

The Use of Differentiated Instruction to Achieve Culturally Responsive Teaching

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Abstract: With an increasing diversity of learners in today's educational set-ups, there is an insurmountable need to cater for individual differences including the cultural variations among learners. It is therefore necessary for educators to develop culturally responsive teaching that enhances intercultural competencies of learners. As educators strive to provide inclusive learning environments in which learners from diverse cultural backgrounds learn equitably, differentiated instruction becomes a practical tool. This paper explores how differentiated instruction can support and enhance culturally responsive teaching by examining how tailored instructional approaches can bridge cultural gaps and enhance educational outcomes. The aim is to provide a comprehensive understanding of how educators can effectively integrate differentiated instructional methodologies to achieve the goals of Culturally Responsive Teaching. The study used a descriptive survey design to determine the use of differentiated instruction by junior school teachers in Kenya and a systematic review of literature, practical examples, and studies on teachers' practices in culturally responsive teaching. The study outcomes indicated that teachers used various differentiated instructional strategies with flexible grouping being the most commonly used strategy. However, there arises a concern, that teachers were not very familiar with cultural variations of learners in their classrooms even as they developed their differentiated instructional strategies. Literature provided the principles and practices of culturally responsive teaching. The combination of these results were used to formulate a conceptual framework for Culturally Responsive Differentiated Instruction (CRDI) that provides insights for practitioners to develop and implement culturally responsive differentiated instructional strategies. The study recommends that a framework to support teachers in the implementation of inclusive and equitable curriculum through CRDI be developed, CRDI be integrated into the teaching processes and the teachers be trained on providing for learner differences through CRDI.

Keywords: Differentiated Instruction, Culturally Responsive Teaching, Learner Differences, Instructional Strategies, Culturally Responsive Differentiated Instruction

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1. Introduction

The growing diversity in our educational landscape brings with it a challenge of creating inclusive and equitable learning environments for all learners. Learners come from diverse cultural backgrounds and bring in variations of culture, experiences, needs and interests. Culture includes ethnicity and race, as well as gender, class, language, region, religion, exceptionality, and other diversities that help to define individuals [1]. Culture is a lens through which people view themselves. It shapes perceptions, language, behavioral expressions, values, identity and societal expectations thus influencing how individuals perceive, relate and interpret their experiences and interactions and how they evaluate the world around them [2]. It is therefore important for educators to be able to effectively address and embrace cultural differences in the classroom by adopting an

inclusive approach to learning. An inclusive approach to education means that each individual's needs are taken into account and that all learners participate and achieve together [3]. This can be achieved through teaching that recognizes and values the cultural backgrounds and experiences of students, fostering a sense of belonging and academic success. The best teaching practices take into account all learners in a classroom setting and pay close attention to differences inherent to academic, cultural, linguistic, and socioeconomic diversity [4, 5].

Culturally responsive teaching (CRT) emerges as a vital pedagogical framework for educators attempting to establish just and equitable learning environments that respect and represent the diversity of their learners' experiences and backgrounds. Culturally responsive teaching is an approach to instruction that seeks to connect learners' cultural backgrounds, experiences, and identities to their learning process [4,6,7,8]. It responds to the sociocultural context and seeks to integrate the cultural content of the learner in shaping an effective learning environment. CRT seeks to foster an inclusive and equitable educational environment by recognizing the cultural assets that learners bring to the classroom and modifying methods of instruction to reflect and value these different perspectives. CRT uses learners' customs, characteristics, experience, and viewpoints as tools for better classroom instruction by seeking to understand, respect, and integrate learners' diverse cultural backgrounds into the learning process [9,10]. By recognizing and responding to the diverse needs of students in multicultural classrooms, educators create an inclusive, positive and dynamic learning environment that addresses social and emotional needs, promotes equity and inclusivity, increases student engagement, fosters critical thinking, reduces achievement gaps improves overall academic achievement. It also helps learners build global consciousness, promoting cultural understanding and respect, and preparing them for real world which is a multicultural society [8,11,12].

In order to accommodate the variance of learner characteristics in the classroom, teachers adapt the curriculum and their teaching methods to provide multiple pathways for learning. This constitutes differentiated instruction (DI). Differentiated instruction is a pedagogical strategy that aims at meeting the diverse needs of learners, but with a focus on different aspects of diversity. It adapts teaching techniques and materials to accommodate readiness levels, learning styles, interests, socio-emotional needs, cultural and linguistic backgrounds, pace of learning and gender of learners [13,14]. DI involves varying content, teaching processes, learning environments and assessment products to ensure all students can access the material at their level of understanding and ability resulting in individually responsive teaching [13,14].

Equity and inclusion are key to both CRT and DI. However, while CRT stresses inclusion in cultural representation, DI prioritizes inclusivity in terms of students' learning skills, styles, and preferences. Contrary to CRT, which emphasizes acknowledging and appreciating students' cultural origins, experiences, and viewpoints, DI is a way to customize instruction to each student's requirements according to their readiness, interests, and learning profiles. CRT promotes a classroom environment that values diversity and inclusivity, with the goal of increasing student engagement and academic success. DI, on the other hand, seeks to create equitable learning opportunities by recognizing and addressing students' individual differences in a proactive and strategic manner [4]. Though CRT and DI are distinctly different approaches, they have a shared goal of meeting the diverse learner needs and promoting inclusive educational practices. They also have commonalities in practice such as use of inclusive curriculum, cultural awareness, individualized approach, building on learners' strengths, addressing sociocultural barriers to learning, equitable learning environments as well as flexible and responsive teaching strategies [6,14]. With an enhanced focus on learners' cultural diversity differentiated instruction can be customized to provide culturally responsive teaching. The two approaches can be reconciled to create a pedagogy that can serve to improve learner achievement while at the same time catering for their diverse interests

and cultures [4]. Differentiated instruction can enhance CRT by ensuring teaching processes that are learner-centered, involving a variety of instructional strategies with cultural relevance and responsiveness within collaborative learning communities. This paper explores the intersection of differentiated instruction and culturally responsive teaching, examining how educators can effectively adapt differentiated instruction to create culturally relevant and engaging learning experiences for all learners.

