educational research epistemology and assumptions (2018). In their course frameworks, both schools implicitly feature research paradigms as worldview notions. Why are paradigms not explicitly taught in universities? OUT's subsequent summative assessment incorporates an explicit research paradigm. You can use the research design in Figure (1.1) to review dissertations and theses, but not the course plans for OED 626 students. OUT, EEAF 2004-2017, and OUT 2018 require lecturers to discuss strictly philosophy, epistemology, and methodology. While addressing ontology, epistemology, and methodology, the UDSM (2018) research course structure and assessment rubrics do not cover paradigms. For starters, the two universities' analyses demonstrated that they teach paradigms superficially. Both universities studied advocate a philosophy of hasty, implicit, and incomplete technique on a theme of research paradigm, as evidenced in their course works and assessed study materials for students. The thinking that paradigms construct attributes constitute: philosophy, ontology, epistemology and methodology (POEM) emerged among experts' explored secondary books as they appear in the references section Guba and Lincoln, 2005; Patton, 1990). Likewise, the conceptual frameworks that paradigm is made of: philosophy. Epistemology, and

methodology (PEM), emerged as another reductionist fallacy rather than the holistic one, calling for the need of holistic model to halt that fallacy found in teaching research as methodology instead of covering whole parts making up whole paradigm attributes namely:: Puzzles, ontology, epistemology, methodology, axiology, logic and rhetoric language of each paradigm hence (POEMALoR) The other thinking that paradigm is made of ontology, epistemology, and methodology (OEM) also emerged as an assumption found in (Creswell's 1994) paradigm. Nevertheless the branches of philosophy also emerged in terms of: ontology, epistemology, axiology, and logic in documents of research explored at universities contexts studied. The findings at two universities exhibited not mentioning axiology or logic explicitly, though students' dissertations and theses at UDSM stress ethical and logical research in methodology section. Similar to OUT, institutions disagrees on paradigm placement in course outlines though it appears in its assessment forms for the external examiners' level. The fourth result showed that the universities investigated lacked a uniform framework to clarify dissertation and thesis paradigms. The fifth conclusion highlights the need for a complete framework that defines university research paradigms like lecturing, learning, conducting, writing, supervising, defending, internal and external dissertation assessment, and informed studies. On the third objective, research participants and documents showed that the universities that were studied include philosophical ideas about paradigms in their course descriptions but do not teach them directly in research courses for theses and dissertations. This was shown by interviews with students marked as CAND#23:6.5.2014 and CAND# 32:7.5.2014. These results back up Jacob's (2009) claim that paradigms and related ideas are not –linked with rationale that, majority of researchers dismiss paradigms as irrelevant.

CONCLUSIONS
This study identified a significant fundamental concern at two university institutions under examination, which is represented by the broad theme 6.3.(i) in (Figure 1.1; Table 3). This theme involves External Examiners (EEs) evaluating research paradigms and design as part of the process of constructing research knowledge, which culminates in dissertations and theses. Second, the key conceptual category of 'clarity' in the OUT assessment rubric received the highest ranking. It was the most frequent concept (8) and a unique concept and study design in that rubric (Figure 1.1, Tables 5, 6, 7). They discovered that clarity, akin to a paradigm in research, is a hallmark of all disciplines. Suddaby (2010) also found the

clarity construct complicated, consisting of denotation, scope, semantic link, and coherence. Third, teaching, learning, conducting, writing, supervising, dissertation defending, and internal and external dissertation quality assessment of produced knowledge were key education research procedures in both universities. Researchers evaluated highly aware audiences, such as students, instructors who supervised or monitored them, and internal and external examiners. Objective two's fourth main finding showed that methodology chapter paradigm clarity likely prompted internal and external examiners to grant different scores, which raised or dropped one's course GPA. The fifth key finding from objective three examined how well the research universities consistently and uniformly communicated with Master degree students about paradigm clarity, priority, comprehensive contents, influence, and relevance. Scholars disagreed on paradigm clarity, priority, holistic substance, and relevance. The sixth conclusion showed that the surveyed universities disagreed on paradigms' holistic components. Internal and external reviews of students' dissertations and theses lacked a holistic framework. Examined institutions rarely provided explanations for philosophical paradigms, including their denotation, scope, semantic links, and cohesiveness. In conclusion, three objectives generated new hypotheses and inductive mid-range substantive grounded theory (GT) to inform dissertations and theses using paradigms in research in several Tanzanian universities.

Substantive Fresh Hypotheses and Grounded Theory (GT) Generated

> Though studied university researchers are not in consensus about informing their students about the paradigms clarity, primacy, holistic contents, influence and relevance, , this study findings unveiled that the more some studied students explained clearly the subtheme of research paradigm underpinned with philosophical conceptions along research design in methodology chapter, the more likely motivated the External Examiners (EEs) to award either Excellent (A) or Very Good (B+) quality final score grades, for their entire dissertations. This in turn raised their GPAs and the opposite was true to the averagely high, marginal low, lower, and lowest dissertations score grades.

The Substantive Grounded Theory (GT) Emerged
The analyses of data further generated the GT propounding that,

> One's clarity of articulating paradigms theme across entire dissertations most likely motivates external examiners to award excellent and very good scores to students, who clarified well that theme in their dissertations/ theses hence; amplifying their GPAs and the opposite was true to the average and low marginal score achievers.

RECOMMENDATIONS

The implication of these study findings call for the need for universities to pay due attention to their responsibility to inform inexperienced researchers about paradigms underpinned with complex philosophical conceptions that include clarity, primacy, holistic contents, influence and relevance towards paradigms informed studies. Secondly, there is a need to have in place a holistic framework for articulating research paradigms of choice such as lecturing, learning, supervising, and internal and external examining in Tanzanian university institutions. Above all, every university faculties/schools should create a research foundation course concentrating on paradigms and their philosophical underpinnings to build informed research expertise. Further there is a need too to investigate how best the writers proposed paradigm models apart from my proposed POEMALOR are functioning in Tanzania and East African universities.

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Educational Assessment Practices for Children with Autism Spectrum Disorder in Inclusive Primary Schools in Tanzania

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Abstract
This paper analyzes the practices used in assessing children with Autism Spectrum Disorder (ASD) in inclusive primary schools in Dar es Salaam. A qualitative approach was employed to obtain in-depth information on educational assessment practices regarding the children. Purposive and snowballing sampling techniques were used to obtain a sample of 81 participants. Data were collected from special needs education teachers, parents/guardians of children with ASD, head teachers and district education officers. Instruments for data collection consisted of open ended and in-depth interviews, observation, focus group discussion and documentary analysis. The data revealed that educational assessment services for children with ASD are provided at late stages leading to delayed interventions. Furthermore, there is stigma attached to ASD due to parents' unawareness on the condition and its characteristics.

Keywords: *Autism Spectrum Disorder, Assessment Practices, Inclusive Primary Schools,Diagnosis, Identification.*

INTRODUCTION
Autism Spectrum Disorder (ASD) is a lifelong disability condition that affects an individual'ssocial, communication, and behavioral interactions. The abilities and needs of children with ASD vary and develop over time. Many children with mild ASD can live independently, while those with severe conditions require life-long care and support. It is reported by the American Psychiatric Association (2013) that ASD causes difficulties in educational development and skills acquisition. According to the current data, the global prevalence of ASD is estimated to be 1 in 100 people (Zeidan et al., 2022). The rise in the number of children with ASD, particularly in public schools is an indicator that additional support, including early educational assessment and intervention services, are

unavoidable (Athbah, 2023). Noteworthy is that the condition is frequently discovered later in life. In Africa, it is normally discovered when children or students are registered in schools. The symptoms should be detected in early years for early interventions. Late detection leads to late access to appropriate interventions (Lupando et al., 2022).

Children with ASD need early educational interventions and equal access to education through inclusion (Ydo, 2020). The equitable distribution of educational opportunitiesto children with disabilities can facilitate the inclusion of the latter. An inclusive approach to education for children with disabilities means educating such children in environments where they are included in general education settings with their peers so that they can learn together (Nilholm, 2021). One of the main goals of inclusion is to enable the children become self- independent (UNICEF, 2017). Studies reveal that early assessment services for children with ASD can improve their behaviour, social skills, and communication, all of which have a long-term positive effect on their well-being and standards of living as well as that of their parents or family members. According to Kocukgoz and Ozaydin (2023), for children with ASD to gain from inclusive education services, educational assessment practices is necessary. This is aimed at enabling individuals with ASD to live independently and meet their needs and goals without much assistance from others.

Tanzania has made several initiatives in inclusive education which have led to inclusive schools in her educational system. The Education and Training Policy (URT, 2014) and The National Policy on Disability (URT, 2004) of Tanzania recognize the need for equal educational opportunities for learners with disabilities in inclusive settings. Koegel et al. (2012) affirm that one of the requirements for inclusive education is that identification of a child's problem should be done before his/her enrolment in an inclusive classroom. This can lead to prompt interventions and supports for the child and his/her family. Despite the efforts, the needs of children with ASD are not yet well fulfilled. According to Manji (2018), children with ASD in the country are not given attention and services to make them realize their education potentials. They are poorly managed and that many of them are discriminated against basic educational services and remain almost unidentified.

Since the Tanzanian education system aims at inclusion, it is important that children with ASD, like others in the country, get appropriate assessment and special intervention services at an early stage. According to Hallahan et al. (2018), learners who receive appropriate assessment tend to have improvement in their intellectually ability, better communication skills and improved social behaviour. The earlier a condition that may lead to disability is assessed and appropriate education or support services provided to the child, the better the outcomes leading the child's dignity and independence in his/her life.

The earlier the educational assessment practices begin, the earlier the difficulties can be reduced and age-appropriate skills be introduced to facilitate a child's learning. Across the world, studies show that the ages at which children with ASD receive diagnostic assessment differ from one country to another. In the US and other highly-developed and resourced countries, ASD is usually diagnosed between 18 months and 3 years, which allow the children to get effective early intervention services (Hall, 2018). In poor and underdeveloped nations, there is limited research on the age of assessment of children with ASD. Data also indicate that in under-resourced countries assessment of the children ranges from 6-8 years, with some children not being diagnosed until when they get into their teenage years (Harrison, Zimak, Sheinkopf, Manji, and Morrow, 2016). According to Boyd et al. (2010), in the past, many professionals have had a "wait and see" attitude regarding the screening, assessment and detection of ASD due to lack of validated instruments. However, currently, in some countries the validated screening and detective tools are available for use by professionals in their day-to-day practices.

Shortage of reliable assessment tools, limited information about identification and assessment of individuals and knowledge on ASD have negative influences on assessment practices. The situation leads to limited access to educational services of the children as well as evidence- based treatments (Hall, 2018). Not only that but also, insufficient number of teachers trained in special needs education on handling children with ASD in their classrooms is also a problem affecting assessment and intervention as indicated by Manji (2018), Ndunguru and Kisanga (2023). Most assessment and intervention strategies are urban based despite the fact that many children with disabilities are from poor families in the rural

areas where many parents hide the children and deny them their rights of access to appropriate educational services. Teachers' low knowledge and perceived challenges of teaching children with autism in regular primary schools in Tanzania as well as low awareness about children with autism in schools hinder children with ASD from accessing early assessment services (Edward, 2015).

In Tanzania and other developing countries, not much has been done on practices used in identification and assessment of children with ASD, including the role of family members in supporting their children with ASD. Developed countries have advanced in identifying and assessing children with ASD. Duesenberg and Burns (2022) recommend that countries should give a lot of consideration to the identification, screening, as well as interventions services for children with autism.

This paper analyzes the educational assessment practices employed for children with ASD. It looks into the time when parents realize that their children have ASD, the age is the child with ASD assessed, the tools and techniques used in assessing the children as well as where the children with ASD are being assessed. It also looks into the challenges faced during the assessment practices of children with ASD

METHODOLOGY
A qualitative research approach was used to gather in-depth data on educational assessment practices used for children with autism through participants' insights, feelings, ideas, and experiences through narratives. The approach was purposely used to gather non-numerical data. Further, the approach enabled the researchers to get the holistic picture of the assessment process and detailed views of informants in natural settings (Creswell and Creswell, 2018). Intepretivism is the philosophical approach which was used in obtaining in- depth qualitative data for deeper understanding of the research problem (Thorne, 2016). The research objectives and questions were specifically set, focused, and aligned with the purpose of the study. They clearly articulated the research questions

The study was conducted in Dar es Salaam Region which has relatively many inclusive primary schools enrolling pupils with ASD compared to other parts of the country. According to URT (2022), the region had

enrolled 272 (9.4%) pupils with ASD, followed by Morogoro with 254 (8%) and Pwani with 217 (8%) pupils. Consequently, seven schools were purposely selected from four districts of Dar es Salaam region. Purposive and snowball sampling techniques were used to obtain 81 (100%) respondents whereby 7 (8.6%) were head teachers, 21 (25.9%) special needs education teachers, 49 (60.4%) parents/guardians of children with ASD, and 4 (4.9%) district education officers. Through snowballing technique, which is a non-probability sampling method, research participants were recruited by their fellow participants who mentioned their names for recruitment (Creswell and Creswell, 2018).

The study used in-depth interviews, observations, focus group discussions and documentary reviews to obtain adequate and accurate data from the field. Creswell and Creswell (2018) emphasized on the use of one-on-one interviews to enable informants to come up with relevant responses to questions raised. In this context the interviews were used to obtain data on how children with ASD were assessed for interventions in inclusive schools. The technique was applied to gather accurate information about when and how children with ASD were diagnosed. It was also used to obtain data on challenges faced in assessing children with the ASD condition. The interviews were administered to Head Teachers, Special Needs Education teachers, and Ministry of Education Officials. The instruments enabled informants to respond to questions on how children with autism are assessed for intervention in schools, the teaching-learning strategies used by the teachers and availability of teaching and learning resources. The technique was expected to facilitate the process of getting in-depth information considered to be very sensitive on how people think and react to issues as indicated by Sarfo, Debrah, Afful and Obeng (2021). Confidentiality was maintained by researchers by not availing the information provided to them by the participants for tasks other than those of the current research.

