

Becoming an Effective Teacher

A Teaching Reference Book for Teachers, Teacher Educators and Student
Teachers

A competency Based Curriculum (CBC) Support

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Preface

This book was reviewed by **Anatoli Rapoport** and **Chrystal S. Johnson** who are experts in Teacher education. Their views are as follows:

Anatoli Rapoport: As a teacher educator and education researcher, I know from experience how difficult it is to find a textbook that would balance education theory, reasonable amount of practical advice, and common sense content that new teachers need to become professionals. I am happy to testify that *Becoming an Effective Teacher* is one of such textbooks. The book is well designed: the reader can easily find a part or topic she or he is looking for. I like the way the authors placed references after each chapter that is much more helpful than footnotes or a long final reference list. The text comprehensively covers all most important aspect of teaching profession. The purpose of the textbook is to equip teachers who rarely or never experienced student-centred classroom, with techniques, strategies and methods that can make their classroom student-centred. To meet their goal, the authors offer a number of empirically tested active techniques and strategies, such as deliberation, discussion, role-play or case study. The focus on inquiry-based learning is particularly important and the authors use a reference to inquiry throughout the textbook narrative. The topics in the text are presented in a logical, clear fashion. In a word, the content of the textbook is up-to-date and written in such a way that necessary updates will be easy to implement. The text is internally consistent in terms of terminology and framework. The authors clearly understand their readership and contextualize the text to reflect the diversity of the audience.

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Prologue

Chrystal S. Johnson: Kenya Vision 2030 seeks to transform Kenya into an industrialized country that extends a high quality of life to all of its citizens. Central to this blueprint is the education, development, and placement of competent teachers who can build a just and cohesive society that is equitable, clean, and secure. Florence Kisirkoi and Michelle D. Cude's book, *Becoming an Effective Teacher*, provides a teaching reference for teacher educators, professional teachers and student teachers that supports the goals associated with the Kenya Vision 2030 program.

Prof. Florence Kisirkoi and Prof. Michelle D. Cude have extensive experience supporting the pedagogical knowledge and ambitions of Kenya's teacher educators, professional teachers and student teachers. The authors draw on their experiences in Kenyan schools to advocate for learner-centred instructional methods that scaffold competent teachers. The authors address gaps that permeate teacher education programs, most notably the incongruity between employing learner-centred teaching approaches in classrooms versus experiencing teacher-centred teaching approaches throughout their own school experiences.

Moreover, the text offers a superior explanation of learner-centred methods that address what the student is learning, how the student is learning, the conditions under which the student is learning, whether the student is retaining and applying the learning, and how current learning positions the student for future learning. Well-written and succinct, the text provides instructional methods that augment how to infuse learner-centred instructional practices across primary, secondary and university classrooms. Timely and appropriate, *Becoming an Effective Teacher* will bolster educator professional development in Kenya.

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PART ONE: THE TEACHING PROFESSION

CHAPTER 1: Teaching in the 21st Century

Never underestimate the power of education to change the world. In the words of Kofi Annan, former UN Secretary-General, “Education is a human right with immense power to transform” (GPE Secretariat, 2018). Quality education plays a great role in combating ignorance, illiteracy, poverty and disease, which are some of the enemies of a country’s social, economic and political development. Indeed, education plays a key role in achievement of global and national educational goals. It is teachers who hold that power to shape the future by laying a foundation for democracy and sustainable human development as they are the ones who educate the next generations of citizens. Clearly, the teacher is an influential agent of transformation, critical for success of any education system and in extension, a nation’s development.

The future of education would be very grim without competent teachers who confidently apply new teaching pedagogies to produce learners who will solve the complex challenges of the 21st Century and shape the future. Living in the modern age requires informed citizens who are active, self-directed, confident, responsible, tech savvy, wisely decisive, creative and innovative. One should also be an emotionally intelligent, effective communicator and collaborator who is agile and versatile, accommodating society’s rapid changes and development. In 2020 and beyond, COVID-19 Pandemic has taught the world the need for flexible problem-solving skills, as entire spheres of life moved to an online environment, requiring skills in modern technology to survive. One has to be alert and prepared for any eventuality, because danger could come from any sphere of life, ranging from the military to health and other areas yet unknown. Preparing students for the needs of today and tomorrow is the responsibility of every 21st Century teacher. Thus, teaching can be considered the most significant profession of all.

The Teaching Profession

Teaching provides the foundation for other professions, in so much that it acts as a parent or guardian of all occupations. It develops the people who become the human resource for all sectors of a country. Teaching, therefore, determines the social, economic and political development of a country; hence, teaching should be upheld as a noble profession with teachers as professionals who are highly valued, trusted, educated and fairly remunerated, in respect to the heavy role they play.

The teaching profession should be reserved for the most knowledgeable, talented, qualified and hardworking individuals who will teach with competence, passion and positive attitude towards learners and the teaching profession. Admission to teacher preparation institutions should depend on very high academic achievement, as well as interest and enthusiasm to teach children (*Saavedra et al., 2018*). Nobody in any profession has not passed through the hands of a teacher; therefore, teachers should be held with the high esteem appropriate to their scope of influence and transformative impact.

Thus, education is indeed a powerful weapon to change the world and to fight the enemies of humanity which include illiteracy, ignorance, poverty, disease and human evils. Teachers prepare the next generation of global problem-solvers in every nation, and therefore, the teaching profession should be made enviable, attractive, and competitive, recognising the great role a teacher plays in the social, economic and political development of a country.

Purpose of This Book

The goal of this book is to address a situation where teachers are expected to employ learner-centred teaching approaches yet they experienced teacher-centred teaching throughout their own school learning. We argue that with better training and mentorship, both new and practicing teachers could become more prepared to address the changing needs of the 21st Century student with effective student-centred teaching methods. This book, then, aims at enabling teachers to conceptualise what learner-centred teaching approach is, and to equip them with skills to improve learning outcomes in their classrooms.