1.1. Background

Inclusive education has developed from the belief that education is a basic human right and that it provides the foundation for a more just and accepting society [16]. Education offers a key entry point for inclusive societies. However, many people worldwide continue to be excluded from education for reasons which might include gender, sexual orientation, ethnic or social origin, language, religion, nationality, economic condition or ability. United Nations Educational Scientific and Cultural Organization (UNESCO) encourages member states to develop and implement inclusive policies and programmes that provide them with quality education and helps translate policy into inclusive curricula, pedagogy and programme design and delivery [3].

Kenyan schools are characterized by a wide range of cultural diversities, reflecting the country's rich ethnic, linguistic, and religious backgrounds which include: Ethnic diversity with more than 48 ethnic communities; Linguistic diversity with English and Kiswahili as the official languages, and numerous indigenous languages spoken by different communities; Religious diversity with Christianity, Islam, traditional African religions, Hinduism and Buddhism; Socioeconomic diversity, ranging from affluent, urban areas to rural impoverished and slum communities, nomadic and pastoralist communities and refugee and immigrant populations; Gender norms and roles; Special needs and disabilities; Traditional practices and Special cultural practices and school policies [17,18]. Understanding and addressing these cultural diversities is key to promoting equity and inclusion as well as improving educational outcomes.

A key response to the need to cater for learner diversity in Kenya has been the implementation of Competency Based Curriculum (CBC), which is founded on, among others, the principle of diversity and inclusion as well as differentiated learning [19]. While various efforts have been made to address cultural diversity in learning in Kenya, there is inadequate demonstration of tools that could directly support culturally responsive teaching. There are no structures of how multicultural education is delivered in most countries [11]. Some school settings in developing countries like Kenya are characterized by student alienation and hostility based on ethnic segregation, marginalization, teacher bias and favoritism, academic performance, stereotyping and prejudice; with certain groups being categorized as biologically, culturally, and academically competent or inferior [18-22]. A qualitative case study in two elementary schools serving English language learners from culturally and linguistically diverse backgrounds in North San Diego County, California concluded that reconciliation of best teaching practices and the creation of hybrid pedagogies are critical in addressing the future of an increasingly diverse global community [4]. The study however did not provide a comprehensive framework for developing culturally responsive differentiated instruction.

1.2. Research Questions

To explore how differentiated instruction can support and enhance culturally responsive teaching, this paper aims to answer the following questions:

1. How familiar are teachers with the characteristics of learners in their classrooms?
2. What strategies do teachers use to provide for differentiated instruction in the classroom?

3. How can differentiated instruction be used as a framework to achieve culturally responsive teaching?

2. Materials and Methods

A descriptive survey was carried out to enable determine teacher practices associated with differentiated instruction. The study instruments were based on self-report regarding DI practices where 103 teachers from 53 Junior Schools in Tharaka Nithi County, Kenya responded to questionnaire items and 9 head teachers were interviewed. The teachers who participated in the study were identified through simple random sampling, while the head teachers were purposely selected to represent various zones of the County. Using questionnaires and interviews, data was collected on how teachers study learner differences in their classrooms, how familiar the teachers were with various learner characteristics and the strategies they use in differentiated instructions. The study tools were reviewed by expert educationists at Chuka university, piloted and revised. The Cronbach's Alpha coefficient for the 16 questionnaire items about teachers' DI strategies was calculated to be 0.876, while the Cronbach's Alpha coefficient for the 7 questionnaire items about instructors' familiarity with learner characteristics was 0.839. A systematic analysis of literature on the characteristics, requirements and the framework of CRT was done. Data from questionnaires was analysed and combined with reviewed literature to develop culturally responsive differentiated instructional strategies. The results were presented in the 1st UNESCO Chair on Intercultural Competence Annual Conference at Strathmore University, Nairobi, Kenya.

3. Results

3.1. Methods used by teachers to determine learner characteristics

The teachers responded to questionnaire items seeking to establish the methods they used to study the characteristics of their learners for the purpose of planning for differentiated instruction. They indicated how often they used the provided methods and the results are as shown on [Table 1](#).

Table 1. Methods used by teachers to study learner differences

Method used	Percentage of teachers who indicated					Total
	Never	Rarely	Sometimes	Often	Always	
Observation of behavior in and out of class	0	0	8.7	33.0	58.3	100
Interviewing learners	0	0	21.4	50.5	28.2	100
Use of student diaries, learning logs, journals, and prediction logs	6.8	27.2	39.8	17.5	8.7	100
Use of records (admission, attendance register, progress record)	3.9	15.5	10.7	18.4	51.5	100
Use of formative assessment	0	3.9	25.2	38.8	32.0	100
Assess pupils in a variety of ways	0	4.9	19.4	43.7	32.0	100
Input from parents or other informant	4.9	26.2	30.1	28.2	10.7	100

There was use of various methods to study learner differences in varying frequencies. The most frequently used method was observation of learner behavior with 91.3% (comprised of responses indicated as often and always) indicating that they used this method either often or always. 78.2% used interviews which were mostly explained to be informal in nature. Teachers also frequently assessed learners in a variety of ways (75.7%) and used formative assessment (70.8%). Use of student diaries, learning logs, journals,

and prediction logs was the least frequently used method (26.2%). Use of input from parents or other informant (38.9%) was also low. This outcome implies that teachers make a good attempt to learn the characteristics of learners. They however mainly relied on observations which may not adequately provide information on cultural differences. Journaling peer discussions, and professional learning communities are also useful tools towards building cultural awareness [9]. Collaboration with parents and guardians and home visits and community engagement in school activities could help teachers gain deeper insights into students' cultural backgrounds, learning styles, and home environments [6].