Focus group discussions were used in obtaining data for overview thoughts and feelings, specifically on how children with ASD were assessed and placed in schools, the challenges faced in the process and what should be done to address the challenges. During focus group discussions, participants are encouraged to discuss and contribute to the topic under discussion (December, 2014). According to Yin (2011), focus group discussion are designed to obtain in-depth understanding on

a defined area of interest in a conducive and non-threatening environment. The discussions were held in groups of teachers and parents with not more than 6 participants in each group. They were held in schools during the evening. The time spent in the discussions was approximately 90 minutes. To provide reliable and comparable qualitative data, the researcher used a voice recorder and interview schedules to guide the discussions. She allowed participants to hold discussions in free flowing, non- frightening environments and that there is freedom of discussion and degree of trust among students and researcher which is in line with Reeves et al. (2008).

On the other hand, document review method was used to find out the real situation of the assessment practices applied for pupils with ASD. Policies and strategic documents were collected from head teachers and education officers. They were reviewed in order to tap information on assessment procedures used for children with ASD for intervention purposes in schools.

The collected data were analyzed using narrative analysis of participants' information based on their experiences in relation to assessment practices. The analysis focused on thematic areas derived from research questions. Facts from participants were presented in quotations to represent their voices. Reviewed documents were in written texts which included books, articles and reports. They were in print and digital formats, some of which were also accessible through web pages, blogs etc., as well as visual source. The review was conducted to obtain valid and reliable data reflecting on assessment practices. Documents such as school reports, utilized books, school records, pupil's assessment, log books, images, and reports to the community etc. were also reviewed. This type of review is in line with what Scott (2006) who contended that document review has to adhere to data reliability and validity. The review was used to obtain background information on screening and determining the extent to which assessment practices assist in the implementation of educational programs as well as the needs of autistic learners.

FINDINGS AND DISCUSSION
The findings from the obtained data which were subjected to qualitative content analysis are discussed according to major themes and critically interpreted in coherence with research objectives and questions. Data are presented in quotations to present the voices of the respondents.

The Time when Parents realize that their Children have ASD

When parents were requested to discuss about when they realized that their children had ASD conditions, some parents, including those of children with severe and profound conditions, said that they noticed at early growth stages that their children had difficulties in communications. The diagnosis came up after the parents had compared their children's behaviors with those of the children of similar age cohorts during medical clinics. However, they could not tell that the behaviors were signs of ASD. Data in Table 1 show the time when parents realized that their children had communication problems,

Table 1: The time when the sampled parents discovered that their children had communication problems

Time	Frequency of Responses	Total (%)
Before school enrollment	15	62.5%
After school enrollment	9	37.5%
Total	**24**	**100%**

Data in Table 1 indicate that fifteen parents (62.5%) could tell that their children had communication problems before school enrollment. Parents of children with mild communication problems discovered their children's conditions later than those of children with severe conditions who took a short time to discover that their children had challenges related to ASD. Three parentsof children with mild condition reiterated as follows:

The first parent said:

> *It indeed took a long time for me to know that my child was autistic. After all, I was quite unaware about ASD despite the fact that I had noticed that my child had difficulties in interacting with others. He could not listen or pay attention to me or any other family members. He spent much of his time washing his hands and jumping repetitively.*

The second one said the following:

> *I also noticed that may child delays in is development. He could neither talk nor play with other children. He was not happy and was crying throughout his infant stage. We had to send him to a clinic where a specialist advised us to send him to a centre where he could be assessed. We did so.*

The third one expressed the following:

> *I came to realize that my child had ASD after she was diagnosed with*

autistic related behaviors. I struggled with his condition for a period before the decision to send him to school was concluded. I tell you; it was not easy.

The information from the three parents shows that the time when a parent realizes that his/her child is autistic depends on the parent's knowledge and awareness of the condition and its severity. It is further revealed that it takes time for parents of children with mild ASD to know that their children are autistic even after school enrolment. It was also indicated by some respondents that in ordinary schools there are many children, making it difficult for teachers to notice the conditions of autistic children easily. It is only during classroom teaching and learning when some teachers discover that there are some students with difficulties in learning and inform their parents about the situation. Despite the fact that parents are advised to send their children to hospitals for check-up, many parents do not accept their children's conditions easily and they react differently. The following reaction was recorded from one parent, after she had received medical check-up feedback of her child's condition:

> *In fact, I cannot believe that my child has this problem. What I know is that, he does not want to interact with his fellows. He wants to be in the world of his own. I was surprised when his teacher kept on telling me to send him to another school where they offer tuition classes because it takes time for him to understand what is taught in class. I did so. However, while he was in class 2, a new teacher in the school diagnosed my child's challenges in the classroom. He informed me that there could be a challenge with the child and that I should send him to Primary School A. I was slightly worried but eventually decided to take my child to the school. He was interviewed by two teachers who informed me that he was autistic. They advised me to send him to Primary School B, which was the right placement for him. This is the reason why we are here today. In reality, it has taken a long time for me and the whole family to accept that our child is autistic. It hurts!*

The quotation indicates that many parents are unaware of their children's conditions in relation to autism and despite its symptoms. In most cases, the situation is due to lack of awareness on ASD. A similar situation has been noted by Manji (2018) who reported that ASD is diagnosed late, when children have already been enrolled in schools.

The study findings also reveal that it was easy for parents to understand and accept children with profound and severe autistic conditions and take early interventions because the problems could be easily noticed through

communication difficulties compared to those with mild conditions who took a long time to accept their children's condition's. The parents perceived their children as slow learners. Data have further indicated that the parents noticed some difficulties in communication and limited social interactions in their children at very early stages before school enrolment which drove them to send their children to hospitals for pre-diagnosis. One mother of a three-year-old child with autism lamented as follows:

> *You know what? This is my third child. I knew that there was something wrong with her very early. Her development and behaviors were different from that of her siblings. She took time to develop speech. Further, during play for instance, she could not differentiate dolls according to colors. She also started walking very late than those of her age. The worst of it all is that, she had tantrums and at times she was banging doors and hitting her hands against the wall. She gets irritated and annoyed very easily. Neither can she control herself. She has a very low attention span. So many things! She is also moody. I mean, what can I say? Can you imagine that she also has seizures? We did not know anything about autism. This is something else! We had to take her to the hospital for consultation and medical intervention.*

Information obtained from the parent shows that the parents got information that their child was autistic after getting in contact with medical specialists. Thereafter, they were   advised to follow the guided steps on rearing their children for them to accept their children's condition. Apart from the advice, they still perceived that their child's impairment was caused by witchcraft, which led them to take their child to spiritual healers in faith-based institutions, including churches, instead of sending her to specialists for educational assessment. The parents accepted very late that their child was autistic. From the aforementioned, it can be concluded that most parents, particularly those with mild conditions, cannot discover early enough that their children are autistic. One of the education officers in charge of special needs education supported the information by saying the following:

> *Indeed, there are parents who are of the opinion that any disability is due to witchcraft. They therefore believe that their children with ASD have been bewitched. Others think that getting such children is a curse from ancestors. Consequently, some parents hide their children with ASD. They seclude and keep them indoors, a practice which makes it difficult for them to be seen or visited by medical and education professionals for assessment. It is noted that children with ASD are not only isolated but also stigmatized and kept in poor environment.*

It is obvious that some parents hide their children at home while others go to the extent of locking them inside due to stigma attached to their conditions. Further, the stigma of children with ASD is attached to low knowledge on the condition and poor guidance and assistance from care takers, teachers and members of the community. Such beliefs and attitudes hinder assessment of the condition and delay the enrollment of children in schools.

The Age at which Children with ASD were Assessed
A good assessment practice is that after a child has been detected and diagnosed with ASD or any other kind of health condition, assessment should be conducted timely to prevent further development of the impairment. Uwumutabazi (2018) emphasized that early assessment is a necessary measure for quicker intervention services. The author indicated that in most cases children are diagnosed at the age of six followed by those at age seven, eight and nine years.

Data from the sampled schools indicate that children with autism were assessed in late stages. The detected and assessed children were between six and seven years and were diagnosed with mild and moderate conditions which is contrary to Uwumutabazi (2018). Those assessed between the ages of seven and eight had moderate and profound conditions. It can be inferred from the available data that the majority of children who were assessed early had mild conditions and that parents of children with mild condition had no idea that their children were autistic until when they were detected during their school age. Parents realized that their children had some learning difficulties after school enrollment. However, the reasons for late assessments for children with ASD were not clearly elaborated by most of the participants due to lack of knowledge in autism. One parent commented as follows:

> *It was hard for me to tell that my child had ASD. We have varied experiences. For me, my child had a mild condition. It did not come to my mind that he had such a problem. I thought that my child was just a slow learner. It took time to observe him. I was buying time to find out if there would be improvements in the condition. I did not consider it seriously. I only realized that it was ASD after he was assessed by experts.*

On the other hand, one teacher commented during the discussion that most teachers in their school did not have specific answers during the discussion on the age the children with ASD are assessed. He extended

the following testimony:

> *Some parents of children with ASD conditions are depressed and heartbroken because when they come to our school, they do not get clear answers about the condition of their children. We advise them to send their children to hospitals for assessment. But they have kind of denial and think that it is useless and waste of time to send their children for assessment. Others have lost hope and do not believe in assessment centres. Some of those who made pre-visits to the centres became disheartened after seeing the challenges in the areas.*

Further, some parents reported that they delayed sending the children to hospital from their assumptions that their children would develop daily social and life skills naturally before reaching the school age. Generally, the researchers learned from the insights that the delay was due to lack of parent education and awareness of children's educational assessments. Thecultural aspects were also taken into consideration amongst the causes of delaying assessments of children with ASD. The findings are supported by the sociocultural theory of cognitive development as posited by Lev Vygotsky, a Russian psychologist, and elaborated by Kozulin et al. (2003), which states that culture has a major impact on social interactions aswell as knowledge acquisition.

Professionally, education assessment should target on school age children as a strategy to enable early access to support services. The literature reveals that in developed countries, educational assessment for children with ASD is practiced at early stages compared todeveloping countries. Hall-Lande et al. (2018) reported that in some situations ASD can be detected at 18 months and becomes increasingly stable at 3 years. The findings further reveal that majority of children with ASD in developing nations are assessed at late ages, from six years and above, despite the fact that health care providers can often see developmental problems before the school age (Manji and Hogan, 2013). Late assessment of children with ASD leads to late intervention. Goldstein and Ozonoff (2018) have affirmed that an assessment delay can lead to dependent life of autistic children.

Tools and Techniques used for Screening and Assessment for ASD
Assessment tools used for assessing various skills for children with ASD range from rating scales, observation and interview schedules as well as questionnaires (Barabaro and Dissanayake, 2009). The tools for screening

and assessment of ASD include but not limited to; The Child Autism Rating Scale (CARS), The Autism Diagnostic Observation Schedule (ADOS), Autism Detection in Early Childhood (ADEC). Research, as indicated by Manji (2018) and Heward (2013), shows that The Autism Diagnostic Interview-revised (ADI-R) as well as The Social Communication Questionnaire (SCQ) are mainly used in assessing and screening children with ASD in the United States of America and other developed nations.

Data from focus group discussions with teachers indicated that assessment tools and techniques used by professional teachers in identifying and assessing children with ASD in Tanzania were mostly interviews and observations. It was also observed that there was only one special form used as the main tool for assessing children with ASD in the sampled schools. The form contained interview and observation schedules. Despite the fact that the form was supposed to be used in schools, the sampled teachers and responsible officials admitted that it had not been used accordingly. During discussions with the sampled teachers, majority of them declared that they employed their own experiences in assessing children with ASD because the form seemed to be irrelevant to some children. It was also observed that there was shortage of other assessment tools. The researcher found a few car toys, dolls and puzzles, though some of them do not relate to the age of children. Noteworthy is that assessing children with ASD for preschool requires sufficient play materials focusing on psychomotor, affective and cognitive domains etc. During group discussion, one teacher elaborated on what other teachers were saying on acute shortage of assessment tools in the centre as follows:

> *As you can see here, we are in a terrible situation. We do not have sufficient assessment tools. Can you imagine assessing children using a form, a few toys and puzzles only? Can such tools give us in-depth information and a true picture of the assessed child? The children need a variety of play materials which are age appropriate and compatible to the severity of the condition. Where and when shall we get them? We are in trouble! It is high time now that we care for such children, assessment needs serious investment.*

Diagnosing children with ASD in school can be difficult due to lack of professional tests such as special charts for detecting the disorders. Normally, children with moderate, severe, or profound disability are

assessed on their ability to recognize objects using toys, blocks, puzzles, pictures and real objects. The findings from discussions with head teachers showed that when a child was identified with autistic characteristics or any sort of reading and communication difficulties, she/he was subjected to thorough assessment to establish his/her ability to read, write and count. This approach was suitable for those with mild condition. Mensah and Badu-Shayar (2016) indicate that any assessment system should include a variety of instruments for various categories or purposes, clarifying the main purpose of the assessment in determining what should be measured.

Centres for Assessing Children with ASD
Responses from research participants indicated that there were no government educational assessment centres for children with ASD in the sampled schools. Almost all educational officers who participated in the study contended that there was only one center in the country, which is also the main government hospital as stated in the following quotation:

> *Apparently, there is only one center designated for children with autism. Children with signs of abnormal behaviors are normally sent to Muhimbili National Hospital (MNH) for diagnosis. Thereafter, parents are directed to send their children to Uhuru Mchanganyiko Primary School where the children are assessed for school placements. All parents of children with symptoms of abnormal behavior are directed to the school for educational assessments. Unfortunately, there are no sufficient doctors who have specialized in assessing children with the disability.*

A close follow up on the finding showed that there is an approach that has been initiated by the Local Government to save the situation. A discussion with one Education Officer elaborated as follows:

> *Despite the fact that you have been informed that there is only one assessment center, I would like to tell you that the center is there for use. Please be informed that we have made a big step forward. We currently have a child find program where some doctors move from house to house to detect children with problems before they get enrolled for primary education. The program is supposed to be implemented in every Distract Council whereby special needs teachers and Special Needs Education Officers have to make home visits. However, the activity has been difficult to implement because of lack on teachers' commitments in the task.*

The researchers also observed that there was shortage of specialized staff in the centre. It was discovered that there were only two teachers trained in general special needs education and that there was no teacher in the centre who had specialized in ASD. This is in line with findings by Reed et al. (2012) which have revealed similar factors affecting placement of pupils with ASD in inclusive schools. The factors included lack of training, unrealistic teacher expectations, lack of confidence among parents and stress on their children's performance. Likewise, Edward (2015) found that regular class teachers had low knowledge regarding inclusive education than special needs education teachers.