The authors' purpose is not only to add to the public discourse on the professionalization of teachers, but also to empower individual teachers – teacher educators, current teachers and student teachers – to make a tangible difference in their local contexts through powerful teaching methodologies. We propose a solution to the frustrations which school teachers and teacher educators sometimes face when they do their best to teach and yet learning seems not to take place. Many of us, teachers, might be familiar with this experience expressed by Wiederman (2015 p.1) reflecting on his own teaching:

Is it possible to teach and yet the students do not learn? ... There have been too many times that I felt confident that I was doing a great job teaching. I just knew I was explaining things clearly and including great examples and applications that would be meaningful and memorable to the students. Everything was going great as the audience members maintained eye contact and even nodded along in agreement. Then came the exam and my optimism was dashed. Sure, some students did well and seemed to “get it” with regard to a particular concept. Unfortunately, many students who were exposed to my great teaching apparently did not “get it,” or what they “got” was way off base. What happened (or didn't happen)?

Wiederman's predicament has been shared in Kenya where a study by Uwezo (2015) found that some children in Grade Eight could not work out Grade Two problems. Probably teacher's skill to conduct individualized teaching and assessment was required, and an ability to identify individual's learning difficulties which could have been addressed. Possibly the teachers were not aware of any disconnect between their teaching and the pupils' learning.

The argument in this book is that these issues of frustration and failed learning could be addressed through sound teacher preparation, including pre-service instruction, induction support, mentoring and continuing teacher professional development. Teaching also needs to be revived by an appreciated, motivated, rewarded, enthusiastic teaching force working in a supportive environment with the necessary teaching knowledge, skills, and attitudes in order to address today's and tomorrow's world needs. To that end, in this book, we focus on application of the learner-centred, active learning and experiential methods of teaching with a 'How to teach' approach which moves beyond mere knowledge of teaching into the real-world, practical application of innovative teaching methods approaches, strategies and techniques, which facilitate learners to learn and achieve learning outcomes.

Teachers themselves, as a matter of urgency, must be equipped with skills and strategies to teach learners to learn, to teach for understanding as opposed to teaching for content coverage and examinations (*McTighe, & Wiggins, 2004*). As a result of effective teaching, students will engage in learning, learn as individuals, conceptualise and make sense of what they learn, innovate new knowledge, and investigate and solve problems. With such an approach, reports of children attending school and not learning would diminish or at least be minimised. Reform in teaching starts with both teacher educators in the universities and tertiary training institutions, and the teachers in the classroom.

Most teacher preparation programmes follow the model developed by a renowned education professor from Stanford University, Lee Shulman (1986). His theory advocates for *pedagogical content knowledge* where the teacher preparation programme consists of theory and practice courses which

this book anchors on. This book, therefore, aims at supporting teaching and learning, including teacher preparation, induction and continued teacher professional development in the field. It begins with Teacher Preparation where the theory covered in class is turned into practice through microteaching and, eventually, Teaching Practice, the final stage of teacher preparation. It then continues through the initial induction and continuing teacher professional development to sustain the teacher as a professional. Teaching is a learning profession which should be sustained and supported through continuing teacher professional development. There is need to explore ways of teaching where all learners learn. Most importantly, as teachers, we should reflect upon our practice and see what we could do to improve our teaching skills in order for learners to learn more fully and readily. For teacher educators, our learners, the student teachers will learn and teach their future school students.

This book will first assist us to understand our teaching profession, its meaning and what it entails in **Part One**. In Chapter One, we begin to understand ourselves as teachers: our role and the demand placed upon us. In Chapter Two, we dig deeply into the meaning of teaching and learning in detail as a significant foundation to build upon. **Part Two** includes many chapters which describe the best practices in teaching so that our students have the greatest learning outcomes possible. The final portion of this textbook (**Part Three**) will address the development of a teacher, tracing the journey from university or college preparation, through induction and beginning teaching into continuing teacher professional development.

This book is prepared to assist the development of several categories of individuals in education. For clarification, we define these categories as follows:

Student Teachers – Those college and university students who are undertaking a teaching course, preparing to become teachers.

Teacher Educators – Those who teach in the college or university to prepare and train student teachers to enter the teaching profession. They sometimes also act in the role of University or College Supervisors when they go to the field to assess Teaching Practice.

University and College Supervisors or Assessors – Those teacher educators who have received training as teachers, are in the teaching profession and participate in the training of student teachers in college or university. They facilitate collaboration between the secondary schools and the university or college training program through the placement of student teachers in the field. They generally visit the student teachers in the Teaching Practice schools in the field to observe the student teacher actually teach a class, and then assess and reflect with the student teacher on the quality of the teaching. Overall, University and College Supervisors assist and guide the student teachers assigned to them during the course of Teaching Practice. They are also called Assessors in some institutions.

Co-operating Teachers – Those current professionals teaching in the schools where a student teacher undertakes Teaching Practice. The co-operating teacher is assigned by the school to facilitate the student teacher to teach and conduct school activities throughout the period of Teaching Practice. Such a teacher is a valuable mentor to the student teacher about the real life practice of teaching.

School students – These are secondary school students and primary school pupils taught by student teachers, the co-operating teacher and other teachers in the schools. Indirectly, this book intends to serve these students and pupils in the schools, for their benefit inform of improved learning outcomes is the ultimate goal of our educational system.

Learners – General term used to refer to anybody receiving teaching and learning.