3.2. Teachers' familiarity with the characteristics of their learners

The study sought to determine the perception of teachers on their familiarity with variations in learners' attributes. Teachers were presented with questionnaire items in which they were required to indicate levels of agreement or disagreement with given statements. the questionnaire consisted of both closed-ended 5-point Likert scale and open-ended questions. Table 1 shows their responses where; strongly agree (SA) and agree (A) were grouped together to form the agreed position, while neutral(N), disagree (D) and strongly disagree (SD) were classified as disagreed.

Table 2. Teachers familiarity with the characteristics of learners

Statement	Agreed (%)	Disagreed (%)
I have adequate knowledge of my pupils' cultural differences	45.7	54.3
I am aware of each of my pupils' learning motivation and interest	68.0	32.0
I know my pupils' learning styles	66.0	34.0
I am always aware of the pupils readiness levels	70.9	29.1
I always get to know the pupils' personal experiences (out of school experiences that may affect learning)	65.1	34.9
I understand my pupils' prior educational experiences	68.9	31.1
I know my pupils' personalities	77.7	22.3

It is notable that teachers' perception of their familiarity with the characteristics of learners such as learning interest, learning styles, learning readiness, personal experiences and personalities was high. However, their familiarity with their pupils socioeconomic and cultural background registered the lowest agreement rate of 45.7%. Learners vary in terms of abilities, learning styles, interests, and cultural backgrounds. Recognizing these differences allows teachers to provide more personalized and meaningful learning experiences [13]. It is of concern therefore that even as teachers implement DI, they are not adequately versed with the learners' cultural differences. For a teacher to adequately provide CRT, they need to learn about their students and be aware of their own understanding of learners [23].

Teachers' understanding of cultural differences among learners was isolated for a closer check. Figure 2 displays data on the percentage of teachers who indicated the extent to which they agreed with the statement 'I have adequate knowledge of my pupils' cultural differences'.

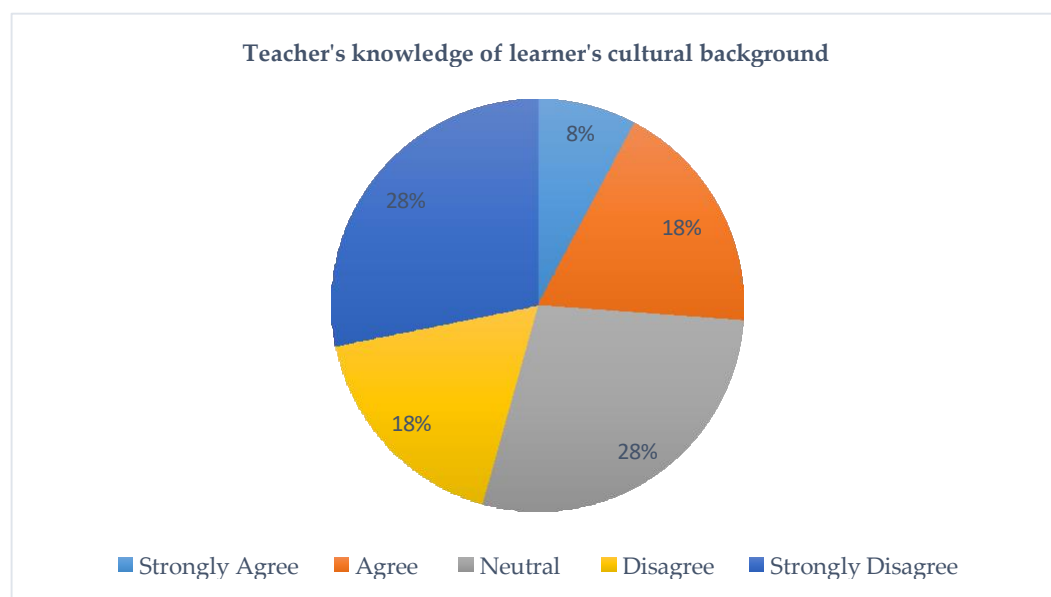


Figure 1. Teacher's awareness of learners' cultural information

Only 8% of the teachers strongly agreed that they were familiar with their learner's background information while 18% agreed. A neutral position taken by 28% of the teachers. This is an indication that teachers perceive lack of adequate awareness of learner's culture. Teachers' limited knowledge on the cultural backgrounds of their learners is a critical issue in modern education systems. It affects how they understand or appreciate the diverse experiences, traditions, values, and practices that influence how students learn and interact. This affects their ability to deliver effective, equitable, and inclusive instruction [6,10, 32]. This gap can lead to misunderstandings, reduced engagement, and lower academic outcomes. Teachers may have limited knowledge of the cultural backgrounds of their learners because they may not have had the opportunity to learn about their students' cultural backgrounds outside of the classroom as they mainly relied on observation of learners to identify learner characteristics. They may also not have been exposed to diverse cultural backgrounds during their own education or training [47], and may not have received adequate training or professional development on cultural competence and diversity [33]. In addition, standardized curricula and testing often fail to account for cultural diversity, leaving little room for culturally tailored teaching practices.

3.3. Strategies used by teachers to provide differentiated instruction

A total of 16 DI strategies were presented to the teachers who indicated the frequency of use of each strategy. From the results, the percentage of teachers who indicated they used a strategy often and always were computed and the results presented on [Figure 1](#).