Obstacles to Effective Assessment
The difficulties encountered in the provision of assessment practices emerged out of the following four themes.

Stigma Attached to Children with ASD
Stigma on ASD was mentioned as one of the challenges affecting the identification and assessment of children with the condition. Some parents did not want to send their children for assessment because they did not want to be associated with them. On the other hand, they did not want to be asked questions about their children's autistic conditions during interviews on their children's conditions because they perceived it as stigmatization. One parent said:

> *We, parents of children with ASD feel embarrassed when teachers ask us many questions during assessment. We do not want to be asked questions on when we realized that our children had problems. We know they have problems, period. That is why we bring them for assessment. Why ask us such questions? It retrieves some sad memories. The same with doctors! A doctor asks you the following questions, "Do you have any member of the family with such a condition? Why ask me such a question?*

Another parent said:

> *I feel stigmatized as if I am the root cause of my child's condition. No! I do not like to be questioned about my child. I just found myself there. It hurts. What I need is services for my child. I do not like stories and question.*

It is also reflected in Bakare (2014) that causes of ASD are being related to supernatural beliefs. Further, Babik and Gardner (2021) agreed that the beliefs have led to late diagnosis in most situations.

Withholding Information

During interviews as well as focus group discussions, some parents withheld important background information regarding their children. When they were told that their children had signs of ASD and were consequently required to give more information for assessment, they did not do so. On the other hand, those who accepted the condition of their children took time to listen, but refused to give detailed information. Similarly, some parents said that they felt ashamed of the situation of their children. In one of the focus group discussions, female parents claimed that they went through divorce and separations due to their children's condition and did not want to think of what happened in the past, it was nostalgic to them. The finding affirms that parents do not understand the importance of the questions that they are being asked during assessment. This concurs with the findings from Morris et al. (2021), which showed that the parents had fear of being stigmatized because of having children with ASD. They are stuck to the society's negative perceptions on condition, its causes and stigma attached to it. The stigma may significantly affect the families and individuals with ASD. It may also lead to isolation in some families. This situation may happen when some parents keep their children indoors due to stigma attached to the condition and denying them their right to education opportunities.

Irrelevant Assessment Tools

Children with ASD in Tanzania are amongst the most disadvantaged in terms of access to relevant instruments. It is noted that very little attention has been paid for assessment tools. It is reported by special needs education teachers that there was lack of relevant assessment tools. Most of the traditional materials used for assessment through pictorial formats were irrelevant to the children and society at large hence excluding the children from classroom interactions. The findings are consistent with McCarty and Frye (2020) who stated that irrelevant assessment tools do not provide conclusive evidence of developmental delays and cannot provide in-depth information about an area of development. This can be argued that the absence of proper equipment will not lead to good evidence on the level of the child's impairment. Therefore, there is need for the government, through relevant ministries, to prepare and use relevant assessment tools for the children in order to reduce unnecessary challenges.

iv. Shortage of Staff Members Specialized in Assessment Practices for ASD Condition. Findings showed that there were only two members of staff with knowledge on assessment practices on ASD; one with a Bachelor Degree in special needs education and another with a Diploma in Education.

Summary, Conclusion and Recommendations

This paper has analyzed the educational assessment practices for children with Autism Spectrum Disorder in Inclusive Primary Schools in Tanzania**.** It has been found out that many parents are unfamiliar with their children's autistic conditions due to lack of basic knowledge and techniques on early detection. The situation leads to denying the children their rights to assessment and intervention services. Parents are also unaware of the age of assessing children with ASD. Further, most teachers and parents are unknowledgeable on assessment instruments to be used in assessing children with ASD. Additionally, there are no specific centres for assessing children with ASD leading to some parents sending their children to hospitals for consultation and behaviour modification. At the same time, some parents refuse to send their children for appropriate services due to stigma attached to autism and superstitious beliefs. From the findings it can be concluded assessment practices for children with autism in the country need to be improved so that the condition can be detected early for timely intervention,

It is recommended that concerted efforts be exerted on the provision of assessment and intervention services for children with autism. Further, non-special needs teachers should be trained on basic knowledge of ASD, for them to be able to identify the children with the condition early enough for intervention. A replication of the current study should be conducted in other regions to find about learners with ASD enrolled in schools. This will strengthen the reliability of the findings.

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Exploring the Kagera's Socio-economic Transformation and its Impact on Social Cohesion, A case of Kagera, Tanzania

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Abstract
This study explores the socio-economic factors contributing to family disintegration, focusing on the decline in agricultural productivity, the emergence of HIV and AIDS, and the drop in coffee prices as key influences. Through qualitative analysis and interviews with stakeholders in the Kagera region of Tanzania, it examines how these socio-economic challenges have affected family dynamics and cohesion. The findings reveal the significant impact of soil infertility on agricultural productivity, worsening food insecurity and creating economic hardships for farming-dependent families. Additionally, the fall in coffee prices has reduced household incomes, pushing families to prioritize individual survival over collective well-being, which has led to the emergence of street children and beggars in the region. By analysing the interplay between economic forces and family dynamics, this study offers valuable insights for policymakers and stakeholders aiming to address the underlying causes of family disintegration and foster resilience in communities.
Keywords: Family Cohesion, Family Disintegration, Beggars, Street Children

INTRODUCTION

In recent decades, the intricate familial network in Tanzania's Kagera region has undergone significant changes. Historically, this area was known for its strong social structure, which relied on family ties to foster support and harmony. Within this system, the community collectively shouldered the responsibility of caring for all members, especially the vulnerable. In the early 20th century, Bronisław Malinowski highlighted the importance of social cohesion in cultural organizations, viewing it as both a cause and a result of their effective functioning (Ruhinda et al., 2022; Tylor et al., 2018).

Over the past few decades, there have been notable transformations in the complex network of familial relationships within Tanzania's Kagera region. Historically renowned for its robust social structure, this area relied heavily on familial bonds to maintain support and harmony. Within this framework, communal responsibility extended to the care of all members, particularly those most vulnerable. In the early 20th century, Bronisław Malinowski underscored the critical role of social cohesion in cultural institutions, positing it as both a catalyst and an outcome of their operational efficacy (Ruhinda et al., 2022; Tylor et al., 2018).

However, the dawn of the late 1980s and early 1990s marked a significant turning point. The once stable socio-economic landscape began to shift, influenced by a confluence of factors that would ultimately unravel the fabric of familial unity. While Kagera had long prided itself on being free from the sight of street children and beggars, the onset of economic decline and the devastating impact of the HIV/AIDS epidemic ushered in an era of unprecedented challenges. In acknowledgement of the impact of HIV and AIDS on the region, (Kwesigabo, 2001), Ksoll,2007), asserted that Kagera Region in Tanzania, was one of the first region globally to experience a high HIV prevalence and the rise of orphans as a result of AIDS.

Moreover, the scourge of HIV/AIDS exacted a heavy toll on the very foundations of familial stability. The loss of breadwinners, coupled with the stigma and discrimination surrounding the disease, further eroded the sense of solidarity within communities. Children, often left orphaned and vulnerable, found themselves adrift in a world where the concept of family became increasingly fragmented.

The collapse of local economies, worsened by broader microeconomic shifts, placed significant strain on households already dealing with the burden of disease. This phenomenon mirrors findings in Bulgaria, as observed by Milenkova et al, (2016). They noted that the economic crisis during the transition years (1990 to the present) severely affected contemporary Bulgarian families, eroding their value system and exacerbating internal strife. Traditional family values like goodwill, support, empathy, and respect were diminished, supplanted by egocentrism, distrust, and concerns for survival.

As livelihoods faltered and resources diminished, the traditional safety nets provided by extended families began to weaken. In a study by Lwihula, G., et al, (1993), it was revealed that the number of orphaned children was rapidly increasing in Kagera, alongside challenges related to dependent elderly individuals in need of care and support. Additionally, economic activities such as tending to agricultural crops were declining due to frequent deaths and burial ceremonies, potentially leading to dependence on external sources for food and material support within the region.

Previously, orphans found solace and support within kinship networks. However, they now faced the harsh reality of abandonment and neglect. The Regional Social Welfare Officer for the Kagera region, cited by the Daily News on May 10th, 2013, highlighted the alarming increase in street children and those living in vulnerable conditions in the Kagera Region. The numbers had surged from 97,700 in 2011 to over 140,000 in the preceding year. RSWO, attributed this rise to broken marriages, poverty, and a lack of family planning, which compelled children to live on the streets from a young age before turning into beggars.

In this context, the once prevalent notion of the extended family gave way to the emergence of the nuclear family as the predominant unit of social organization. The bonds that had once bound communities together began to loosen, replaced by a pervasive sense of isolation and disintegration.
Against this backdrop of socio-economic upheaval, the Kagera region serves as a poignant case study, offering valuable insights into the complex interplay between economic forces and familial dynamics. By delving into the root causes of family disintegration, this study seeks to shed light on the challenges facing communities in the wake of transformative change. Through a nuanced examination of the socio-economic factors at play, we endeavour to uncover pathways toward the restoration of familial cohesion and resilience in the face of adversity.

Family cohesion, defined as emotional ties within families, has traditionally been reinforced by extended family networks in African contexts like Tanzania. However, socio-economic changes, such as shifts in agriculture and employment, have weakened these structures. McMichael (2017) and Nkosi & Daniels (2020) note that declining agricultural output has destabilized household incomes, particularly in cash crops like coffee (Williams, 2018; Gillingham et al., 2021).

HIV/AIDS has drastically impacted family dynamics in sub-Saharan Africa, with Tanzania, especially Kagera, facing severe consequences. Kweka and Urassa (2015) highlight how the epidemic has increased the number of orphans, straining extended family units. Kakulu et al. (2020) emphasize the financial and emotional toll of losing family members. Women, who often assume caregiving roles, have faced increased burdens, intensifying gender disparities (Kwesigabo, 2001; Lwihula et al., 1993).

Kagera's economy, heavily dependent on agriculture, has been affected by falling coffee prices and soil degradation, as described by Bryceson (2010) and Ponte (2002). Food insecurity due to declining crop yields (Jayne et al., 2014) has weakened the ability of families to care for additional members, including orphans. Structural adjustment programs (SAPs) have further exacerbated rural poverty, reducing government support for farmers (Abdallah & Monela, 2007), and contributing to the rise of street children and beggars.

Kagera has seen a shift from communal to nuclear family structures due to modernization and socio-economic changes. Mbugua (2013) argues that individualism has eroded traditional family support systems. The influence of Western religion has also reduced practices like levirate marriage, once essential for family stability (Mbiti, 1990). Economic hardship has further emphasized personal financial success over community welfare, weakening familial ties (Kilonzo, 2012). Religious leaders in Kagera have expressed concern over moral decline and its role in family disintegration (Magesa, 1997).

METHODOLOGY
The Study Area
Kagera, with Bukoba as its focal point, is an ideal area for studying socio-economic transformations and their impact on family disintegration. Historically, the region emphasized traditional family and clan bonds, fostering unity and social cohesion. As Tylor et al. (2018) describe, social cohesion involves the coordination and stability of relationships that benefit the group collectively. In Kagera, these bonds ensured that even orphans were cared for within the extended family network, as noted by Olsson et al. (2016). However, the decline of these traditional bonds has led to the rise of street children and beggars—phenomena previously unheard of in the region—due to weakened family and clan solidarity.

By studying Kagera, particularly Bukoba, researchers can explore the causes and effects of family disintegration in the context of evolving socio-economic conditions. Understanding the erosion of traditional bonds offers insights into the mechanisms driving these changes and their broader impacts. Additionally, this research can help policymakers develop interventions to address the root causes of disintegration and promote family resilience, contributing to social inclusion and sustainable development in the region.

The Study design

This study adopts a case study design, as described by Bryman (2006), to conduct an in-depth investigation of socio-economic transformations and their effects on family and social cohesion. Through detailed qualitative interviews and document analysis, the study aims to uncover the nuanced interactions between economic changes and family dynamics. A total of 20 respondents were selected, representing diverse backgrounds. Ten were beggars in Bukoba town, chosen to provide first-hand experiences of a phenomenon that remains relatively rare in Kagera. These individuals were found near major shops and markets.

The study also included social welfare officers from areas where begging is prevalent, who offered insights into existing initiatives addressing begging. Village elders from two villages where some beggars originate contributed perspectives on family cohesion and disintegration, highlighting factors that may lead to begging. Additionally, four religious leaders were selected for their experience in working with families in the region, providing valuable input on the societal and cultural influences affecting the rise in begging.

Data collection involved semi-structured interviews, conducted respectfully to encourage openness. The data was analyzed using a cross-sectional indexing approach, which organized the information into common themes across different respondent groups. This allowed for a comprehensive understanding of the factors driving begging and the broader social context. By incorporating diverse perspectives from beggars, social welfare officers, village elders, and religious leaders, the study aimed to identify potential interventions to address begging in the Kagera region.

FINDINGS

The study encompassed a total of twenty respondents from various backgrounds. This included ten individuals who engage in daily begging, many of whom are situated at the entrances of prominent shops and markets in Bukoba town. The objective was to understand their experiences and the factors leading them to beg, considering that begging is a recent occurrence in Kagera. Additionally, another group of respondents consisted of social welfare officers from the wards where beggars are prevalent. The aim was to gain insight into their programs and strategies for addressing this unfamiliar phenomenon within the Kagera region. The last group of the respondents were the religions leaders often play a significant role in addressing the needs of street children and beggars in their communities. Their work may involve providing shelter, food, and clothing for those in need, as well as offering emotional support and guidance. Additionally, religious leaders may advocate for policies and programs that address the root causes of homelessness and poverty, and they may collaborate with other community organizations to provide comprehensive assistance to vulnerable populations. Through their teachings and outreach efforts, religious leaders can promote compassion, empathy, and social justice, encouraging their communities to respond with kindness and generosity towards those who are marginalized or in need.

The first group of respondents were those who are working as beggars in Bukoba Municipality. One of the key respondents, aged 63 shared insightful information regarding his circumstances and reasons for engaging in begging. He narrated how he started begging.