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CHAPTER 2: Introduction to Teaching and Learning

Teaching and learning go hand in hand and are the core, the heartbeat of education. They take place best with effective, quality teachers who guide learning. In effective teaching, learners learn and achieve the desired learning outcomes. The way a teacher teaches plays a significant role in determining the extent to which learners learn (*Darling-Hammond et al., 2020; Deslauriers et al., 2019*). The meaning of the terms *teaching* and *learning* should be clear to everyone who is in the teaching profession; we explore them here to underscore the fundamental importance of understanding them comprehensively in our role as teachers.

Teaching

What is teaching?

What are the qualities of an effective teacher?

Teaching is an intricate act of using morally acceptable means to facilitate someone to learn and attain the set expected learning outcomes (*Kisirkoi et al., 2008*). However, there is much more to teaching than simply conveying content. The teacher, too, has to provide stimulus and inspiration to the learner in the process of teaching. A teacher has to be sensitive to learners' feelings, experiences, background and existing knowledge. Ideally, teaching should facilitate the learner to develop good personality traits, grow intellectually, solve complex problems, collaborate with others, confront injustice and serve the community (*Mwaka et al., 2013*).

Teaching requires a teacher to skillfully balance many decisions and priorities at once. Meeting the needs of individual students must be considered alongside coverage of curriculum goals. To this end, a teacher applies intellect, content knowledge, pedagogical skill and one's own imagination to design a lesson by interpreting the curriculum, breaking down the content, and selecting the most effective teaching method, and teaching and learning resources. While presenting an organised, prepared lesson, the teacher simultaneously works to create a conducive, friendly learning environment that allows free participation and interaction for the students. In such a positive classroom climate, all students feel valued and safe. The brain works best in a stress free and safe learning environment (*Wolfe, 2010*).

Teaching also entails capturing the students' attention and sustaining it throughout the lesson. If the teaching has been successful, learners will not only meet the knowledge objectives, but also feel joy and hunger for more. They should be wishing as the teaching and learning is in progress that it would not end, and when the lesson ends, they look forward to the next one. Teaching is a profession that calls for not only school grades and training, but also a personal desire to teach for learning and connect with children with enthusiasm and dedication. Teaching should be treated as one of the most noble professions.

Teaching is both a science and an art. It is a science because it is informed by research; as we learn more about how the brain processes and stores information and experiences, it informs how we teach. There are theories such as learning theories that guide our instructional decision-making, as well as a set of standardised curricula to deliver. Teachers constantly experiment with their instructional methods to find which ones are more effective. Then they observe their class, and collect data on their students' achievement of their learning objectives. Well-organised teachers then use this data to adjust their teaching to better facilitate more comprehensive learning; they engage in continuous action research which together with reflection improve their teaching and students' learning. These systematic processes foster a scientific approach to teaching.

Teaching is also an art. Every teacher is an artist, creatively designing their classroom context, building a climate for open exchange of dialogue and also adjusting their delivery to meet the individual needs of the students. A teacher has to organise content and weave general approaches

with specific methods, and teaching and learning resources in order to create an inviting, supportive learning environment. Consider painting an image of the sky, the right mix of colours varies by situation and artist. Similarly, in the classroom, the right mix and balance of approaches and strategies might be different for every teacher and every group of students, especially given their unique learning styles, individual learning differences and abilities. Effective teaching is conducted in a way that each learner is facilitated to make sense of the knowledge, themselves. Therefore, it enables the learner to build upon their current knowledge by making connections, investigating the environment, interpreting the content and creating new knowledge. Thus, teaching is an art of co-constructing knowledge, interpreting experience with the students and building a friendly, appropriate learning environment for all.

Further, effective teaching requires the pedagogical skills to interpret the syllabus or curriculum designs, prepare schemes of work, design achievable learning outcomes or objectives, and deliver the content in creative, engaging and diverse ways. The chief roles of the teacher are to **interpret the curriculum design and syllabus and implement them appropriately and model learners to the desired end**. Beware – a masquerading teacher could teach and no learner learns. You could also try your best and do a competent job of teaching and yet few learners learn, as we saw earlier. Effective teachers teach for learners to learn; they teach for understanding. At the school level, teaching is the most important factor in student achievement of learning outcomes (*Darling-Hammond, 2017*). Research has established that the difference between an effective teacher and poorly performing teacher has a sizable effect on the students' achievement of learning outcomes (*Darling-Hammond, 2017; Sutton Trust, 2011*). Therefore, teachers must be supported to become effective in teaching for understanding, in order for learners to achieve desired learning outcomes. The outcome should be innovative, creative graduates who are problem-solvers, equipped with the 21st Century skills and able to adjust to evolving circumstances.

High quality teachers not only employ sound mastery of content and pedagogical skills, but also prepare teaching and learning resources and use them in class. Using technology for classroom teaching has become an imperative skill for 21st Century teachers who are taking their teaching to online learning environments! In addition, effective communication – using appropriate language aptly, good classroom management and control skill such as keeping eye contact and calling learners by name are part of effective teaching. Other skills are use of teaching humour, innovativeness and creativity in managing a learning environment. This learning environment means not only the learning resources, but also the classroom climate which is conducive to peaceful and thoughtful expressions of opinion.

Teaching does not take place in isolation. Effective teachers relate well with students, colleagues, parents and guardians and the wider school community. This serves as an important role model to help facilitate students to develop good interpersonal skills. Teaching, too, calls for continuous updating of the teaching skills, knowledge, values and attitudes. It also calls upon the teacher to rise up to drastic challenges such as COVID-19 which, in early 2020, led to closure of all learning institutions, causing teachers to suddenly manage e-learning platforms and other modes of modern technology to keep learning going on. A teacher must know the learners, and understand them: their abilities, conditions, home background, mood and life situation. Teaching to learn requires active learning coupled with sensitivity and response to learners' situations. The learner should be at the centre of the teaching and learning process: active, engaged and happily learning.