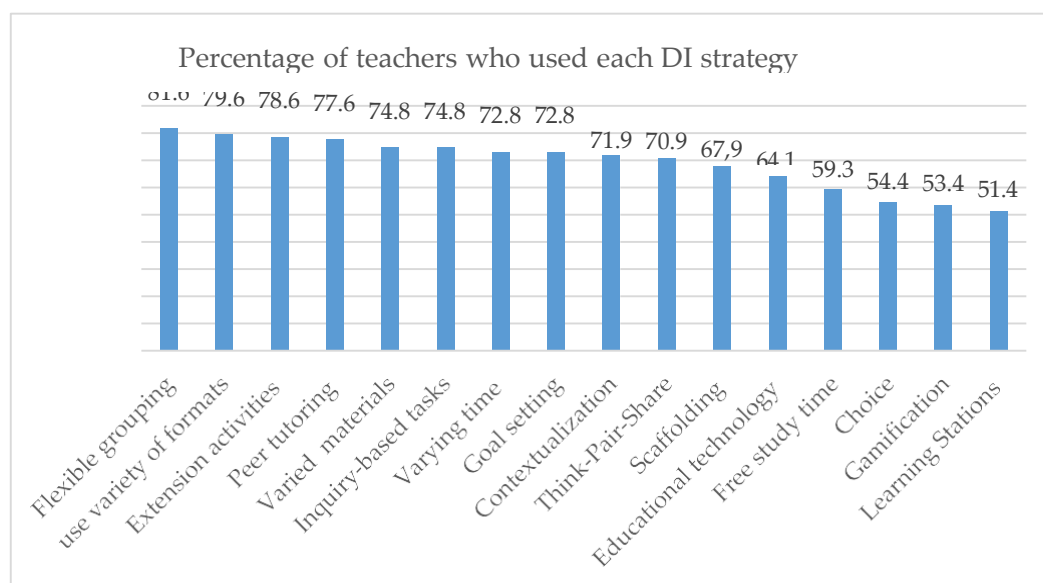


Figure 2. Teachers use of DI strategies

Figure 2 shows that teachers used various DI strategies with flexible grouping being the most frequently used by 81.6% of the teachers. This is in agreement with Tomlinson [13] who posit that flexible grouping is key to DI. This was closely followed by presentation of information in a variety of formats to appeal to varied learning styles such as visual, auditory, read/write and kinesthetic (79.6%), and extension of learning activities such as providing more activities to those who finish their work fast and allowing learners to work at their own speed (78.9%). Giving students a choice by letting the learners select their own learning activities and the format of the lesson was not widely adopted, as just 54.4% of the teachers reported using it. Use of gamification (53.4%) and learning stations/centres of interest (51.4%) were the least frequently used DI strategies. Other strategies used in varying frequencies were: peer tutoring and learning buddies; use of varied instructional materials that target different senses; use of tiered lessons through assigning different tasks within the same lesson or unit by varying the length of time a student may take to complete a task; scaffolding; use educational technology to differentiate instruction; using the Think-Pair-Share strategy, use of student-led tasks such as open-ended, inquiry-based task for independent projects; contextualization through linking learning to personal interests and real-world examples; use of learning contracts through goal setting for all students to achieve in a topic before starting the topic; offering different types of free study time; Allowing learners to present their learning in a variety of formats such as drawing, write up, verbal expression or creating objects.

The analysis reported a mean of 3.88, based on a five point Likert scale where; Never was represented by 1, Rarely by 2, Sometimes by 3, Frequently by 4 and Always by 5. This suggests that, on average, respondents tend to rate their frequency of using the DI strategies between “Sometimes” and “Frequently” which indicates a moderate to high frequency use of differentiated instructional strategies. There was however, some variability in respondents’ ratings of use across the 16 DI strategies provided. These results are in agreement with a study by Sitabkhan, et al [24], on differentiated instruction in multi-grade preprimary classrooms in Kenya which found that all teachers differentiated instruction to some extent. However, the study findings contradicted Onyishi and Sefotho [25] who found low levels of implementation of DI by teachers in inclusive classrooms in Nigeria. Coubergs et al [23] also found that while teachers were aware of DI, its actual application in secondary schools in Belgium, was low. According to Mensah, Ampem & Owusu [26], teachers’ competencies in teaching different learners did not translate into practice.

3.4. Analysis of literature

Further critical analysis of literature was done to explore the characteristics of CRT, its application principles and frameworks and how DI strategies can be integrated into CRT framework.

3.4.1. The significance of culturally responsive teaching

Culturally Responsive Teaching (CRT) is an educational approach that acknowledges and utilizes the cultural backgrounds, experiences, and perspectives of students as a key part of the teaching and learning process. This pedagogical framework, pioneered by scholars like Ladson-Billings, Delpit and Gay [27-29] advocate for inclusive, culturally relevant approaches to education that enhance the learning experiences of diverse students. The emphasizes is on learning environments where students from diverse cultural backgrounds can excel academically while maintaining their cultural integrity, where teachers are aware of cultural differences and create learning environments that are inclusive of those from diverse cultural backgrounds. CRT is grounded on several foundational theories that inform their principles and practices. Some of these theories include: Critical Race Theory by scholars such as Gloria Ladson-Billings; Multicultural Education Theory by James Banks and Christine Tate; Sociocultural Learning Theory by Lev Vygotsky; and Constructivist Learning Theory by Jean Piaget and Jerome Bruner [6,8,30-32].

The significance of culturally responsive teaching in diverse educational settings has been elaborated by many scholars [1,7,8,9,23]. CRT promotes academic success, cultural competence, and social justice by creating a learning environment where all students feel valued, respected, and empowered to succeed [4,7,33]. It promotes equity and inclusion as it creates a more equitable learning environment where every student has the opportunity to succeed. It also reduces cultural bias and stereotypes as it promotes understanding among students by incorporating diverse perspectives which can lead to a more respectful and empathetic classroom environment [20]. CRT fosters a sense of belonging and relevance, which can enhance student engagement and motivation leading to increased participation and academic success. By tailoring instruction to meet students' cultural and linguistic needs, CRT helps to support their learning and development increasing academic achievement particularly for students from marginalized or underrepresented backgrounds [23]. Use of CRT reduces achievement gaps by providing the necessary support, scaffolding, and resources that students need to succeed academically. By developing critical thinking and global awareness in a multicultural and interconnected world, CRT equips students with the skills and attitudes necessary to navigate and appreciate cultural diversity needs. It encourages an environment where students can learn from one another's perspectives [7, 23]. This fosters critical thinking, empathy, and a broader understanding of global issues, preparing students to function in an increasingly interconnected world. This preparation is essential for fostering global citizenship and intercultural competence [17]. Understanding students' backgrounds helps educators establish rapport, making students feel seen, valued, and respected thus building strong teacher-student relationships [1]. Learners have different emotional and social needs. Some may have experienced trauma, discrimination, or cultural alienation. Culturally responsive teaching addresses these needs, helping learners feel emotionally supported thus reducing anxiety and stress and fostering a more positive attitude toward learning.