> *"I started begging after falling sick with polio in class five, which left me with mobility impairment. Since 1996, begging has been my main source of income. I have no vocational skills or higher education to pursue other opportunities.''* (KII/Age 63/Male/Bukoba town/23 March, 2024)

Despite being impaired, the respondent above, has social responsivities which he fulfils as he asserts:

> *"I have a family to support, including my wife and seven children who rely on the money I earn from begging to attend school. Despite my disability, I try to provide for them by working (begging) from Monday to Friday, earning between Tshs 6,000 and Tsh 10,000 per day."* (KII/Age 63/Male/Bukoba town/23 March, 2024)

He also must provide for basic necessities such as housing, food, and clothing for himself and his family. Since he lives far from his home village, he must pay rent for the room he occupies during the weekdays, while on weekends, he reunites with his family in the village.

> *"I rent a room in town and occasionally visit my family in the village, located 30 kilometres away. I spend Tshs 6,000 on transportation every Saturday to be with them."* (KII/Age 63/Male/Bukoba town/23 March, 2024)

The respondent emphasizes that the income he earns is utilized collectively for the family's needs. Additionally, his wife actively contributes to the family's welfare by working on the farm and overseeing household affairs while he is away in town.

> *"In addition to the earnings I receive from begging, my wife supplements our income by managing a banana farm. However, we do not receive any assistance from relatives".* (KII/Age 63/Male/Bukoba town/23 March, 2024)

He also believes he could start a business with the right capital. He is particularly interested in opening a shoe polishing kiosk if he receives assistance from either the government or another benefactor.

> *"I am limited in the type of work I can do due to my disability, but I am open to opportunities such as shoe polishing or other small businesses if supported by the government or philanthropists."* (KII/Age 63/Male/Bukoba town/23 March, 2024)

In response to why beggars are emerging contrary to the traditions of caring for people with disabilities and orphans within families or clans in Kagera, the respondent highlighted several contributing factors. Firstly, he identified food scarcity as a primary concern, attributing it to the depletion of soil fertility in the region. This scarcity forces families to prioritize caring for immediate members only, making it challenging to support non-working adults. He also mentions the impact of declining coffee prices, the region's main cash crop, on the standard of living and economic hardship. The diminishing income is carefully allocated to family members, eroding the sense of communal responsibility observed in the past.

"In Kagera, the breakdown of our social fabric is palpable, driven by the scarcity of food resulting from depleted soil fertility and the exorbitant cost of living due to plummeting coffee prices, leaving us grappling with the harsh realities of survival." (KII/Age 59/Male/Bukoba town/25 March, 2024)

Furthermore, the respondent blames the devastating effects of HIV and AIDS, which have left many children orphaned and unattended. The loss of manpower due to these diseases has further weakened individual economies and strained familial bonds.

"In the 1980s and early 1990s, HIV and AIDS claimed the lives of many able-bodied men and women in our families, leaving behind children to fend for themselves. This tragic loss paved the way for a generation of vulnerable youth, susceptible to the harsh realities of life on the streets and resorting to begging for survival." (KII/Age 59/Male/Bukoba town/25 March, 2024)

This narrative highlights the complex socio-economic factors influencing individuals' decisions to engage in begging and the challenges they face in supporting themselves and their families.Responses from other significant respondents included a woman who engages in begging in Bukoba municipality. She is 51 years old and a mother of two. Born with a disability that renders her unable to walk, she was raised by her parents. Unfortunately, her mother passed away after she completed seventh grade, and her father remarried. Subsequently, her father, a civil servant, was imprisoned, leaving the family under the care of her stepmother and his brother. However, her brother abandoned the family after getting married and starting his own. At that point, she was expelled by her stepmother and ended up on the streets. She began her career as a cobbler, but due to the lack of customers, she eventually transitioned to full-time begging at the entrances of major shops and restaurants.

On responding on the question about how she makes the living she asserted that:

"I earn approximately ten thousand Tanzanian Shillings per day, which I use for my daily needs such as food and transportation. I hire a motorcycle to commute between the place where I beg and my home. Additionally, I pay rent for the room I occupy. I also receive some financial support, though a peanut from my two married daughters." (KII/Age 51/Female/Bukoba town/27 March, 2024)

She also responded on the question why she was expelled from home by her step mother despite the fact that formerly there was no any problem of his staying at home. She said it was on economic reasons:

> *"My stepmother explained that she couldn't afford to support me at home because she struggled to provide food and other basic necessities, especially with her own young children to care for as a single mother relying on a small farm. Additionally, my relatives, including my uncles, showed little concern for our family after my father was imprisoned. They prioritized their own families' needs over ours, in contrast to the strong familial bonds that were present in the past." (KII/Age 51/Female/Bukoba town/27 March, 2024)*

Respondents also detailed the care of family members with disabilities within their households. Children born with disabilities were typically kept at home from infancy through adulthood, often remaining there until their passing. In some instances, these individuals were restricted to particular rooms where their essential needs were catered for. One respondent from Bugene village in Karagwe described a practice of containing a family member with mental health issues, allowing them the freedom to move within the home premises known locally as shamba. However, they were unable to step beyond the boundaries of their home throughout their lifetime. According to the respondent, this was enforced through the use of specific medications that regulated their movements.

> *"I know a family who lived next to my plot and had a member with a mental condition. They controlled his movements using medication, allowing him to only move within their property. It was surprising that at times he would chase away kids trying to steal fruits from their garden, yet he never crossed the boundaries of their family's land".* (KII/Age 67/Female/Bugene Village, Karagwe/02 March, 2024

A number of respondents highlighted economic factors as significant contributors for the disintegration of family bond in Kagera region. Many cited dwindling personal earnings and the shift towards nuclear family structures as key reasons for the breakdown of traditional familial support systems. Additionally, the scarcity of food resulting from soil infertility, particularly affecting banana crops, emerged as a pressing concern among locals, exacerbating economic hardships.

Another respondent, aged 25, has suffered from eye impairment since the age of seven and currently works as a permanent beggar in the municipality of Bukoba. He revealed that although his parents are alive in one of the villages, they were unable to accommodate him at home when he reached maturity. Feeling harassed and burdened by his family, he resorted to leaving and begging on the streets. Despite attempts by his maternal and paternal uncles to intervene and persuade his father to keep him, his father insisted that if they believed it was easy to care for him, they should take him themselves. This marked the end of his ties with his family.

> *"My parents are still alive, and even my other relatives like uncles, aunts, and elder siblings who are well-off are aware of my begging activities. However, they show no concern for me. Feeling neglected within my family, I made the decision to flee to town, which led me to begin begging. I am uncertain how long this situation will persist".* (KII/Age 25/Male/Bukoba town/29 March, 2024

Furthermore, the emergence of HIV and AIDS was identified as a critical catalyst for the increase in street children and beggars within the municipality. The devastating effects of the epidemic left numerous children orphaned and unattended, forcing them into vulnerable situations where they had to fend for themselves. As a result, the fabric of family cohesion weakened, as households struggled to cope with the socio-economic fallout of the disease.

Overall, the stories shared by respondents highlighted the complex relationship between socio-economic factors and health issues that lead to the breakdown of family ties in the region. Economic hardships, exacerbated by the effects of HIV and AIDS, have altered traditional family structures, leaving numerous individuals and children marginalized and exposed to the harsh realities of street life, as one respondent emphasized.

> *"HIV/AIDS has profoundly affected our family's cohesion, as it regards all extended family members as siblings. The presence of HIV/AIDS in the community has resulted in many orphans and widows, making it challenging for family members to support and care for each other".* (KII/Age 61/Male/Bukoba town/5 April, 2024)

Addressing these underlying issues requires comprehensive interventions aimed at revitalizing community support systems and mitigating the root causes of family disintegration.

Insights from four different religious leaders shed light on the complex nature of the phenomenon. These leaders emphasized several key factors contributing to the disintegration of familial bonds within the Kagera region. Firstly, the religious leaders highlighted the rise of individualism as a significant driver of family disintegration. They observed a shift away from collective responsibility and communal support towards a more individualistic mind-set. This emphasis on individual needs and aspirations has weakened the traditional ties that once bound families together, leading to increased fragmentation and isolation within communities.

Secondly, the religious leaders pointed to moral decay as a pervasive issue exacerbating family disintegration. They noted a decline in moral values and ethical standards, which has eroded the foundation of trust and mutual respect essential for cohesive familial relationships. This moral decline has manifested in various forms, including increased conflict, breakdown of communication, and neglect of familial duties. One religious leader summarises that:

> *"The decline in moral values and ethical standards has eroded the foundation of trust and mutual respect essential for cohesive familial relationships"* (KII/Age 55/Male/Bukoba town/20 March, 2024)

Furthermore, economic decline emerged as a prominent theme in the religious leaders' responses. They highlighted the loss of soil fertility and the fall in the price of coffee as key economic factors contributing to family disintegration. The depletion of soil fertility has led to reduced agricultural productivity, exacerbating food insecurity and economic hardship for families reliant on farming. Similarly, the decline in coffee prices has diminished household incomes, forcing families to prioritize individual survival over collective well-being. Another religious leader commented:

> *"The loss of soil fertility and the fall in the price of coffee are among the key economic factors contributing to family disintegration".* (KII/Age 47/Male/Bukoba town/23 March, 2024)

Religious institutions often find themselves in the midst of both government and community efforts to address the challenges posed by

street children and beggars, with a particular focus on the profound loss of family and social bonds. In an interview, a religious leader commented:

> *"As religious institutions, our programs for street children and beggars are based on our values of compassion and justice. We recognize every person's inherent dignity and worth, regardless of their circumstances, and feel it is our responsibility to provide care and assistance to those in need. Our programs seek to meet the immediate needs of street children and beggars by giving shelter, food, and clothes, as well as chances for education, skill development, and emotional support. In addition, we aim to address the root causes of homelessness and poverty through lobbying, community engagement, and collaboration with local organizations and governments. Our ultimate goal is to build a more inclusive and caring society in which everyone has the opportunity to prosper and realize their potential".* (KII/Age 47/Male/Bukoba town/23 March, 2024)

Overall, the insights provided by the religious leaders underscore the complex interplay of socio-economic and cultural factors shaping family dynamics within the Kagera region. By acknowledging the role of individualism, moral decay, and economic decline in driving family disintegration, policymakers and stakeholders can develop targeted interventions to address these root causes and promote family resilience and cohesion.

Despite religious leaders attributing moral decay and economic problems as factors contributing to the decline in family cohesion, the introduction of *"new religions"* also plays a role in this trend. The practice of levirate was historically mentioned as providing security for children whose father passed away during their infancy. In this practice, the brother of the deceased would marry the widow of his fallen brother for two primary reasons: to ensure the security of the children and their property, and to perpetuate the lineage of his deceased brother. An octogenarian respondent residing on the outskirts of Bukoba township shared insights regarding the practice of levirate and its impact on social cohesion:

> *"When I was still a toddler, my father passed away, leaving my mother with four other children. Shortly thereafter, my uncle married my mother and assumed full responsibility for her and my siblings. This arrangement ensured the protection of the properties left by our father, as there was now a man in the household—a principle captured in the local saying that "a house without a man is nobody's house." However, with the advent of Christianity, such traditions have ceased. Now, when a man dies, his widow cannot be married to her brother-in-law. Instead, relatives often*

prioritize claiming and withholding the deceased's properties, thereby pushing children into destitution and potentially onto the streets". (KII/Age 83/Male/Bukoba town/23 March, 2024)

The assertion was supported by an elderly woman respondent who underwent levirate marriage. She was married to her brother-in-law after her husband passed away. She acknowledges the tradition that safeguarded her properties and ensured the upbringing of her children with both parents, unlike if she were a single mother.

> *"After my husband passed away, I underwent levirate marriage and married my brother-in-law. This tradition ensured that my properties were safeguarded and my children were raised with both parents, which wouldn't have been the case if I were a single mother. It is unfortunate that this is no longer practiced due to Christianity and of course the fear of the new disease1"*(KII/Age 80/Female/Kanazi/27 March, 2024)

Economic downturns, compounded by broader microeconomic shifts, placed immense strain on households already grappling with the burden of disease. With livelihoods faltering and resources dwindling, the traditional safety nets of extended families began to fray. This erosion of familial support was particularly evident as orphans, once embraced within the fold of kinship networks, found themselves abandoned and neglected in the wake of familial hardships.

The dire impact of HIV/AIDS heightened the vulnerability of familial stability, as the loss of breadwinners, compounded by the stigma attached to the disease, weakened the bonds of solidarity within communities. As a result, children orphaned by the epidemic found themselves increasingly vulnerable, navigating a world where familial connections grew more fragmented. In response, a religious leader remarked:

> *"In the wake of HIV and AIDS, we witness the heart-breaking reality where countless families in Kagera lose both parents, leaving children orphaned and vulnerable, with some thrust into the role of stepchildren, their innocence overshadowed by the harshness of circumstance."* (KII/Age 55/Female/Bugene Karagwe/27 March, 2024)

In response to these challenges, the once prevalent extended family structure yielded to the emergence of the nuclear family as the

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[1] New disease refers to HIV/ AIDS in Kagera context.

predominant unit of social organization. This shift underscored a pervasive sense of isolation and disintegration, as traditional community support systems gave way to individualistic survival strategies.

The regional government, represented by the Regional Social Welfare Officer, acknowledges the presence of beggars and street children, particularly in major towns like Bukoba. It also recognizes that these phenomena are relatively recent developments in the region. Traditionally, the people of Kagera had systems in place to support disabled individuals and orphans, but now some of these individuals have unfortunately become beggars and street children, respectively.

The Regional Social Welfare Officer attributes the rapid increase in beggars and street children in the region to the breakdown of families, primarily caused by social issues such as divorce, deaths often due to HIV and AIDS, moral decay, and individualism.

> *"The rapid increase in beggars and street children in our region can largely be attributed to the breakdown of families, driven by social issues like divorce, deaths related to HIV and AIDS, moral decay, and increasing individualism."(Regional Social Welfare Officer, 3 May, 2024)*

The narratives provided by respondents underscore the complex interplay of socio-economic and health-related factors shaping family dynamics in Kagera. Addressing the root causes of family disintegration necessitates holistic interventions aimed at revitalizing community support systems and fostering resilience in the face of adversity. By understanding the complexities of these transformations, policymakers and stakeholders can chart pathways toward restoring familial cohesion and strengthening community resilience in the Kagera region.

DISCUSSION

The findings of this study show that a combination of economic challenges and health issues has contributed to family breakdown and the rise of street children and beggars in Kagera. The drop in agricultural productivity, caused by soil infertility and falling coffee prices, has greatly reduced family incomes. These economic difficulties, along with the impact of HIV/AIDS, have weakened the traditional family support systems that once relied on extended family networks.