Therefore, we define teaching as a **well-thought-out and planned pattern of facilitating human mental growth and development in order for one to acquire, develop and construct desirable knowledge, skills, attitudes, values and competencies for personal and others' benefit**.

Teacher Effectiveness

Certain qualities make an effective teacher stand out; however, it is not easy to compile a comprehensive list of all the qualities. Some contexts could make the effectiveness of teachers vary

(Zakharov *et al.*, 2016); but we should rise above the situations we find ourselves in and become the most effective teachers we could ever be. The teacher who teaches well in an impoverished, under-resourced school may not be as effective in a posh, affluent neighbourhood school with ample resources and support, and vice versa, but could use available resources to make the learning relevant to learners' lives. A teacher who teaches well in their hometown may not be as effective in a far different or foreign context, but with effort should adjust and pull up in time to enable the learners to learn. Research demonstrates that effectiveness can vary according to the context (Maphalala, 2017; Pretorius, 2013); however, there are some characteristics of effective teachers that most educational researchers tend to agree upon which will make a teacher effective regardless of the situation and circumstances they face (Darling-Hammond & Bransford, 2005; Msila, 2013; Pretorius, 2013).

Effective teachers seek to **understand their students and meet their individual needs**. They are sensitive to learners' feelings and experiences, seeking to motivate them and sustain their interest throughout a lesson. They work effectively with students who have different backgrounds and learning abilities. From the diversity of students in their classrooms, effective teachers are able to weave an interdependent, collaborative, supportive learning community in tune with the social emotional learning needs of students (Durlak *et al.*, 2011). Communicating care to the students by being interested in their lives outside the classroom, builds trust and positive relationships. Students more readily learn from a teacher whom they trust.

An effective teacher **motivates learners to engage** with the content which is key to effective teaching. The best lesson fails if the students are not engaged and paying attention. Research frequently demonstrates the need to "hook" the learners' attention multiple times throughout the lesson (Pretorius, 2013). Effective teachers motivate their learners by **connecting the content to their everyday lives** whenever possible. Students appreciate being able to see how the content they must learn will assist them in their lives, or relates to their world in real ways. Authentic assessment which involve using real world prompts and activities also builds the skills and enthusiasm of the students.

Effective teachers have **ample content knowledge**. A teacher needs a firm grip of the subject matter to be able to break it up into chunks and deliver it appropriately to each group of learners. Teaching for understanding requires breaking down the content into manageable chunks of information which students can handle, tying it to prior learning, and applying it to real life situations. An ability to simplify complex topics demonstrates deep understanding of the content. A grip of subject matter is crucial; but, it is much more than knowledge of facts and general concepts. It includes knowledge about slicing up content for different ability learners, re-organising and sequencing ideas. It requires tact to connect ideas, ways of thinking and arguing, while remaining flexible in personal beliefs and attitudes towards students, colleagues and a discipline. It includes the ability to transfer learning from one discipline to another. An effective teacher who teaches with a learner-centred approach, recognises the need is to not only "cover" the content, but to "use" it (Weimer, 2002).

4. **Pedagogical content knowledge** based on Shulman's theory (1986), which argues for a combination of content knowledge and the ability to convey that knowledge to learners in a clear, understandable way, has been proposed for effective teaching. Choosing the appropriate methods with which to make those connections between content knowledge and ways of presenting it, is fundamental to pedagogical content knowledge. Teachers should not only be knowledgeable and effective on content but also on appropriate pedagogies to deliver that content.

Effective teachers continually **reflect on their own practice**. They improve their practice

according to the students' feedback. They learn ways to adapt lessons mid-course by monitoring student understanding and make necessary changes to mitigate misunderstandings (*Dreyer, 2015; Pretorius, 2013*). They also conduct action research to analyse their teaching strategies and decision-making in order to improve themselves.

One practice which sets effective teachers apart is **asking questions**. Effective questioning skills are essential to increasing the level of intellectual engagement in the classroom. Teachers who ask higher-order thinking questions understand the significance of having high expectations for their learners and the importance of building their critical thinking skills. Frequently asking specific and direct questions also helps to promote engagement and dissuade passivity among students.

Effective teachers demonstrate certain **attitudes, beliefs and personal qualities** which are crucial to the emotionally safe environment where learning thrives. These include being a caring individual who tries to meet needs of the learners as much as possible; acts as a positive role model for students and others, a guide to learners where sometimes they feel lost, a mentor and counsellor. An effective teacher needs to be empathetic to students, treating them with understanding and 'feel' their situation – being in their shoes, loving and showing compassion to students' situations. An effective teacher has to teach with diligence and fortitude because teaching demands great effort and commitment. A teacher has to teach with enthusiasm, showing great interest and love for the job and being at ease, jovial and happy, with a sense of appropriate humour in a lively classroom. A teacher has to have high self-esteem and be dignified, well groomed, fair and democratic and knowledgeable, thereby earning the respect of their learners, not just commanding it. Effective teaching also requires a teacher's positive belief that every student or pupil in class can learn any content if taught in a way that addresses their learning style and ability. Finally, to be an effective educator, you must be creative and love the teaching profession as well as the learners, maintaining a positive attitude towards them even in face of challenges.

Teaching is now even more demanding to prepare students for a rapidly changing world with new technologies, needs and challenges including pandemics such as COVID-19 and others which no one can predict. These challenges underscore the need to teach critical thinking, problem solving, creativity, knowledge transfer, and use of new technologies and global competencies. During the COVID-19 pandemic, schools were suddenly closed, and classes and meetings were conducted online using Zoom, Meet and other digital platforms like WhatsApp. Teachers had to develop their skills quickly requiring flexibility and dynamism. From this experience, we have learned that schools must be kept relevant by teaching for the present and future and not getting stuck in the past. Teachers have to be innovative, fast learners, dynamic and able to change with trends, using pedagogies which facilitate the development of creative, resilient, critical, imaginative minds.