3.4.2. The Framework of Culturally Responsive Teaching

Various sources of literature on CRT frameworks were considered. Brown-Jeffy & Cooper [1] developed a conceptual framework of culturally relevant pedagogy based on five themes namely: identity and achievement, equity and excellence, developmental

appropriateness, teaching the whole child, and student-teacher relationships. Within the framework are features that point to the need of differentiated instruction such as incorporating multicultural curricular concepts, different learning styles, skill development in a cultural context, caring relationships and interaction as well as engagement and collaboration. Wlodkowski & Ginsberg [12] developed a framework for Culturally Responsive Teaching with an emphasis on intrinsic motivation. The framework recommends that teachers (1) establish inclusion, (2) develop positive attitudes, (3) enhance meaning, and (4) engender competence. A framework by Dunne [34], for culturally responsive instruction in science classrooms that consisted aspects of external and internal school structures of content standards, assessment rubrics and curriculum structures, teacher knowledge and attitudes as well as various classroom practices. Griffin [34] considered CRT framework based on: social interaction; transfer where prior knowledge and experience is acknowledged or encouraged; student centered, supportive and facilitative learning; and cooperative and collaborative learning. The framework developed consisted four stages which involve; examining cultural model of the chosen content; determining lesson delivery format; exploring methods of bridging cultural barriers and executing and evaluating the lesson. Krasnoff [7] developed a guide to evidence-based practices for teaching for CRT with emphasis on preparing the teacher for CRT, ensuring the teacher develops awareness of the learners, develops a caring community, cultivates cross-cultural communication, designs instruction considering cultural diversity and recognizes dimensions of cultural learning diversity. Kuppens et al., [19]. Developed a framework with five dimensions which are; content integration, knowledge construction, prejudice reduction, equity pedagogy and empowering school culture and social structure. Teacher Resource Pack on Inclusive Education, titled "Reaching Out to All Learners," developed by UNESCO, focuses on providing teachers with effective strategies and resources to support inclusive education practices [36]. The Teacher Resource Pack: Special Needs in the Classroom [3], provides insights on features of CRT which include: understanding cultural diversity, inclusive curriculum design, linguistic inclusivity, building on students' cultural strengths, culturally sensitive classroom management, culturally responsive assessment, engagement with families and communities, addressing stereotypes, prejudices and bias, global citizenship and intercultural understanding, respect for indigenous cultures, adapting learning environments to cultural contexts. According to Hammond [10], the four components of culturally relevant pedagogy include; affirmation, validation, cognition and processing.

From the literature reviewed the key principles of CRT can be isolated. These include: i) Cultural awareness and competence which involves educators developing an understanding of cultural backgrounds and experiences of their students, including their beliefs, values, and traditions ii) Cultural relevance through inclusive curriculum; where teachers incorporate diverse perspectives, examples, and materials into the curriculum to reflect the cultural diversity of their students; iii) Student learning through Responsive Pedagogy where teachers adapt their teaching methods and strategies to meet the needs of diverse learners, taking into account different learning styles, languages, and cultural norms as well as prioritizing students' intellectual growth through communication and high expectations in learning; iv) Developing cultural competence by creating an environment where students affirm and appreciate their culture of origin while also developing understanding of other cultures; v) Positive relationships where educators foster trusting and supportive relationships with their students, recognizing and affirming their identities and experiences; and vi) Critical consciousness where encourages learners critically examine social issues, including those related to power, privilege, and systemic inequalities, empowering them to become agents of change in their communities. Teaching students how to identify, analyze, and solve real-world problems, especially those that result in societal inequities against marginalized groups.

3.4.3. Differentiated Instructional Strategies

Various strategies can be used to cater for individual differences of learners in class. Various studies have documented some DI strategies that teachers can use in their classrooms [13,15,37-41]. Some of the DI strategies identified are: Flexible grouping which involves providing an opportunity for one to work with a variety of learners to participate in different groups depending on the activity [13,15]; use of multi-sensory approach by incorporating different learning that target visual, auditory, tactile and kinesthetic senses [15,41]; Flexibly-paced learning that provide a differentiated approach to time-based tasks; where learners are allowed to complete a task at their own speed [41]; targeted support through scaffolding [14,37,39]. Individualizing learning [14]). Open-ended student-led tasks [13,15]; Lesson-processing experiences through think-pair-share strategy [14]; contextualization, which involves relating learning to personal interests and everyday examples [39]; Technology integration and gamification [43]. This study examined the frequency of use of these instructional strategies to cater for learner differences in class and therefore provide confidence in integrating the strategies into CRT framework.

4. Discussion

A blend of the principles and practices of Culturally Responsive Teaching (CRT) and the utilization of Differentiated Instruction (DI) produce a conceptual framework for Culturally Responsive Differentiated Instruction (CRDI). CRDI is a holistic approach to teaching in diverse classrooms whose strategies meet diverse cultural, linguistic, social and academic needs of learners in a multicultural classroom. In CRDI instructional practices are tailored in ways that are both culturally affirming and academically appropriate. Based on the empirical results and systematic literature analysis, a discussion on CRDI is provided.