The stories from beggars, social welfare officers, and religious leaders suggest that families are now focusing more on individual survival rather than supporting each other as a group. This shift has led to an increase in street children and beggars because families are finding it harder to take care of members who cannot work, such as orphans and people with disabilities.

Additionally, changes in religious and cultural practices have further weakened traditional support systems. For example, levirate marriage, which once helped widows and their children by providing economic and social security, is no longer common. The study emphasizes that solutions should not only focus on improving economic conditions, such as increasing agricultural output, but also on rebuilding community support to restore family unity and resilience.

RECOMMENDATIONS

To address the socio-economic challenges leading to family disintegration in Kagera, several steps should be taken. First, efforts to improve agricultural productivity should be prioritized. This can be achieved through providing farmers with access to better seeds, fertilizers, and training in modern farming techniques. Improving soil fertility and diversifying crops would reduce the region's dependency on coffee, thereby increasing family income and food security.

Second, economic empowerment initiatives should focus on supporting vulnerable groups such as orphans, disabled individuals, and widows. This could involve providing vocational training, financial literacy programs, and access to microloans to help families develop alternative sources of income.

Third, strengthening community-based social support systems is essential. Encouraging the revival of traditional extended family networks, alongside community outreach programs, could help provide a safety net for vulnerable members of society, especially children at risk of becoming street children.

Finally, efforts to combat the impact of HIV/AIDS must continue, including access to healthcare services, awareness campaigns, and psychosocial support for affected families. Religious and community leaders should also play an active role in promoting moral values and communal support, helping to restore the traditional solidarity that once

characterized family and social relations in Kagera. These combined efforts would foster both economic resilience and social cohesion in the region.

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The influence of multiple sexual partners practice on HIV/AIDS infections among higher learning peer group students in Dar es Salaam

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Abstract
The study aimed at assessing the influence of multiple sexual partners' behavior on HIV/AIDS infections among students in Higher Learning Institutions in Tanzania. A cross-sectional design was used, and a total of 150 respondents from IFM, UDSM, and KIUT were selected using convenience sampling technique. Data were collected using interview guide, document reviews and Likert scale questionnaires. Qualitative data were analysedusing content analysis, and descriptive methods of data analysis were used for quantitative data. It was revealed that students know the consequences of having multiple sexual partners, and that peer groups of students influenced themselves into engaging in sexual relations, even having multiple sexual partners. There are also a set of personal factors that influence students to have multiple sexual partners and the related factors include watching porno videos from websites, social media and love stories on TV and Radio. The study recommends that HIV/AIDS education and, sensitization be given to students reminding students on the risk of having several sexual partners. HIV testing be done regularly among university students to know their status.

INTRODUCTION
The rate of infections of HIV in Sub-Saharan Africa is still high and some of the common reasons why the prevalence is at the increase include alcohol consumption, cultural behaviors and beliefs, postpartum sexual

abstinence, sexual cleansing, widow inheritance, inappropriate responses against HIV infections in Africa, sexual violence and myths, and virgin cleansing fable (Amuche et al. 2017). Other factors are ritualized non-marital sexual intercourse, female mutilation, and non-use of condoms during sexual intercourse, negative attitude toward condom use, male circumcision, practices of body cuttings and blood oaths, poverty, Civil war and multiple sexual partners (Stoebenau, 2016).

The people who are at high risks of being infected are patients during blood transfusion, people who inject drugs, men who have sex with men (MSM), transgender, women, children and adolescent people, sex workers, and people with multiple sexual partners (Mmbaga et al. 2017 and Khasany and Karim, 2016). Students of high schools and higher education are other category of people who are at high risk of getting HIV infections due to having more than one partner during the time they are in school. Some are careless about using condom during sexual intercourse others do not get access to condom, therefore ending up having unsafe sex (Joint United Nations Program on HIV/AIDS, 2018). Therefore, this study is intending to assess the influence of multiple sexual partners on HIV/AIDS infections among students in higher learning institutions in Tanzania.

New infections in Tanzania occur in the context of stable heterosexual relationships 38.8%, casual heterosexual sex 28.9%, sex workers 1.3% clients of sex workers 8.7%, partners of sex worker's clients 3.3%, partners of people engaged in casual sex 7.6%, PWID 2.1% and MSM 6.8% (NACP, 2018). Yet multiple studies have shown that no more than approximately one-third of 15–24-year-old know their HIV status (PEPFAR, 2018).

Lemme et al (2013) assessed the HIV infections among young people in Northwest Tanzania: the role of Biological, Behavioural and socio-demographic risk factors. The study included 7259 males and 6476 females. The findings show that several socio-demographic factors such as age, marital status and mobility, behavioral factors like condom use, number and type of sexual partnerships and biological factors blood transfusion, lifetime pregnancies, genital ulcers, Neisseria gonorrhoeae were also associated with HIV infection. Among females, lifetime sexual partners (linear trend, p,0.001), more than two partners in the past year, more than two new partners in the past year and concurrent partners in the

past year were all associated with HIV infection. This study which focused on youth did not assess the impacts of multiple sexual partnerships among such group of people which is now covered in this current study.

In the same context, Mmbaga, et al. (2017), investigated in the prevalence and risk factors for HIV-I infections in rural Kilimanjaro region of Tanzania: implications for prevention and treatment. The study included the sexually active age group of 24 to 49 years old. A total of 1528 participated in the study as cross-sectional research design was used. The findings show that the overall age and sex adjusted HIV-1 prevalence was 5.6%. Women had 2.5 times higher prevalence (8.0% vs. 3.2%) as compared to men. The age group 25–44 years, marriage; separation and low education were associated with higher risk of HIV-1 infection for both sexes. HIV-1 infection was significantly associated with having more than one sexual partner in the past 12 months, unprotected casual sex, bottled alcohol and local brew. Though this study did not assess the university students, its findings reveal the reality of the situation in rural areas. The study did not assess the risks of multiple partners among the community

To reduce the propagation of the infections, the Government of Tanzania has carried out different interventions through TACAIDS, National AIDS Control Program, and many local and International NGOs like awareness campaigns, voluntary testing, providing HIV/AIDS education, and provision of Anti-Retro Viral drugs to those who are HIV positive (UNAIDS, 2019). The situation is worse among young people of 14 to 24, which consists of 30% of new infections (Barker et al. 2016), which is the age of most students in higher learning institutions in Tanzania, and Multiple sexual partners is indicated as among the causes of new infections.

Several studies have been conducted on HIV/AIDS in Tanzania like Mkumbo (2013) who assessed the HI/AIDS knowledge, attitudes, and behaviour among students in higher education in Tanzania; Mhalu Assessed the risky behaviour among young people living with HIV attending care and treatment clinics in Dar es Salaam, Tanzania and Lemme et al (2013) assessed the HIV infections among young people in Northern west Tanzania: the role of Biological, Behavioural and social demographic risk factors but none of them focused on the impacts of

multiple sexual partners on HIV/AIDS infections among students in higher learning institutions in Tanzania.

Tanzania has an estimated 1.4 million adults aged between 15 and 64 years living with HIV. Approximately 80,964 new HIV infections occurred in 2017 (TACAIDS, 2018). Out of the new HIV infections estimated to have occurred in 2017, nearly half (43%) were from young people aged 15 to 24 years. Females young people account for over thirds (70%) of all the new HIV infections reported to have occurred among young people in 2017. Young people are among the Key and Vulnerable populations in Tanzania at high risk of HIV infections (NACP, 2018; TACAIDS, 2018). Other Key and Vulnerable populations include Female Sex Workers (FSW), Men who Sex with Men (MSM), People Who Inject Drugs (PWID), Long Distance Truck Drivers, Agricultural plantations workers, fishermen and fishing communities, miners, students in higher learning institutions and other mobile populations including construction workers. Among all these categories of vulnerable people, those who engage in multiple sexual partnerships are extremely at risk (Mkumbo, 2013 and TACAIDS, 2018).

The impact of HIV/AIDS is being felt in almost all sectors of development. HIV/AIDS scourge has resulted in the following consequences in sub-Saharan Africa: increased number of HIV patients, which demands more trained health personnel; increased level of poverty, health care costs and financial burden of funeral ceremonies; increased burden of responsibilities on children or orphans in affected homes; decreased the number of school enrolments as a result of financial burden, decreased fertility and birth rate, decreased in the skilled labour force, economic and social progress (Age between 15 and 49 is the most affected) (Amuche, et al.2016). The economic and social impact of this pandemic is worsening as a result of economic meltdown in most nations. Alteration in the population structure and dynamics has been recognized as a significant impact of this infection in sub-Saharan Africa. This is due to its high prevalence among the mid-age groups and its attendant high mortality among such people (Mkumbo, 2013). The HIV/AIDS pandemic have been hinted to have profound effects on the economic progress of Africa. This infection has led to a diminished labour force in Africa, with attendant reduction in agricultural productivity, increased poverty levels and economic stagnancy. The high mortality and morbidity associated with HIV infection cause a decrease in tax returns and an attendant

increase in government spending, leading to a decline in economic growth. There is also loss of skilled personnel in core sectors of the economy and an increased importation of expensive antiretroviral drugs into the Africa region (Amuche et al. 2016).

METHODOLOGY
The Study Area
The University of Dar es Salaam, the Institute of Finance Management (IFM) and Kampala International University in Tanzania were selected to be the studied entities for this study. These institutions are found in Dar es Salaam the min business city of Tanzania. The selection of the study area was based on the diversified views on multiple sexual partners effects on HIV/AIDS infections from students situated in different areas of Dar es Salaam. Three institutions were selected for the study which include IFM and UDSM representing the highly populated Public higher learning institutions and Kampala International University (KIU) representing the most populated private institution in Dar es Salaam.

Data Collection and analysis
The study used four instruments as sources of collecting primary data. The instruments that were used are interview guide, questionnaire, and Focus Group Discussion. Secondary data were obtained from literature sources and data collected by other people for some other purposes. Reports on HIV/AIDS from TACAIDS, The National AIDS Control Program and other national and international institutions were used in this study. The study used qualitative data analysis techniques to analyze qualitative data where content analysis was used. On the other hand, quantitative data was analyzed using simple descriptive techniques where frequency tallying, Mode, Median and percentage scores were at the center of the analysis. Cross tabulation was used to find the likelihood of relationship between multiple sexual patners and influencing factors. The analysis was conducted with the help of SPSS and Microsoft Excel software.

FINDINGS AND DISCUSSION
Influence of peer groups in multiple sexual partners
This study was to determine the influence of peer groups on engaging in multiple sexual partners among students in higher learning institutions in Tanzania. Respondents were asked to indicate whether their friends

influenced them by convincing them that having at least one sexual partner is good for them. The results obtained are presented in Figure 1.
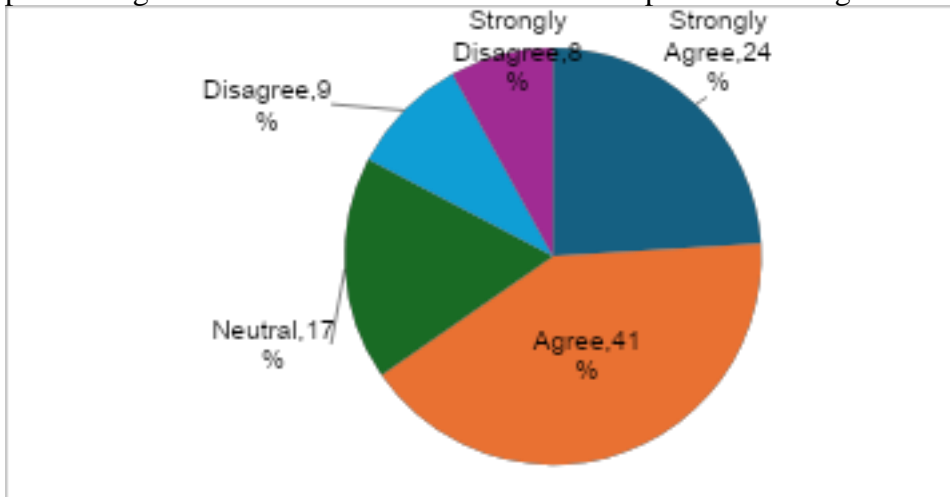

Figure 1: Respondents' views on whether their friends influenced them to have a sexual partner

The findings in Figure 1 show that 24% of respondents strongly agreed, 41.3% agreed, and 17.3% indicated neutrality. However, 9.3% of respondents disagreed, and 8% strongly disagreed.

On the other side, respondents were required to indicate their views on whether they decided to have many sexual partners after seeing their friends who have multiple partners get all the material needs/satisfaction. The results obtained are presented in Table 1.

Table 1: Respondents' views on being influenced by the way their friends are treated by their sexual partners

	Frequency	Percent
Strongly Agree	44	29.3
Agree	67	44.7
Neutral	23	15.3
Disagree	11	7.3
Strongly Disagree	5	3.3
Total	150	100.0

The findings presented in Table 1 show that 29.3% of respondents have strongly agreed, 44.7% of respondents have agreed and 15.3% of respondents were neutral. However, 7.3% of respondents disagreed, and 3.3% of respondents strongly disagreed that they decided to have many

sexual partners after seeing their friends who have multiple partners getting all their material needs.

Respondents were also asked to indicate whether their colleagues influenced them in the university to get into multiple sexual partners' behaviour. The results are presented in Figure 2.
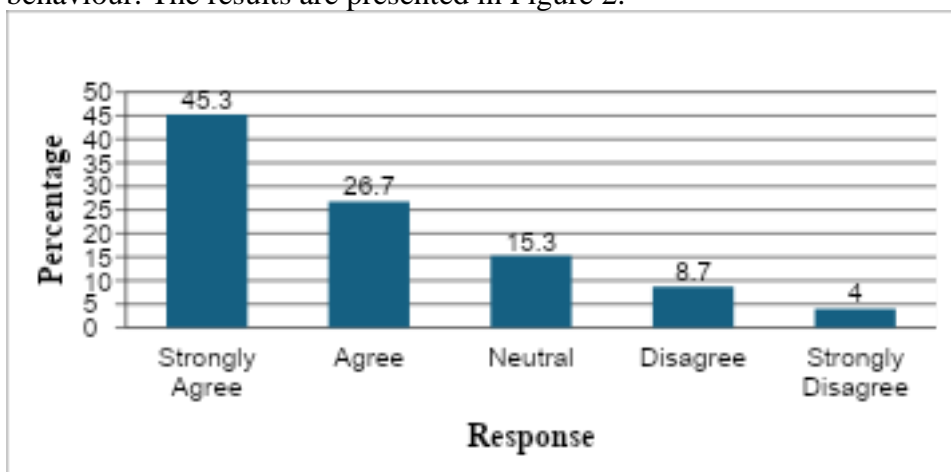

Figure 2: Responses on the influence of colleagues in engaging in Multiple sexual partners

The findings in Figure 2 show that 45.3% of respondents strongly agreed, and 26.7% of respondents agreed that their colleagues influenced them in the university to get into multiple sexual partners. Meanwhile, 15.3% of respondents were neutral, 8.7% of respondents disagreed, and 4% of respondents strongly disagreed with the above statement.