Learning

How does science help us understand learning? How is learning defined?

What brings about learning?

How do the theories help us understand learning? What do they leave out?

Learning Theories and the Brain

Our understanding of *how people learn* and the *nature of learning* should influence the way we think and teach. Fortunately, scientists are discovering more and more every day about how the human brain learns. A seminal work entitled *How People Learn* published in 2000 by the U.S. National Research Council led educators to a new understanding of brain development and how teachers can support and stimulate continual cognitive development. Prior to recent research such as this, scientists had thought the brain was almost permanently formed after age three (*Howard-Jones et al., 2016*). Now we understand that the brain retains its ability to grow and change, called neuroplasticity, throughout life, though some periods are marked by more growth than others. We have found that even teaching students about their own brains' neuroplasticity improves their self-perceptions and contributes to a growth mindset (*Howard-Jones et al, 2016*). A growth mindset is one that sees the future as bright and the individual as capable to positively grow and direct their own future (*Wilson & Conyers, 2014*).

Our new understandings about how the brain functions come from the new technologies allowing scientists to take images (like X-rays) of a live person's brain. They can literally watch how the brain responds to stimuli, how it learns. Prior to these past few decades, they could only study brains of cadavers, or deceased people (*Diamond & Amso, 2008; Wolfe, 2010*). As neuroscientists study the brain, teacher educators study the theories of learning. Both fields contribute to our growing understanding of how we learn, adding deeper understanding to the existing learning theories such as behaviorism, cognitivism, constructivism and connectivism.

Behaviourism. Behaviourist learning theorists view learning as a behaviour, a response to external environmental stimuli. They see it as a relationship between the stimulus and reinforcement, and focus on the resulting observable behaviour by strengthening and maintaining it. The learner is presented as one who interacts with the environment and makes sense of it (*Ertmer & Newby, 2013*). Focusing on learning strategies for building stimulus response associations, such as instructional cues, practice and reinforcement, are useful in developing lower-level skills such as recall of fact, defining concepts and explaining. Behaviourism also illustrates that learners need to be rewarded for positive behaviour. The limitations of this learning theory are that it cannot adequately explain development of higher-order skills such as the problem-solving required in 21st Century. In the behaviourists' view, teaching takes the form of transmission, hence the prevalent use of the teacher-centred lecture method. The Behaviourist view is useful in explaining facts and in designing audio visual teaching and learning resources such as computer-assisted learning, but it does not explain the complexity of mental processes.

Cognitivism. The Cognitivist learning theorists recognise that individuals have their mental structures or schema, and learning does not just depend on external stimuli but individuals' mental internal structures, processes and connections (*Bransford et al., 2005*). Cognitivists emphasise more complex cognitive processes such as higher-order thinking which involve information processing and concept formation as opposed to mere response to external stimuli; hence, the learner is an active participant in the learning process. It emphasises development of the intellect where learning is viewed as a mental activity, with the mind acting much like a computer in processing information, and not just responding to an external environment. In learning, the mind receives information, organises it, stores and retrieves it through transfer of knowledge. In the learning process, memory plays a significant role. The cognitivist theory is used in guiding instructional design and developing teaching and learning resources; however, it fails to explain the kind of learning where an individual creates meaning from their own experiences; constructs their own knowledge to make sense of what they learn (*Ertmer & Newby, 2013*).

Constructivism. Learning, according to the Constructivist theorists, is creating meaning from one's own experiences and constructing new knowledge (*Schunk, 2016*). The learner does not

just acquire knowledge but constructs it through interaction with the environment and other learners. Learning is not just a response to external environment or received from outside; learners need opportunities and environments to interact with in order to construct their own knowledge (Dewey, 1938). The learning experiences should reflect the learners' life experiences to make meaningful contexts, and instruction should shift from teaching to learning with the learner as the centre of focus, especially as Bruner's "discovery learning" version of constructivism models the inquiry approach to designing lessons (Bruner, 1961). The teacher will facilitate the learner to create meaning, construct their own knowledge and work collaboratively. The goal is to arrive at a personal position, through thinking critically and solving problems (Oliver, 2000). Constructivist theory is also used in instructional design of teaching and learning resources. A teacher of the 21st Century requires understanding of brain function in learning and the different learning theories because in the process of teaching from simple to complex, the teacher would start from simple recall, use memory, and then build up to construction of knowledge and problem solving which are crucial in the 21st Century.

Connectivism. This is an emerging theory for the digital age which takes into account that there is a plethora of information on the Internet which learners can access and share globally and instantaneously, and this knowledge is rapidly changing (Siemens, 2005). Siemens (2005) explains that decisions are based on rapidly altering foundations, and new information is continually being acquired, hence learning has become very dynamic. Connectivism prioritises the way learners learn through connections between old and new information, one context with another, one media with another and one learner with other learners, for example: As the name implies, connectivism highlights those connections as actually shaping the learning which is fluid and ever-expanding.

Learning is very complex and cannot be explained by only one learning theory. The society which learning serves is dynamic and requires a mixture of the theories, constantly adding the newer ones and adjusting responses accordingly. Knowledge, skills and attitudes keep changing. The global needs of the 21st Century are unlike ever before, and approaches to teaching and learning must keep pace.