4.1. The conceptual framework for Culturally Responsive Differentiated Instruction

Culturally Responsive Differentiated Instruction (CRDI) can be organised in four cyclical but interactive phases which are; Cultural Awareness, Differentiation of Instruction, Responsive Teaching, and Reflection and Feedback. Cultural awareness involves building a foundation of understanding cultural diversity of students' cultural identities, experiences, backgrounds, and learning preferences. This is the foundation that informs all the other phases. Hammond [10], advises educators to commit to knowing their students well; academically, socially, and emotionally. Based on the cultural awareness gained, teachers modify their teaching methods, content, and assessments to cater to the diverse needs of their students. The second phase of differentiation of instruction involves customization of instruction to meet diverse learning styles, readiness levels, and interests while ensuring cultural relevance. This involves differentiation of content, process, product and environment using various DI strategies [4,13]. This leads to the third phase which is responsive teaching. Responsive teaching involves affirming cultural identity in the learning process. This phase involves actively monitoring student learning and adjusting instruction in real-time based on student responses. This purposes to ensure that all aspects of instruction, classroom management, and assessment reflect students' cultural identities and promote cultural competence. The last phase is reflection and feedback for continuous adaptation and growth. Reflection is done on the effectiveness of instructional practices and make necessary adjustments based on feedback from students and self-assessment. This can be achieved through; formative assessments, student feedback and teacher reflection. After each lesson or unit, teachers reflect on their practice, analyze student outcomes, and gather feedback from students. This reflection informs future planning and helps refine cultural awareness, differentiation strategies, and responsive teaching techniques. These four phases are however not linear but highly interactive with various instructional activities taking place

together. The interconnectedness of cultural awareness, differentiation of instruction (DI), Culturally Responsive Teaching (CRT), and reflection and feedback is as shown on [Figure 3](#).

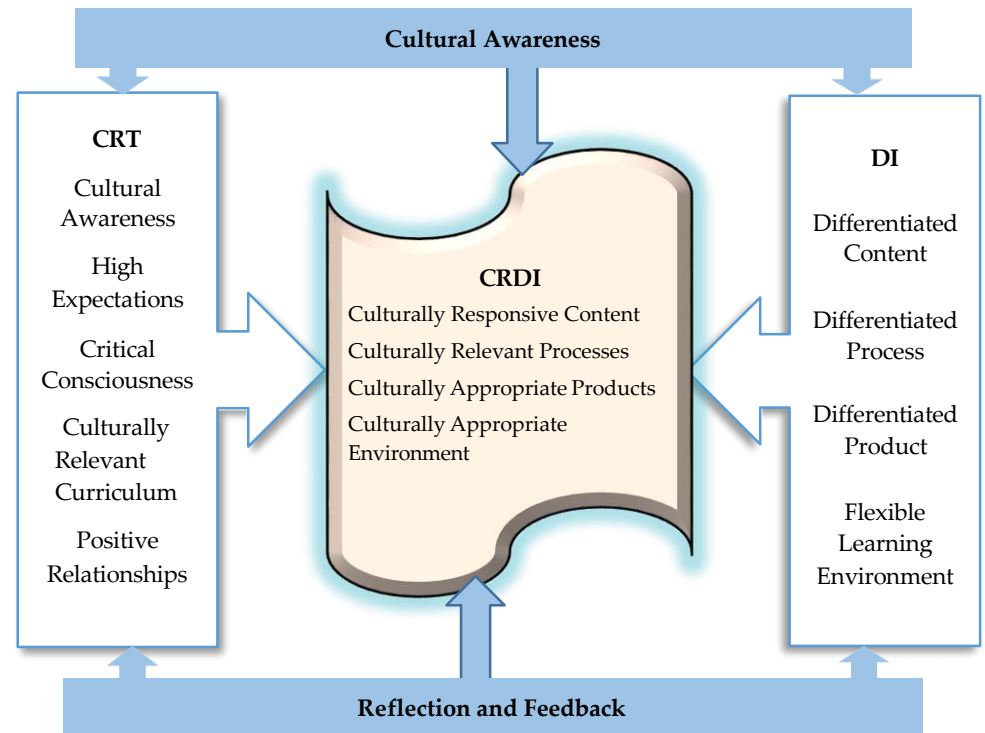


Figure 3. Conceptual framework of Culturally Responsive Differentiate Instruction (CRDI)

The conceptual framework shows the four phases of CRDI as well as the contributions of the components of CRT and DI and their interrelation in forming CRDI. Cultural awareness informs CRT and DI and is thus a basis for CRDI. Reflection and feedback are important quality assurance component of CRT, DI and CRDI. The basic components of CRT that are utilized in CRDI are; cultural awareness, high expectations, critical consciousness, culturally relevant curriculum and positive relationships. The components of DI that form CRDI are; differentiated content, differentiated process, differentiated product and flexible learning environment.

The conceptual framework of CRDI is therefore, built around four interrelated components: culturally relevant content, process, product, and learning environment (4,14,15,34,44). Each of these components should reflect the integration of DI and CRT principles to provide a holistic, inclusive approach to teaching. For CRDI, teachers design content that is both academically accessible (adjusted to students' readiness) and culturally responsive (reflecting the diverse backgrounds of students). It should be based on culturally relevant curriculum. Teachers differentiate content by modifying its complexity, depth, or presentation, ensuring that students at various readiness levels can access and understand it. Culturally relevant content connects the curriculum to students' lived experiences, cultural identities, and prior knowledge. It ensures content that addresses themes of social justice, equity, and cultural contributions of different groups [19]. In differentiating content, materials that reflect the cultural backgrounds and real-world experiences should be used and information should be presented in multiple ways to connect with students' varying cultural experiences and learning styles. This makes learning more meaningful and engages students by acknowledging their cultural backgrounds.

In differentiating process, culturally responsive learning activities should be carried out. Teachers differentiate the learning process by providing learning in varied formats and opportunities for the learners to engage in the learning. This could include visual, auditory, kinesthetic, and social learning activities based on students' preferred learning styles [13]. CRT emphasizes using instructional methods that reflect learners' cultural learning preferences and values. Culturally responsive processes might include collaborative group work for collectivist cultures or independent research for individualistic cultures [9,32]. In CRDI, teachers create learning activities that honor cultural learning styles and provide varied forms of engagement with proper communication of the expectations of learning. Scaffolding instruction and culturally relevant teaching strategies like cooperative learning, individual research, creative project, peer tutoring, exploring a historical event and storytelling, which may align with traditions or cultural experiences may be used.