During focus group discussions (FGD), students at IFM, the University of Dar es Salaam, and the Kampala International University in Tanzania argued that most of their time in their discussion groups is used to discuss sexual issues, including how to get sexual partners at the university. Male students feel very happy to discuss sexual issues among themselves, and they even exchange some strategies to get sexual partners, as compared to their counterparts, females, who sometimes feel too shy to speak, though internally they feel interested. During the FDG, respondents indicated that they always get some hints concerning sexual practice, they get the confidence to approach a female, and they even organize class discussion groups based on their closeness.

In the same parameter, respondents were asked to indicate whether they started sexual partnerships in secondary school after being influenced by schoolmates. The results are presented in Figure 3.
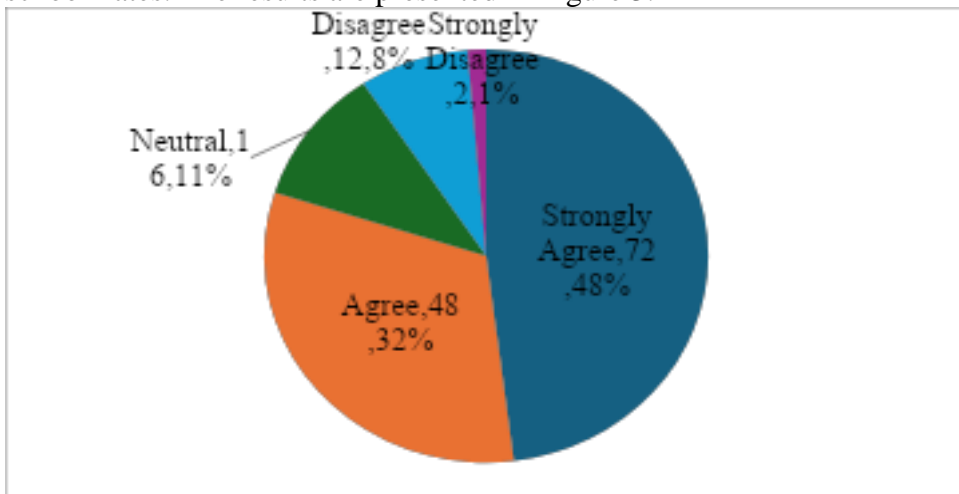

Figure 3: Respondents' views on starting sexual partnerships since secondary school

The findings shows that 48% of respondents have strongly agreed that they started sexual partnership in secondary school after being influenced by schoolmates followed by (32%) of respondents who agreed. The level of disagreement were low with 8% who disagreed followed by 1% who strongly disagree as presented in Figure 3. and 10.7% of respondents who were neutral. This finding is supported by the respondent from IFM during interview, who reported that:

> *"Among us, there are those who started sexual practice since secondary education, and others were influenced by colleagues at their higher learning institution. As far as multiple sexual partners are concerned, I personally was influenced by my roommate, who is my close friend. She has three (3) men, one at this university, and the other two outside the university premises. Due to that, I have two boyfriends, one in the College and another in UDSM". Female Student at IFM, 2020.*

Responses from respondents from other Universities (UDSM and KIUT) also supported these findings as reported by the following students during the interviews:

> *"Some of the girls are normally influenced by their friends in their areas. Though I was not influenced to do that, I know some girls in my area who were convinced by their friends to engage in multiple sexual partners'*

behaviour. *All in all, it depends on how ready you are to accept their influences*", Student from UDSM, 2020.

Another respondent from KIUT indicated that:

"Getting into multiple sexual partners' behaviour is a result of influence from one's entourage, her economic situation, and her biological desire to engage in sexual relationships. Most of those who have many boyfriends or girlfriends is a result of mob, sexual incitement and poverty. As for me, having many partners is just because they do help me to meet my daily living expenses", Student from KIUT, 2020.

The findings show that friends and colleagues at Higher Learning Institutions in Tanzania convince fellow students to engage or have at least one sexual partner and that other students decide to have multiple sexual partners because they see their friends' getting gifts and other material things from their sexual partners (see table 4.3 and table 4.4). These findings imply that friends and colleagues are the factor that induces their fellow friends into having sexual affairs with one or more partners. These findings are like Mkumbo (2013), who found that most of the students who engage in multiple sexual relationships were influenced by friends and colleagues; this practice was found to be more common among female students than among male students. These findings also confirm what was found by Amuche et al. (2017), as they found that many of those young people who tested positive for HIV were influenced into sexual practices by friends and colleagues who engaged in sexual work. This study went a bit further and found that Students teach their colleagues how to be sexual partners at the university, though many of them, about 80%, got engaged in sexual practice since secondary school.

The findings also show that relatives like sisters/brothers influenced students to engage in multiple sexual relationships and other family members influenced them explicitly to engage in multiple sexual partners' behaviour. These Findings comply with Amuche et al. (2017), who found that relatives influenced their siblings to engage in sexual work. However, this study determined that some students might have been implied influenced by their relatives who indicated that they know that they have more than one sexual partner. The study also found that neighbors and Commuter bus conductors did influence them to engage in multiple sexual partners.

The findings show that respondents do care about contracting HIV and that HIV/AIDS is not a disease like any other fatal disease, though about

97% of respondents indicated that having multiple sexual partners does not necessarily end up getting HIV. The findings show that the existing fear of HIV and equating it to death has gone down as respondents argued that HIV was so threatening before the invention of Anti Retro Viral (ARV), but currently, its effects have gone down. On the other side, the findings show that poverty is a reason for multiple sexual partners, which respondents did not explicitly declare, but the findings show that the need for subsistence money, High sexual desire were the factors leading students in Higher Learning Institutions in Tanzania to engage in Multiple sexual partners. These findings are like Mhalu et al. (2013), who indicated that those who tested HIV positive among youth were influenced by sexual needs, and desire to meet basic needs. Females were found to be practicing multiple sexual partnerships more than males. In this regard, the findings show that age was not the factor for having multiple sexual partners, different from what Mhalu et al. (2013) found that age was among the factors inducing people into having multiple sexual partners. The findings show that the university freedom and the financial capacity of males were among the factors that influenced students to engage in multiple sexual partners.

Effects of multiple sexual partners' behaviour among students
This study intended to findout whether there are effects of multiple sexual partners' behaviour among students. Respondents were asked to indicate their views on the impacts of multiple sexual partners among students of Higher Learning Institutions in Tanzania. The results obtained are presented in Table 2.

Table 2: Respondents views on whether there are effects of Multiple Sexual Partners

Response	Frequency	Percent
Strongly Agree	61	40.7
Agree	42	28.0
Neutral	31	20.7
Disagree	14	9.3
Strongly Disagree	2	1.3
Total	**150**	**100.0**

The findings in Table 2 show that 40.7% of respondents strongly agreed, 28% of respondents who agreed, and 20.7% who were neutral. However, 9.3% of respondents disagreed, and 1.3% of respondents strongly disagreed

In the same regard, respondents were asked if they once suffered from a sexually transmitted disease like Gonorrhea, Syphilis, Hepatitis B, and HIV. The results are presented in Figure 4.
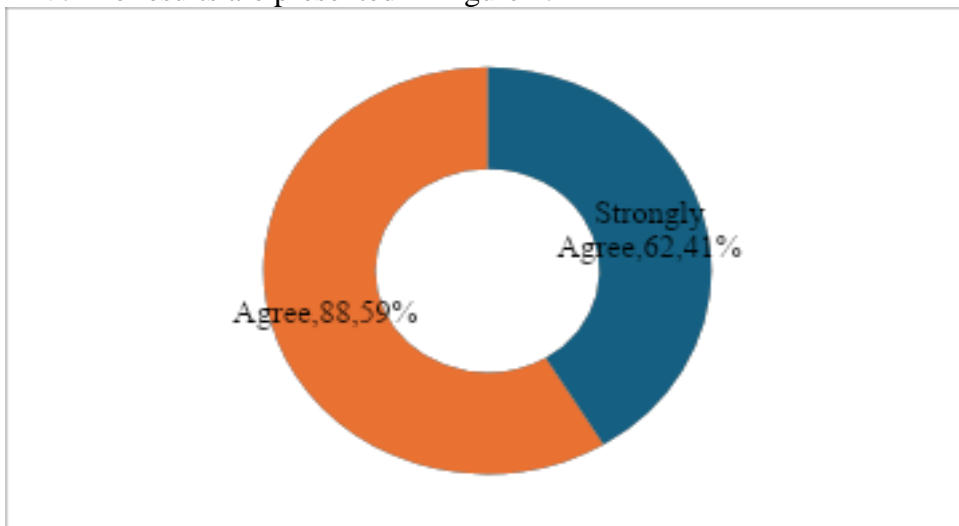

Figure 4: Respondents' views on whether they once suffered from STD

The findings presented in Figure 4 show that 41.3% of respondents strongly agreed, 58.7% of respondents have agreed that they once suffered from STD. This is an indication that, respondents were ignorant or negligible on the use of protective measures of STD, such as the use of condoms during sexual activity and abstinence.

Respondents were asked to indicate the effects of HIV/AIDS on humanity. The results are presented in Table 3.

Table 3: Respondents Views on the effects of HIV/AIDS on humanity

Effects	Frequency=150	Percentage
Increase in morbidity	125	83
Increases the cost of living among victims	83	55
Lowers individual's productivity	107	71
Causes poverty	95	63
Lowers working capacity to victim	98	65
Lowers intellectual capacity to students	132	88
Causes conflicts within the family	89	59
Increases the number of orphans	131	87
Causes stigma to victim	138	92
Increases Mortality	105	70

The findings show that respondents have a very wide understanding of the effects of HIV/AIDS infections in the community. However, the highest scores were on that   HIV Causes stigma to victim (92%), HIV Lowers intellectual capacity to students (88%), followed by HIV Increases the number of orphans (87%), and increases in morbidity (83%). The lowest is that it increases the cost of living among victims (55%) as shown in Table 3.

These findings indicate that respondents know the impacts of HIV/AIDS infections and have so far suffered from Sexually Transmitted Diseases (STDs). The findings also show that respondents know the effects brought by HIV/AIDS in the community, which tend to lower the happiness that humanity would get in daily life.

The findings show that students in Higher Learning Institutions in Tanzania know the impacts of having multiple sexual partners and that one effect is getting HIV infections and other Sexually Transmitted Infections (STI). In the same regard, the findings show that most students in Higher Learning Institutions have so far suffered one of the sexually transmitted diseases; this implies that there are times they do not use condoms during sexual practices. The findings also show that there are many effects associated with having multiple sexual partners, which are high infections of HIV, and low working capacity. On the other hand, respondents indicated the effects of HIV on humanity. These findings are similar to Mmbaga's et al (2017), who found that HIV-1 infection was significantly associated with having more than one sexual partner in the past 12 months, unprotected casual sex, bottled alcohol, and local brew. It can be concluded that Multiple Sexual Partners increase the risk of getting HIV infections, HIV and AIDS, lower working efficiency, cause conflicts in the family, increase mortality, and many more effects presented in this study.

Further analysis was conducted to find out whether there is any relationship between having multiple sexual partners and assumed influential factors (Table 4).

Table 4: Cross tabulation showing association between multiple sexual partners and Influential Factors

	Having multiple sexual partners		Fisher's exact P-value
	Yes	No	
Watching porn video			
Yes	74	72	0.070
No	4	0	
Desire			
Yes	14	20	0.084
No	58	51	
Not sure	6	1	
Neighbors			
Yes	66	48	0.015
No	12	22	
Not sure	0	2	
Relatives			
Yes	27	8	0.000
No	51	57	
Not sure	0	7	
Friends			
Yes	78	60	0.000
No	0	9	
Not sure	0	3	

Findings from the Fisher's exact test result shows that watching porn videos and desire are not likely to influence having multiple sexual partners since their p-value exceeds 0.05. This means that watching porn videos and desire are not among the significant, influential factors of having multiple sexual partners.

Again, fisher's exact test result shows that neighbors have a significant association with having multiple sexual partners at 0.05 significance level since the p-value is less than 0.05. This means that neighbors influence is among the significant factors associated with having multiple sexual partners.

Lastly, fisher's exact test result shows that relatives and friends have a strong significant association with having multiple sexual partners at a 0.05 significance level since their p-value is 0.00; this means that relatives and friends are among the major influential factors of having multiple sexual partners.

CONCLUSIONS AND RECOMMENDATIONS

The study found that peer groups of students, technologically literate, relatives and friends influence others into engaging in sexual relationships, even having multiple sexual partners. They easily influence each other into accessing social media and even watching porno videos from websites, and love stories on TV, magazines and Radios.

It is recommended that education about HIV and precautions on the influence of peer groups and the risks of acquisition of STDs and HIV be given to the students in Higher Learning Institutions by the universities in Tanzania, in collaboration with the Government and other non-governmental actors.