Definition of Learning. "What is learning?" and "What is knowledge?" are more complex questions than they seem. The definition of learning has evolved along with the new theories, as we have just seen. Earlier, learning was explained as a relative permanent change in behaviour as a result of observation, experience, practice and instruction which is not a result of the influence of drugs, maturation or reflex. We modify the definition of learning to **learning is the process of acquiring, developing and constructing new desirable knowledge skills, competencies, values, and attitudes for personal and others' benefit.** The essence of our definition is that a learner may acquire facts, experiment with them, interact with others and the Internet, experience the process, see mistakes and correct them, and then develop new knowledge. By making sense of their environment through experiences and interactions, the learner can thereby construct new knowledge.

Consider another transformation. At the end of the 20th Century, Nobel Laureate Herbert Simon is credited for saying that the definition of knowledge has shifted from being able to memorise and repeat information to *being able to find and use it* [emphasis added] (National Research Council, 2000). We, therefore, add that learning includes the ability to critically assess knowledge, and the moral obligation to consider who is empowered and who is disempowered by that knowledge.

Therefore, learning is a complex process which is situated within diverse contexts and influenced by them. Learning occurs in structured ways through formal or non-formal learning institutions, as well as through informal situations during one's life from womb to tomb. In school, different context

result in learning such as formal classroom teaching, non-formal school activities such as games, athletics and clubs, and informal settings such as school rules, school culture and even the teachers' manner. Learning also occurs in different ways from various stimuli such as life experiences, observation, media and the Internet. A teacher should always be aware of this fact that students have learnt something by the time the teacher meets them in class, find out what they already know, honour and build upon their prior knowledge.

The definition of learning is much more than the explanation by the behaviourists, cognitivists and constructivists, though the theories give good insight and have been used in instructional design. Teachers who are exposed to the theories would gain deeper insight into the process of learning in many different ways. Researchers have found that no one learning theory can effectively define learning.

Teaching for Learning. Learning institutions should be purposely structured to achieve the highest learning outcomes, bearing in mind the significant role the environment plays in optimising the learning process. Learning occurs best under supportive conditions such as a stress-free and friendly environment, replete with emotional connections, safety and acceptance. Learner-centred teaching approaches maximise the learning potential through appropriate instructional strategies that respect individuals' learning differences (*Darling-Hammond et al, 2020*).

A teacher should conduct teaching and learning sessions aiming at learners' learning and not mere content coverage. No teacher can assume to be the only custodian of knowledge where learners are *tabula rasa*, empty vessels to be filled with knowledge by the all-knowing teacher, as criticised by Paulo Freire (1971), a well-known Brazilian educational philosopher of the 20th Century. Freire called that approach the "banking concept of education" where a teacher deposits knowledge to passive learners. In contrast, he advocated for the more democratic approach of teacher and learner on the same plane, both examining evidence and drawing conclusions together in his proposed critical pedagogy. This evens the power dynamic between teacher and student, thus paving the way for respect, mutual understanding and progress in learning (*Freire, 1971*). Freire would agree with our assertion that learning must take place in a safe and conducive learning environment. The environment also would need to be inclusive of all types of learners and beliefs, democratic, equitable and just. As we have demonstrated, classroom structure must change in order to accommodate theories of learning, brain research, a more equitable approach for all, as well as recognition of the students' prior knowledge. It must also include all learners in the reaching learning process. No learner should be left behind.

Principles of Learning. A number of research studies (*Diamond & Amso, 2008; Durlak et al, 2011; Wilson & Conyers, 2014*) have focused on learning and the brain (cognitive neuroscience). Some basic principles guiding our practice in schools have emerged and are widely supported in the literature. They are presented here as suggestions for shaping and changing our practice. First, as a teacher, promote more times of on-task social interaction. Students learn better from interacting with their peers (*Vygotsky, 1978*). You might consider more breaks in your teaching to allow students to process the information with a peer; you could use think-pair-share teaching strategy. In order to facilitate free expression of ideas in this interaction, as well as maintain the safe learning environment, classroom climate needs to encourage healthy learning. Once the students feel safe emotionally and physically, they can then move on to build knowledge (*Durlak et al., 2011*). Learning takes place by building upon prior knowledge. In order to access that prior learning, teachers can facilitate brainstorm sessions or discussions to work on drawing connections. When introducing a new topic, a teacher has to take into account the student's existing knowledge already acquired formally or informally.

Make It Meaningful. A significant principle in guiding the construction of lessons is: children learn best when the lesson is meaningful to them, hence the emphasis on teaching for

meaning (McTighe & Wiggins, 2004). This usually occurs by making the lesson link to their personal lives, or by showing the real-life application of the skills they are learning. Learning involves making connections and making sense out of experiences, leading to a change of behaviour. Learning also involves constructing knowledge and making sense of knowledge acquired, gaining skills and using them, and solving problems in the community and world around us.

New Thinking Skills. The 21st Century skills include critical thinking and problem-solving; creativity and innovation; communication and collaboration; media literacy and ICT literacy (Republic of Kenya, 2017). Therefore, learning must support higher-order thinking skills characterised with inquiry, application of knowledge and investigation. Critical thinking does not mean being critical. Instead, it means being more contemplative, having a more “objective and cognitive” approach, which enables the thinker to “discover their own voice” (Jeevanantham, 2005). Learning combines with physical, psychological, cognitive (thinking), social and emotional processes, all interwoven and working together interactively to influence learning (Darling-Hammond et al, 2020; National Research Council, 2000; Wilson & Conyers, 2014). The researchers further explain that the brain is a function of experience which interacts with cognitive, psychomotor, and affective (feeling) to activate neural pathways, which allow new kinds of thinking and performance. For example, emotional disturbance could affect concentration, memory, knowledge transfer and application, hence the benefit of a peaceful learner-friendly classroom.