Differentiation of product means that students have various ways to demonstrate their learning, such as written essays, presentations, projects, or creative performances, depending on their strengths and preferences. Differentiating product can be based on providing students with choices in how they demonstrate their learning, offering a range of product options that cater to different, designing authentic products that have real-world connections and purpose, and use of tiered learning though adjusting the complexity and challenge level of products to match students' readiness levels [4,13,16,44]. Recognizing the different ways that students from diverse backgrounds might express their knowledge and understanding constitutes the CRT component. In implementing CRDI assessments should be culturally and academically responsive are designed to be both differentiated (allowing for various demonstration methods) and culturally responsive (allowing students to incorporate their cultural perspectives). Products can be differentiated by allowing learners to demonstrate their learning in different ways that allow them to express their cultural identities and their critical consciousness. Assessment should value diverse perspectives and ways of knowing. Products may be tangible such as a chart, video, or script, or intangible such as a decision or a new, more focused question for future consideration. Intangible products can be shared in conversations or discussions and can be powerful CRDI tools.

A differentiated learning environment involves arranging the classroom in ways that support various learning preferences, such as providing quiet spaces for independent work, areas for collaboration, and access to resources that cater to different needs [13,14,15]. The key elements of differentiating the environment include physical environment, emotional environment and learning preferences [46]. CRT emphasizes creating an environment that affirms students' cultural identities. A culturally responsive learning environment can be achieved by using materials that reflect the cultural diversity of the learners, displaying multilingual signs, artwork, and literature from various cultures and fostering a classroom culture of respect, openness, inclusion, and understanding [8,10]. For CRDI the learning environment is designed to be both physically flexible (supporting diverse learning preferences) and culturally affirming (reflecting students' cultural backgrounds and identities). The classroom might include visual displays representing diverse cultures, flexible seating arrangements for group and individual work, and language resources for multilingual learners. Learners should also be provided with an opportunity to choose how they learn and demonstrate their understanding. Spaces can be created for learners to share their personal experiences and cultural stories as part of their learning process.

4.1. Teacher's Role in the CRDI Framework

The results indicated that teachers differentiate instruction by use of various strategies in varied frequencies. In order to integrate differentiated instruction into CRT, the teacher needs to develop cultural awareness [23,34]. Teachers must develop cultural

competence to understand and appreciate the diverse backgrounds of their students as well as understand your own cultural identity and its consequences [10]. Teachers should invest time in learning about their students' cultures, traditions, values, and linguistic backgrounds. Teachers who know their students' cultural backgrounds can create learning experiences that are more personally meaningful and supportive. This involves continuous learning about cultural norms, practices, and how these impact students' learning experiences. Regular reflection and adaptation of instructional practices ensures that teachers remain responsive to students' evolving needs and cultural identities [7]. This can be achieved through informal conversations, surveys, or home visits. The teacher should build strong, respectful teacher-student relationships that ensure the success of CRDI framework [1]. The teacher is a cultural mediator and facilitator of inclusive learning who adapts instruction to be both culturally relevant and academically appropriate. This role requires proper training and practice in the use of multiple cultural competencies to enrich instruction.

Though teachers report use of numerous methods to diversify learning, Miranda, & Bates [49] advance that they demonstrate a lack of true understanding of diversity. Research by Sleeter & Owuor [33] indicates that teacher preparation to teach diverse students is often inadequate. Nikoletta & Fehérvári [48] found that culturally responsive pedagogy related competencies were not adequately gained by pre-service teachers because most courses did not incorporate culturally responsive pedagogy as a long-term, comprehensive approach into their curriculum. Literature review on multicultural-based teacher education curriculum reform by Anugrah, Supriadi, & Anwar [50], as well as an investigation of key assumptions of multicultural education reform in teacher education by Cherng & Davis [51] indicate that multicultural-based teacher education curriculum reform plays a crucial role in equipping prospective teachers with the necessary knowledge, skills, and attitudes to teach effectively in diverse environment. Mensah, et al [26] also argue that teachers should be provided with ongoing professional development opportunities to be able to translate their multicultural teaching competencies into actionable strategies for supporting learners' interests and academic performance.

4.2. Culturally Responsive Differentiated Instructional Strategies

By combining the flexibility of differentiated instruction with the cultural relevance of CRT, teachers can meet the diverse academic and cultural needs of their students, leading to increased engagement, higher academic achievement, and stronger relationships across cultural lines. The strategies in CRDI framework create a rich, inclusive classroom environment where every student feels valued and supported. CRDI strategies may contain the following features:

- Use of culturally relevant content and resources where materials, examples, and texts reflect students' cultural backgrounds, histories, and experiences are incorporated understanding [6,27].
- Use of diverse learning modes which involves using a variety of instructional methods to address the different ways students process and engage with information. Using multiple modalities allows teachers to tailor instruction to both students' cultural backgrounds and individual learning styles, creating a more inclusive and effective learning environment [6,41].
- Flexible Grouping with cultural awareness by allowing students to work in pairs, small groups, or individually depending on the task, learning style, or cultural preference (4, 13,14,15). Some cultures place a high value on collaboration, while others may emphasize individual achievement. Teachers can create opportunities for students to work in culturally familiar group dynamics while also encouraging exposure to other styles. This strategy fosters cooperation and respect among students from