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Bodabodas and Self Employment: An Inspiration for Job Creation in Tanzania: The Case of Msamvu Main Station, Morogoro

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Abstract

This paper explores the relationship between motorcycle operators/hire drivers (popularized as Bodabodas) and self-employment. Particularly, it emphasizes the youth to change the mind set to abstain from job seeking to job creation and self-employment. It addresses multifaceted entrepreneurial issues in the realm of unemployment challenges and brings on board a discussion on self-employment particularly on youths ironing out the various strategies the Government of Tanzania (GoT) attempted without success in an endeavor to create self-employment to the youths. In the face of the challenges of unemployment, it seems there is no clearcut solution on the Tanzanians employment seeking youths other than to change their mindset that will enable them to refrain from seeking employment to job creation *and self-employment.The paper is based on 2017 survey data collected at Msamvu Main Stand in Morogoro Municipality of Morogoro region in Tanzania. Simple random and convenience sampling were used to select a sample of 50 respondents at Msamvu – Morogoro. The findings indicate that Bodaboda business has created self-employment to many youths despite the challenges they face. The challenges include that, the Bodabodas were charged by not abiding to regulations while some were involved in criminals. The paper concludes that despite the challenges, entrepreneurship remains to be a solution to the challenges of unemployment facing the youth in Tanzania. The Bodaboda entrepreneurial venture has accommodated many youths who otherwise could have been left loitering jobless in streets.*

Keywords: *Bodaboda, Bodabodas self-employment, and entrepreneurship.*

INTRODUCTION

The motorcycle hire popularized as Bodaboda business is a big and fast-growing entrepreneurial activity in Tanzania engaging the youth both formally (registered) an informally (unregistered). In Morogoro municipality, the story is not different with a growing Bodaboda business housing about three hundred thirty-six (336) registered Bodabodas and possibly a lot more who are unregistered. Thus, it is the intention of this paper to address multifaceted entrepreneurial issues in the realm of employment and unemployment challenges and bring on board a discussion on self-employment particularly of the youth.

Unemployment and underemployment have become major development challenges as exaggerated by shrinking public sectors and limited opportunities for gaining formal wage employment in the private sector. In that spirit, several international institutions including the ILO have specifically identified the promotion of entrepreneurship among young people as a means of generating youth employment. However, little is known about how youth employment and entrepreneurship can best be supported (Langevang and Gough, 2012).

Margolis (2014) notes that over half of jobs in the developing world are in self-employment. Although some self-employment is chosen by entrepreneurs with well-defined projects and ambitions, roughly two thirds result from individuals having no better alternatives. This implies that despite self-employment being a major source of creation jobs in such countries, it is has become a necessity rather than a choice for workers. And in many instances, it tends to be low productivity employment, and as countries move up the development path, the availability of wage employment grows and the mix of jobs changes.

Self-employment has also been proposed as a solution to youth unemployment problems, and that world individual governments have developed programs to assist youth in the formation of new enterprises through financial assistance or specialized training, Accordingly in the United States, for instance, the reasons advanced by many policymakers in the 1990s for encouraging continued growth in self-employment include viewing it as a vehicle for exit from poverty; a viable alternative to unemployment for displaced workers; and a solution to unemployment problems in general; as well as interest in small business as a source of economic (or employment) growth. In addition, international

organizations such as the ILO, which has historically supported small enterprise development with the goal of creating new and better employment opportunities in the developing world, are proposing small enterprise development as a component of youth unemployment policy initiatives (Williams, 2004).

The necessity to offer self-employment opportunities especially in the developing world, is propounded by different factors including social protection systems; labour market frictions; the business environment; and labour market institutions. However, according to Williams (2004), strategies to promote self-employment may be counterproductive as evidence suggests that there are potential losses or costs associated with it with high failure rates in developing countries. That is, the self-employed lose potentially valuable labor market experience and opportunities for training or advancement within the firm (while out of the wage and salary sector). Of course, for the successful ones, the increase in income gained or non-pecuniary rewards may outweigh these costs, otherwise for the unsuccessful ones, the costs may outweigh any gains.

Various strategies have been ironed out by the Government of Tanzania (GoT) without success in an endeavor to create self-employment to the youths. In the face of the challenges of unemployment, it seems there is no simple or clear-cut solution especially to the Tanzanian employment seeking (if not hungry) youth other than to change their mindset that will enable them to refrain from seeking (particularly official white collar) employment to job creation (self-employment).

The world over, Africa in general and Tanzania in particular face the challenges of unemployment (ILO, 2010 and Kwekaet al, 2013). As Sommers (2010), for example, noted that the lives of many urban youth are dominated either by work or the need to find work. Accurate youth unemployment rates in Africa are remarkably difficult to establish and the reported range is phenomenal. Furthermore, however, the employment–unemployment dichotomy also fails to include a far more significant marker of economic activity for youth and most other urban dwellers, namely underemployment, the kind of work that is commonplace in big African cities but that is difficult to quantify because it may be short-lived and irregular.

At least theoretically, entrepreneurship carries a solution to the challenges of unemployment facing the population, especially the youth through

employment generation particularly self-employment. Of course, as Nagler and Naude (2017) found, households (particularly the youth) operate enterprises due to both push and pull factors with the necessity to cope and manage risks pushing them into entrepreneurship. That is, lack of social protection and insurance schemes, they need to manage shocks, deal with surplus household labour, and respond to seasonality. Otherwise, operating an enterprise becomes a possible strategy to cope with these kinds of uncertainties whereby the necessity motivation is reflected in the enterprise nature and size as small and informal household businesses that are often operated for only a portion of the year and in easy-to-enter sectors or activities. And, Stangler (2013) agreed with the general consensus of research findings that entrepreneurship is concentrated among individuals in midcareer, that is, between 35 and 44 years of age contrary to the conventional belief that entrepreneurship is mostly the province of the very young, who are presumably unfettered, willing to take risks, have low discount rates, and are undeterred from challenging established ways of doing things.

A study by ILO (2014) has pointed out three primary causes of unemployment that include structural unemployment that causes change in market conditions often turns many skills obsolete; frictional unemployment (transaction cost of trying to find a new job) and cyclical unemployment (economic contractions). There are arguments that a large share of current high youth unemployment is "structural" in a sense that most of unemployed youth have skills which are not compatible with the jobs available. It is further argued that many of the unemployed youth either possess inadequate skills or possess skills that have greatly deteriorated and so not applicable to the available industries *(htt://www.ilo.org/global/about- the -ilo/press- and -media centre/press - releases/wcms 120465/lang -en/ index.htm* For example, in the 2011/2012 budget in Uganda, the Minister for Finance recognized that because of the high levels of unemployment the Ugandan economy could only absorb twenty percent (20%) of the youth.

The nature of youth unemployment challenges facing Tanzania does not differ significantly from the nature of adults, this is because the two (adults and youths) unemployment challenges differ in terms of severity. The youth unemployment is more severe than the latter (ILO,2014) whereby estimates show for example among the unemployed people in the country 60 percent are the youth. Only a small number of youth

(about 3.4 percent) are employed in civil services, ministries, and private sector.

Every year, for example, graduates completing their studies enter the labor market. And, it is estimated that more than six hundred thousand youth enter the labor market every year (Liviga, 1996).In the case of Tanzania, three studies by Barerjee et al (2011); Bruhn *et al* (2010);and Filmer *et al* (2014)have identified main factors contributing significantly to the youth unemployment challenges that include education system, lack of skills and business training, lack of credit facilities, emphasis put on informal sector alone, neglect of agricultural sector and rural areas in general, and lack of advisory services.

The system of education is a challenge that has culminated in types of education that students receive to contribute directly to youth unemployment since the curricular tends to put a lot of emphasis on and prepare youth to pass examinations(theoretically) with an objective of obtaining formal (white collar) wage employment. Furthermore, education does not impart business and related skills whereby as youths complete their primary, secondary, and college/university education, they don't have any skills that they can use to establish their own ventures for self-employment. Admittedly, current education offers theoretical studies that cannot help students as they complete their studies to establish their own self-employment.

The lack of credit facilities is another challenge faced by the youth. Certainly, many youths could have started self-employment opportunities or embarked on income generating activities, but they lack start-up capital. Additionally, there are limited financial credit facilities that are available for youths whereby financial institutions have stringent conditions that are almost impossible to meet by most youths.

The emphasis put on formal sector alone is yet another youth challenge. While GOT emphasizes creating a conducive working environment for private sector, the implementation has been contrary. The private sector is in a difficult situation as there has been no support at all, to an extent that some of the private investors have pulled out. Neglect of the agriculture sector and rural areas in general that currently makes it not attractive to young people. Studies including (ILO, 2010 & 2014) show that productivity acreage outputs and income in the sector is low. Such a

situation cannot therefore help the youth to employ themselves through agricultural activities. However, GOT has embarked on proactive policy measures to mitigate the challenges of youth unemployment (URT, 1996 and Msambichaka, 1989) include firstly, is the introduction of Education for Self-Reliance Program in 1967 in an endeavor to change the education system and prepare students for the rural life they would live after completing their studies. The education for self-reliance program was also meant to offset part of boarding costs incurred by the government in providing education. The program, however, failed to reform the education system particularly because the attitude of students towards self-reliance never changed. Although the intention was good, the education for self-reliance failed to change the attitude of teachers and students towards work.

Secondly, is the enactment of the Human Resources Deployment Act (HRD, 1983) which is one of the major attempts to tackle the unemployment challenges in a realistic way. Through the act, the government legislated that all able-bodied individuals must engage themselves in productive employment and it denounced loitering in urban centres. The government went to an extent of earmarking places (Gezaulole in the Cost region) where people would settle after leaving urban areas. The idea behind the HRD Act of 1983 was to create self-employment for the unemployed labour force in Tanzania. There were, however, some operational problems which prevented effective implementation of the HRD Act. There were no sufficient preparations in the camps in which the HRD Act, therefore, failed or at best had minimum impact in reducing the youth unemployment challenges in Tanzania.

Thirdly, is the formation of vocational training whereby a number of vocational training centers have been established or authorized at national, regional, and district levels aimed at training post-formal education youths in practical skills that permit them to self-employment (McKenzie, 2012). The centers, however, have tended to be affected by similar problems facing other training centers including underfunding, shortage of equipment, and ill trained and unmotivated staff.

Fourthly, is the creation of Youth (Economic Groups and National Service) Camps that meant to create self-employment to youths, and a number of such camps were established by the youths' wing of the ruling

political party that included the Madale camp in Coast region, Mahenge in Iringa region, and Merela in Morogoro region. However, all the camps failed as a strategy for reducing youth unemployment as they were affected by low participation by youths, inadequate preparation, low capital investment, and lack of skills development.

Lastly, is the establishment of youth attitude change programs. A comprehensive youth employment should include programs that are aimed at promoting an attitude change among young people. The youth should be enlightened on several things which include the available opportunities, vocational institutions in terms of creating employment, and the potential of Tanzania or East Africa for that matter. Many youths think that college/university education is critical without which there is no future has a neglect attitude towards technical and vocational institutions that helped so many world economies developed over years *(http:// www.uneca.orglera 2005/d chapter 5/.pdf*
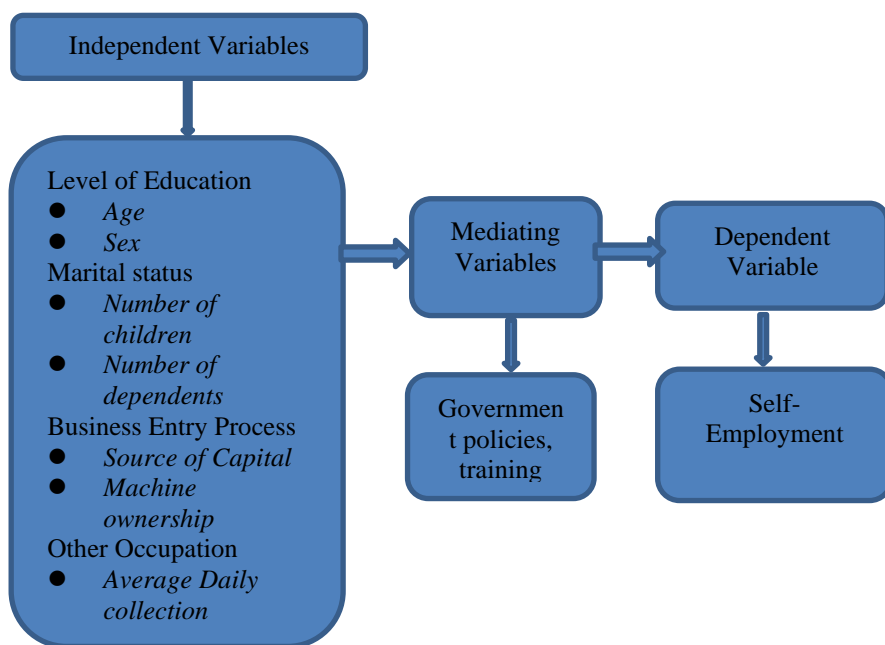

Figure 1: Conceptual Framework

METHODOLOGY
The study was conducted at Morogoro Municipality (Msamvu, Main Stand). The Msamvu Main Stand is very busy as various buses come in from and leave to different (district and regional) destinations including

neighboring countries, but more so there are many Bodabodas serving passengers as an alternative transport to cabs. In a way, passengers are at liberty either to go for cab transport or choose the most affordable Bodaboda. The study adopted a cross-sectional research design. A combination of simple random and convenience sampling technique was used to select 50 Bodabodas for an interview using structured interview guide. Descriptive statistics were computed to find the distribution of the respondents. Frequencies and percentages were computed, and where possible content analysis was done. Statistical data analysis was facilitated using the Statistical Package for Social Sciences (SPPSS).

FINDINGS AND DISCUSSION

This section addresses the results and discussion on the basis interviews that were handled with the respondents.

Demographic Characteristics of Respondent

Table 1: Demographic Characteristics of Respondent

	Frequency	Percent	Valid Percent	Cumulative Percent
Education Level				
Primary	13	26.0	26.0	26.0
Secondary	36	72.0	72.0	98.0
College	1	2.0	2.0	100.0
Age				
18 to 35 years	44	88.0	88.0	88.0
36 to 45 years	6	12.0	12.0	100.0
Sex				
Male	50	100.0	100.0	100.0
Marriage Status				
Single	18	36.0	36.0	36.0
Married	26	52.0	52.0	88.0
Divorced	6	12.0	12.0	100.0
Number of Children				
None	16	32.0	32.0	32.0
Less than 5	26	52.0	52.0	84.0
5 to 10	8	16.0	16.0	100.0
Number of Dependants				
None	11	22.0	22.0	22.0
Less than 5	20	40.0	40.0	62.0
5 to 10	10	20.0	20.0	82.0
Over 10	9	18.0	18.0	100.0

Source: Researchers Survey Data, 2017

Table 1 presents the demographic characteristics (level of education, age, sex, status of marriage, number of children, and number of dependents) of the respondents. For the level of education of the respondents, 13 (26%) had primary education; 36 (72%) had secondary education; and only one (2%) had a college education. For age of the respondents, 44 (88%) were 18 to 35 years old while the remaining six (12%) were from 36 to 46 years old. In terms of sex, all the fifty respondents (100%) were male. In terms of the status of marriage, 16 (36%) of the respondents affirmed that they were single; 26 (52%) of the respondents affirmed that they were married; while six (12%) of the respondents affirmed that they were divorced. For the number of children of the respondents, 16 (32%) had none, 26 (52%) had less than 5, while eight (16%) had five to ten children. And, for the number of dependents of the respondents, 11 (22%) had none, 20 (40%) had less than five, 10 (20%) affirmed had from five to ten, while nine (18%) had over 10 dependents.