How People Learn. Learning takes place in complex, interdependent, diverse ways. The mind forms associations as we learn through experience, develop new ideas, acquire skills, build social interactions and network. We also learn from reflecting upon others’ successes and failures and through our own experience. In addition, people have different learning styles, which are really preferences. There are those who prefer to learn by seeing, hence referred to as visual learners; others by hearing – audio learners; others by touching – kinesthetic learners. There are individual learning differences and as such teachers need to teach in diverse ways. The primary reason to teach with diverse methods, however, remains the fact that the brain retains information better when it is stored in multiple places in the brain because it has been experienced visually, audibly, experientially and kinesthetically. All of these are linked to different places in the brain and also linked together through experiences. When it comes time to retrieve or use that information, it is easier to access to apply it (Wolfe, 2010). This is particularly a benefit of using technology in learning because it is possible to manoeuvre technology in order to address more than one sense in the learning activities.

Finally, people learn developmentally (Cozolino, 2013). It is a step-by-step process which is encouraged by appropriate levels of rigour and challenge. Those “appropriate levels” differ by individual and by context. That is where the art of teaching starts, recalling that teaching is both art and science. It is fundamental to remember that individuals learn developmentally at different paces, in different ways (Cozolino, 2013; Doubet & Hockett, 2015).

Learning may be influenced by heredity and environmental factors, including nutrition and stress, all of which impact brain development. Scientists used to believe that a person’s intelligence quotient (IQ) was fixed at birth; now we understand the plasticity of the brain and the significant role environment plays in cognitive growth (Bransford, 2005). An individual’s IQ could be improved by a nurturing, supportive environment or worsened by neglect, malnourishment, or an emotionally unsafe environment. This highlights the need for parental engagement in their children’s learning. In school, an environment rich in learning resources, a healthy diet, a safe and nurturing climate free of disturbing hardship, and differentiated teaching improves learning even if a learner has begun with a lower Intelligence quotient (IQ) than others (National Research Council, 2000; Wolfe, 2010).

New View of Learning Styles. Traditionally, it was thought that people learn differently depending on their learning style. Teachers were told that some children learn best by manipulating learning resources, and they may be referred to as kinesthetic. Others, called visual learners, may learn best through engaging sense of sight and thus require visual teaching aids. Auditory learners learn best through listening, and may benefit from use of radio and lecture. Thus, teachers were tasked to use differentiated teaching resources and methods to address different learning styles.

Now, thanks to brain research, we know children are born with certain strengths and learning preferences which make them favour certain ways of learning, but their learning is not limited to those styles. Some prefer manipulating learning resources (kinesthetic learning). Others may give preference to visual learning. Still others' brain process knowledge more quickly with auditory learning. However, brain research has overturned the myth that students need to be taught in their preferred learning style (*Rogowsky et al., 2015*). Research has demonstrated that all children learn best in a rich learning environment with a varied use of teaching resources and varied teaching methods so that their brains are stimulated in multiple regions (*National Research Council, 2000; Wolfe, 2010*). This provides the greatest depth of learning and recall. Technology offers rich learning environment.

Basic Principles of Teaching. Finally, teachers must meet the four basic principles of teaching for learning. First, they must be able to accomplish **planning for teaching** which includes the ability to interpret the syllabus or curriculum design, prepare schemes of work and lesson plans, and keep a record of students' progress. The other principle is **mastery of content** to teach: to master content deeply to be able to break it up into chunks and deliver it to students according to individual's needs, along with pedagogical or teaching skills which include approaches, methods, strategies and techniques of presenting lesson content in class. They also must have **effective communication skills** to use language that fits different learners at their levels as well as the subject taught, and even use resources to communicate the subject content effectively. Finally, they must have **classroom management skills** which include understanding and managing student behaviours and motivating them throughout, and establishing a positive classroom climate, including keeping eye contact with students and calling each by name.

Pause to Review and Reflect:

Explain why and how learning should focus on 21st Century skills?

How is higher-order thinking different from lower-order thinking? Why is this significant to teachers?

How does studying the brain help us as teachers?

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CHAPTER 3: Teacher Education

Teacher preparation has to be of very high quality in order for all those taking teaching as a profession to become the effective teachers of the next generation. As we have seen in the last chapter, teachers need adequate and effective teaching skills, strategies and methods of teaching, strengthened by positive teaching attitudes, values and beliefs befitting a noble profession such as teaching. This chapter will outline the design of such effective teacher education programmes.

What are the purposes and components of teacher education?

How does teacher education work for the good of students?

What role do teacher educators play?

Overview of Teacher Education Programmes

Teacher education is a programme designed to prepare future teachers to develop desired teaching knowledge, skills, attitudes, values and competencies to enable them facilitate different types of learners to learn. Teacher education is supported by government policies and procedures. Those who teach in teacher education programme are referred to by various titles such as tutors, lecturers, doctors, or professors; we call all of them in this book, teacher educators. Teacher education programmes focus on one of three areas: Early Childhood Development and Education, Primary Teacher Education and Secondary Teacher Education. Notably, there is no such pedagogical teacher education programme to prepare teachers in universities and teacher training colleges. The teacher education programme categories are *pre-service* for student teachers who are undergoing training to join the teaching profession, *induction* for teachers who have gone through the teacher education training and are entering the teaching profession and *in-service* for already practicing teachers who wish to improve their teaching knowledge, skills, attitudes and competencies.

Teacher Education is a preferred term rather than the term *teacher training* because teacher education more appropriately describes the specialised educational preparation for a professional career requiring a complex set of mental capacities, skills and competencies. Teacher training suggests that teachers are to be trained to perform routine automatic skill tasks such as driving or operating machines. Teaching is a complex mental and physical activity which requires great tact and wisdom, as well as the knowledge of teaching subject content, coupled with strong pedagogical skills, habits of mind and dispositions. We propose that teacher education should build the teaching skills which prepare the teacher to interpret curriculum, plan for teaching and present a lesson in class, arouse learners' interest and sustain it throughout a lesson, and manage a classroom full of diverse learners and assess learning. It also prepares teachers for educational administration, policy and management, including how to manage school and how to relate with the employer. Teachers require skills to model learners to desired end.