- diverse backgrounds and helps them learn how to collaborate in culturally relevant ways, while also building communication skills across different cultures. Peer teaching and cooperative base groups where students regularly learn and process content together form a useful tool.
- Differentiated assessment with cultural sensitivity. Some students might feel more comfortable demonstrating their knowledge through storytelling, art, or group projects, which align with their cultural background, while others might prefer more traditional forms of assessment [23]. The teacher can offer multiple ways for students to demonstrate their understanding, such as projects, oral presentations, written reports, or creative performances, ensuring that these align with students' cultural strengths. Teachers can vary assessment formats to reflect these preferences while maintaining academic rigor. These assessment methods allow students to showcase their learning in ways that are comfortable and familiar, reducing test anxiety and promoting deeper engagement in learning.
 - Culturally responsive scaffolding: teachers can provide learning support in a way that acknowledges and supports students' cultural diversity and offer differentiated support through language scaffolds and use of examples and analogies that are culturally relevant to clarify complex concepts [10,45]. Teachers can also allow students to use their home languages in initial discussions or brainstorming sessions before transitioning to the academic language. With use of this strategy students are able to access challenging content while building upon their existing knowledge, linguistic skills, and cultural understandings, thus enhancing their academic growth.
 - Personalized learning pathways: Teachers create individualized or personalized learning experiences that take into account both the academic needs and cultural backgrounds of students. Learners can be provided with choices in how they learn and how they demonstrate their knowledge [13]. These choices can be linked to cultural preferences and learning styles. With personalization students take ownership of their learning, feel valued for their individuality, and connect more deeply with the material in ways that are meaningful and relevant to them.
 - Culturally responsive use of technology: Technology tools allow students to engage with content in culturally responsive ways, such as using digital storytelling, multimedia projects, or collaborative online platforms. Technology can be used to differentiate instruction by providing multilingual resources, online games that cater to different learning levels, or culturally relevant videos and media [41,46]. Learners can create a digital presentation about their cultural heritage or use online platforms to collaborate with peers across the globe. This strategy enables students to express their creativity, connect with their cultural identity, and interact with diverse perspectives, all while accessing learning at their individual level.
 - Culturally affirming classroom environment [4]: The classroom environment should be designed to affirm and reflect students' cultural identities, incorporating culturally relevant materials, artifacts, and classroom layouts. Culturally diverse posters, books, and materials that represent various traditions, languages, and histories can be displayed. The physical space can be organised to promote cultural inclusivity, such as creating areas for group discussions (for collectivist cultures) or independent learning (for individualist cultures). This type of learning

environment makes students feel welcome, respected, and represented where the classroom is a judgment-free zone. This enhances their emotional well-being and readiness to learn.

- Culturally Responsive Problem-Based Learning (PBL) where students are engaged in problem-solving tasks that reflect real-world cultural and community issues. Problem based learning tasks can be differentiated by complexity, scope, and method of problem-solving but are all connected to issues relevant to students' cultural or local contexts. Students can work on solving environmental issues affecting their community, with tasks adjusted for different learning levels with either cultural link or use of unique cultural perspectives in problem-solving [45,46]. Learners should build confidence by showcasing their strengths and existing background knowledge.
- Encouraging Cultural Reflection and Self-Expression: Provided with opportunities for to reflect on their cultural experiences and express their identities through their work learners develop self-awareness and cultural pride. They also develop a deeper understanding among classmates from different backgrounds, promoting empathy and cultural appreciation [10,45]. Learners can be encouraged to write reflective journals, engage in discussions, or create projects that allow them to share their cultural narratives and perspectives. This can be done through differentiated prompts or choices that cater to varying levels of readiness or learning preferences.
- Different forms of content can be delivered through learning stations. Learning Centers or stations involve setting up different spots in the classroom where students work on various tasks simultaneously on their pace and abilities [13,16]. Each station can use a unique method of teaching a skill or concept related to your lesson. Learners can rotate between stations that involve: playing a game, creating artwork, watching a video, reading an article, completing puzzles, listening to verbal presentation. After going through each station, students can be helped to further process the material by holding a class discussion or assigning questions to answer.
- Culture relevant games should be used. Gamifying some lesson elements increase learner interest and continued attention to learning. [48]. Gamifying lessons is a way of making connections with contemporary gaming culture, helping students within this culture process and demonstrate understanding of content. Offering rewards, for completing specific tasks or achieving certain scores, setting a clear learning goal for the lesson, charting progress throughout the class to motivate students. Instructions that contain the rubric and best practices for earning a high grade are important strategies to achieve learning through games.

5. Conclusions and recommendations

Integrating differentiated instruction into culturally responsive teaching provides for equity and inclusivity in education and enhances learner engagement, increases academic achievement and improves cultural competence. There is therefore need for culturally responsive teaching through DI strategies. In this article, selected literature on culturally relevant pedagogy was integrated with the practice of DI to develop a framework for Culturally Responsive Differentiated Instruction (CRDI). CRDI is a conceptual framework for addressing cultural and personal differences in the implementation of instruction. The CRDI is able to address the diverse cultural, academic, and social needs of students by tailoring instructional practices in ways that are both culturally affirming and supportive

the learners' academic growth. Since teachers implement various DI strategies, they need to focus on learner cultural differences and development of cultural competencies to fully implement the CRDI strategies. Culturally responsive teaching is a contextual and situational process for both teachers and students. When culture is coupled with pedagogy the result involves a complex and comprehensive mix of knowledge and skills for teachers to use to engage a diverse learner population. Institutional support and professional development focused on both CRT and DI can help teachers develop the necessary skills to effectively combine these two approaches in practice.

It is recommended that the Kenya institute of curriculum development should consider developing a teacher education curriculum that incorporates training in the use of culturally responsive differentiated instructional strategies. Curriculum developers could also develop culturally relevant teaching materials to ease the teaching of multicultural classes. It is also suggested that the ministry of education should develop in-service professional development programs aimed at equipping teachers with multicultural competencies specifically incorporating training in the use of differentiated instruction and culturally responsive teaching. Teacher training institutions and the ministry can develop a Teacher Resource Pack for CRDI to be utilized for teacher capacity building for culturally responsive teaching.

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