Demographically, the characteristics have indicated that all respondents were male youth with majority having ordinary secondary school (or lower) education, aging 35 or below, with over half of them married and having appreciable number of children and dependents (one to ten). This implies that despite low levels of education that is not linked to any specific skills of the respondents, there is an indication of high dependency ratio. Such features are related to the ILO (2014) structural explanation of unemployment and in line with the conventional belief that entrepreneurship is mostly the province of the very young (Stangler, 2013).

Entry Process, Capital Sources, Machine Ownership, and Other Occupation

Table 2: Entry Process, Capital Source, Machine Ownership, and Other Occupation

	Frequency	Percent	Valid Percent	Cumulative %
Business Entry Process				
Employed by Owner (Kipande)	20	40.0	40.0	40.0
Hired motorcycle (day worker)	3	6.0	6.0	46.0
Bought own motorcycle	14	28.0	28.0	74.0
Family bought motorcycle	11	22.0	22.0	96.0
Borrowed a friend's motorcycle	2	4.0	4.0	100.0
Sources of Capital				
Family money	10	20.0	20.0	20.0
Hired from owner (Kipande)	20	40.0	40.0	60.0
Small business money	9	18.0	18.0	78.0
Wage from employment	6	12.0	12.0	90.0
A transferred contract motorcycle	2	4.0	4.0	94.0
Hired from a friend	3	6.0	6.0	100.0
Machine Ownership				
Own	21	42.0	42.0	42.0
Rental	29	58.0	58.0	100.0
Other Occupation/Activity				
None	46	92.0	92.0	92.0
Farmer	3	6.0	6.0	98.0
Barber shop	1	2.0	2.0	100.0

Source: Researchers Survey Data, 2017

Table 2 presents entry process, sources of capital for business operations, ownership of machines (motorcycles), and other activity/occupation. With respect to entry process, the respondents affirmed that 20 (40%) were employed by owner commonly known as Kipande in which case the owner had to be paid Tshs. 30,000 per day; 3 (6%) hired motorcycle (day worker); 14 (28%) bought own motorcycle; 11 (22%); family bought motorcycle; and 2 (4%) borrowed a friend's motorcycle. And, with respect to the sources of capital for business operations, the responses were 10 (20%) from family money, 20 (40%) hired from the owner (Kipande), nine (18%) from small business, six (12%) from employment wage, three (6%) from motorcycle contract transfer, and two (4%) hired from a friend. Regarding motorcycle ownership, the respondents affirmed that 21 (42%) were self-owned while 29 (58%) were rented. And in

terms of other activities, 46 (92%) of the respondents affirmed that they had no occupation other than Bodaboda, three (6%) of the respondents were farmers, while only one (2%) had barber shop.

It can be noted in this case that with mixed modes of entry into business (Kipande and hiring leading the role), the majority of Bodabodas stayed for at most five years with over half of the motorcycles rented. This Bodabodas influx reflects efforts toward youth employment generation through self-employment cementing the view that despite self-employment being a major source of creation jobs in developing countries it has become a necessity rather than a choice for workers who have limited access to capitalto start their businesses (Margolis, 2014). With capital, it means there were diverse sources for doing business with hiring from owners (Kipande) appearing as the most prominent one. And, the Bodabodas had to observe the normal ordinary legal dimensions of doing the business. Otherwise, it can also be learnt that majority of the respondents depended on Bodaboda as the main activity/occupation for earning them daily bread, probably confirming what Margolis (2014) noted that roughly two thirds self-employment activities chosen in developing countries result from individuals having no better alternatives, and furthermore, individuals in need who do not have access to subsistence agriculture will start their own microenterprises to earn at least the minimum necessary to survive.

Rent Paid, Average Daily Collection from Business, and Type of Use of Money

Table 3 specifies the rent amount paid, the average daily collections, and categories of expenditures for the Bodaboda business. Regarding rent amount paid (Table 16), 21 (42%) respondents revealed that the payment was not applicable meaning they were owners. Otherwise, 28 (56%) respondents paid from Tshs. 5,000 to 10,000 while only one (2%) respondent paid over Tshs. 10,000. From Table 17 the responses on the average daily collections were two (4%) for less than Tshs. 20,000; 42 (84%) from Tshs. 20,000 to 39,000; and six (12%) from Tshs. 40,000 and above. Otherwise, from Table 18 on the categories of expenditures, the responses were 32 (64%) for submission as Kipande to the owner as agreed payment used as business working capital and for personal expenses while 18 (36%) for retaining as personal and family expenditure as well as business working capital.

Table 3: Business Rent Paid, Average Daily Collection & Type of Use

	Frequency	Percent	Valid Percent	Cumulative %
Business Rent Paid				
Not applicable	17	34.0	34.0	34.0
Shilling 5000 to 10000	32	64.0	64.0	98.0
Over Shilling	1	2.0	2.0	100.0
Average Daily Collection				
Less than Shilling 20000	2	4.0	4.0	4.0
Shilling 20000 to 39000	42	84.0	84.0	88.0
Shilling 40000 to 59000	6	12.0	12.0	100.0
Type of Money Use				
Submission (Kipande) to Owner, business working capital, and personal expenses	32	64.0	64.0	64.0
Personal & family expenditure and business working capital	18	36.0	36.0	100.0

Source: Researchers Survey Data, 2017

The message from the previous paragraph is that half of the business collections made by majority of the Bodabodas were exhausted for settling rental bills for the machines (motorcycles) submitted to owners as Kipande that was used as business working capital and for personal expenses. A similar use applied to the retained proportion of the collections indicating that the business environment provided the operators with a survival possibility.

Owning Bank Account, Amount and Number of Times Money is Deposited, and Other Money Keeping Options
Table 4 explores whether the respondents had bank account, whether the money deposited was from their businesses, specifies the number of times the money was deposited, and the available options in keeping money. Regarding whether the respondents had bank account, the respondents indicated that 13 (26%) had bank account while 37 (74%) had no bank account. Regarding whether the money deposited was from their businesses, 13 (26%) respondents said yes while 37 (74%) of them said no. Regarding the number of times the money is deposited, 37 (74%) respondents revealed that they didn't do that, 12 (24%) respondents revealed that they deposited less than 5 times per month, and only one (2%) respondent affirmed to deposit 5 to 10 times. Regarding the available options in keeping money, 35 (70%) respondents said they kept

money through mobile network (M–pesa, Tigo–pesa, Airtel–money, and Halo–pesa) while 15 (30%) said they kept money elsewhere.

Table 4: Owning Bank Account, Money & Number of Times Deposited, and Other Money Keeping Options

	Frequency	Percent	Valid Percent	Cumulative %
Have Bank Account?				
Yes	13	26.0	26.0	26.0
No	37	74.0	74.0	100.0
Business Money Deposited				
Yes	13	26.0	26.0	26.0
No	37	74.0	74.0	100.0
40000 to 59000	6	12.0	12.0	100.0
Number of Times Money is Deposited				
Not applicable	37	74.0	74.0	74.0
Less than 5 times per month	12	24.0	24.0	98.0
5 to 10 times per month	1	2.0	2.0	100.0
Other Money Keeping Options				
Not applicable	15	30.0	30.0	30.0
Mobile network (M-pesa, Tigo-pesa, Airtel money, Halo-pesa)	35	70.0	70.0	100.0

Source: Researchers Survey Data, 2017

The foregone paragraph indicates that majority of Bodabodas had no bank accounts, and even the minority few who had accounts did not deposit money related to their businesses. This is directly linked to less frequency of depositing the money as opposed to the developed financial habit of keeping money using the available mobile networks including M–pesa, Tigo–pesa, Airtel–money, and Halo–pesa. This gives the impression regarding limited availability and use of financial (particularly bank) services coupled with poor saving culture linked to entrepreneurs. This calls for the banking system to extend its linkage arm to tap the seemingly unmet green population of entrepreneurs that has resorted to be friendly to the mobile network services.

Cost Package per Day and Business Benefits to Individual/Family/ Community
Table 5 addresses the cost package faced per days well as benefits gained at personal/individual, family, and community levels. With respect to the cost package faced per day, the responses were 49 (98%) fora range of

Tshs. 10,000 to 20,000 and only one (2%) for a range of Tshs. 21,000 to 30, 000. The respondents mentioned personal/individual benefits gained from the business to include paying taxes, buying food and clothes, paying for accommodation as well as paying for health services and school fees while those gained at family level to include family care and supporting relatives. Otherwise, the respondents revealed the benefits gained at community levelto be in relation to provision of transport services, social services, and monetary contribution in relation to burial ceremonies and marriages.

Table 5: Cost Package per Day and Benefits to Individual/Family/Community

	Frequency	Percent	Valid Percent	Cumulative %
Cost Package per Day				
TShs. 10000/= to 20000/=	49	98.0	98.0	98.0
TShs. 21000/= to 30000/=	1	2.0	2.0	100.0
Individual Benefits				
Paying taxes, buying clothes and food, paying for accommodation, paying for health services and school fees	50	100.0	100.0	100.0
Family Benefits				
Family care and help relatives	50	100.0	100.0	100.0
Community Benefits	12	24.0	24.0	98.0
Provide transport services, make monetary contributions to community say in burial and marriage services	50	100.0	100.0	100.0

Source: Researchers Survey Data, 2017

The previous paragraph indicates that for majority of the Bodabodas, the daily cost package was half of the daily collections mentioned earlier. Several benefits were mentioned that included at personal/individual level as paying taxes, buying food and clothes, paying for accommodation, health services, and school fees; at family level as family care and supporting relatives; and at community level as provision of transport services, social services, and monetary contribution in relation to burial ceremonies and marriages. This is in line with Williams (2004) view that for the successful ones the potential business gains might outweigh the costs, otherwise fall short of them.

Legal dimensions observed, Safety of Passengers & Luggage, and Reasons for Many Hospitalized Motorcycle Patients, Record Keeping & Use, and Business Challenges

Table 6: Legal dimensions observed, Safety of Passengers & Luggage and Reasons for Many Hospitalized Patients, Record Keeping & Use, and Business Challenges

	Frequency	Percent	Valid Percent	Cumulative %
Legal Dimensions Observed				
Driving license, insurance cover, road license, uniforms, shoes, and helmet	50	100.0	100.0	100.0
Safety of Passengers & Luggage adhering to road safety rules, observing road signs, non-speedy driving, driving when sobber, seriousness and carefulness when driving	50	100.0	100.0	100.0
Reasons for Many Hospitalized Motorcycle Patients				
Non-adherence to road safety rules, speedy driving, careless and reckless driving, driving while drunk	50	100.0	100.0	100.0
Record Keeping				
Yes	5	10.0	10.0	10.0
No	45	90.0	90.0	100.0
Records Use				
Not applicable	45	90.0	90.0	90.0
Track monthly income and expenditure	5	10.0	10.0	100.0
Business Challenges (Inside/Personal)				
Getting sick, passengers requesting service on credit, returning home late, and no daily collections to meet family expenses	50	100.0	100.0	100.0
Business Challenges (Outside/Stakeholders)				
Police custody, Police corruption, paying traffic penalties	50	100.0	100.0	100.0

Source: Researchers Survey Data, 2017

Table 6 focuses on legal dimensions observed for smooth business operations, the extent the Bodabodas ensure the safety of their passengers and luggage, as well as why they think there are many motorcycle patients hospitalized, record keeping and the use as well as challenges faced from inside and outside the business. On the legal dimensions to be observed as revealed by all the respondents included having driving license, insurance, uniforms, shoes as well as helmet. On one hand regarding the extent the Bodabodas ensure the safety of their passengers and luggage, the respondents mentioned issues including adhering to road safety rules, observing road signs, non-speedy driving, driving when sobber, seriousness and carefulness when driving. On the other hand, regarding why they think there are many hospitalized motorcycle patients, the respondents mentioned reasons that include non-adherence to road safety rules, speedy driving, careless and reckless driving, and driving while drunk. Otherwise, the challenges faced from inside include sickness, passengers requesting services on credit, returning home late, and no daily collections to meet family expenses while those from outside the business include police custody, police corruption, paying traffic penalties. Accordingly, five (10%) respondents said they keep records on their business transactions while 45 (90%) respondents said they do not. The use of the records is for tracking business monthly income and expenditure.

Although records have good use of tracking business transactions, the majority do not keep (if at all care about) them. In this case there is a call for availing these entrepreneurs with information (possibly through education) on aspects (including the pros and cons) of record keeping and other entrepreneurial skills. Otherwise, most of the challenges from outside relate to violation of road safety measures those from inside are more or less personal, family, and community related.

This means that the Bodabodas had to observe the normal ordinary legal dimensions of doing the business. Of course, the reasons given as the possible explanation for having many hospitalized motorcycle patients present clear practical contradiction. That is, if the mentioned road safety measures are taught to the Bodabodas, then they are loosely (if at all) understood and probably adhered to by the majority. This calls for the responsible stakeholders (including the police, the court, and license authorities) to revisit the existing road safety rules so that more strict

measures can be instituted (including severe penalties/punishments) to the violators that would act as lessons to others committing similar offences.

CONCLUSION
The Bodaboda business has a remarkable impact to the operators as there are gains at personal, family, and community levels. Given the current challenges of unemployment, the remedy is gone for self-employment. It is true that there were some Bodaboda operators that were involved in theft and other queer behavior like going contrary to the regulations. It is suggested policy makers be involved in mitigating the same. Other youth should try to change their mindset, abstaining from job seeking to self-employment. If the Bodabodas have managed, even other youths can possibly do. For this to take place it is advised that major improvements be done to school curriculum so that entrepreneurship flavor is included in all schools necessary for preparing the youth for job creation rather than white collar employment, Additional attitude change program be addressed to the youth so that they don't have to be stigma in other potential areas for entrepreneurial investment like agricultural activities which if effectively and efficiently managed it could bear significant results.

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