Teacher education is a clearly articulated programme to prepare student teachers who will then competently teach school students and pupils. Thus, there are two types of students which teacher education serves: the student teachers who are undergoing training to become teachers, as well as the school students who are learning in schools, some in secondary and the others in primary or elementary school. The interests of both groups must govern the objectives and policies of the teacher education programme, in addition to the government expectations (*MoE and MoHEST, 2012*).

Curriculum. The teacher education curriculum must address the needs of the student teachers and ultimately the school students, whom they will teach in future, by linking the student teachers to school curriculum and carefully considering the needs of those students they will teach. When conducting lessons, the teacher educator must make reference to the school general context, the teaching subject and embed the learning in the real school situation. This could be done by the teacher educator facilitating the student teachers to conduct their activities in reference to the school level they are planning to teach. They will need to be familiar with the school curriculum which

they will finally interpret and implement. The teacher educator should frequently use examples from real life experiences and challenges found in schools, assisting student teachers to practice problem-solving and to learn from authentic scenarios best presented in case studies. The entire curriculum of teacher education programmes should be firmly embedded in the reality of the actual schools out there in order to make it most applicable to the future setting where the student teachers will finally teach (*Stutchbury, 2019*). The teacher educator should have experience of having taught in actual schools where student teachers will teach in order to gather enough examples and experiences for reference and credibility when teaching student teachers; the government education reform also underscored this need (*MoE and MoHEST, 2012*).

The course of study in formal teacher education moves from the theoretical to the practical in order to prepare student teachers for their future profession. It starts with the theory courses, then microteaching, all pointing toward the final stage called Teaching Practice. Even in the theoretical courses, student teachers will encounter examples and simulations of the secondary or primary classroom. Coursework will provide a firm content background, introduce general methods of teaching, and then move to more content-specific methods and how to source teaching and learning resources and use them. Then, student teachers will engage in practical teaching sessions through microteaching with their peers. Here they will “try out” the role of a teacher and receive important feedback on how to improve. At this step, student teachers begin to feel more like a “real teacher” but this is only a taste. The real initiation into the teaching career takes place in the form of Teaching Practice.

Teaching Practice in the Field. Teaching Practice (TP) is compulsory in the teacher preparation course, as it enables student teachers to practice as teachers in schools. It is the most important and powerful component of teacher education programme, a kind of a laboratory offered to give real field experience to student teachers in real classrooms in schools where they are placed to practice (*Diacopoulos & Butler, 2020*). Teaching practice is the first time the student teachers put the theory covered in class into practice in real classroom situation. In some countries in Africa, it is offered at Certificate, Diploma, first Degree and Post Graduate Diploma in education course. Despite the differences, in every programme, Teaching Practice is the pivotal component of teacher education. After successfully completing TP as an apprentice to the art of teaching, students may go back to campus for a semester, recap, cover some more course units and then graduate, and finally move on to jobs in the school system as beginning teachers. In some institutions after Teaching Practice, student teachers do not proceed to start their teaching career. In some of their new schools, the newly graduated teachers undergo the induction process, where they are introduced to school routine and mentored to fit in the school culture and the teaching career in a specific school by an experienced teacher. In some schools, induction period may be part of probation period and could last from several months up to two years. All new teachers are put on probation for between six months to two years to ensure their development as effective teachers continues.

Teacher education also provide teachers opportunities for continuing professional development to upgrade and advance their knowledge through in-service programmes which helps them increase their effectiveness and potentially advance in their career, including acquiring higher degrees. Teacher education, therefore, may offer pre-service, induction and in-service programmes.

The Teacher Educator and University Supervisor

The people who teach in teacher education institutions are the teacher educators. Teacher educators are tutors, lecturers or professors in their different capacities who specialise in areas such as theories,

pedagogy and application of teaching methods and skills needed in the teaching profession and also the specific subject content areas such as mathematics, literature, geography, and physics. In many cases, as academicians, they conduct research and publish while staying current with the latest developments in their fields. They also offer service to the university or college and the society at large. The teacher educators also supervise students when they break out to the field for Teaching Practice, acting as university or college supervisors or assessors. In some teacher education institutions, one teacher educator is placed in charge of Teaching Practice as the Teaching Practice co-ordinator whose role is to co-ordinate other teacher educators while conducting preparation and organisation of students for Teaching Practice.

Every teacher educator should prepare the student teachers for theory, content and pedagogical skills, and then serve as a university supervisor or assessor of students in the Teaching Practice schools. Those who do not prepare student teachers in teacher education institution to teach should not play the role of Teaching Practice supervision and assessment. They have no moral right to do so. Where, in some teacher education institutions, some teacher educators teach only subject content and others teach the skills, methods of teaching, the intersection of theory and practice could become a challenge. The goal remains for student teachers to be thoroughly prepared in both content and teaching skills, as well as preparation of teaching and learning resources and their use (Cude *et al.*, 2016).

Every teacher educator in a teacher education institution should prepare students for Teaching Practice during their theory lessons from the time the student teachers join the campus; it should be an ongoing process (Stutchbury, 2019). When teaching the theory courses at the teacher education institution, the teacher educator should bear in mind that they are modelling the way lessons ought to be conducted, and should be giving examples of school teaching. Therefore, a teacher educator must be an effective professional teacher who has taken teacher education coursework. Most preferably, one should have taught the level that one is preparing student teachers to teach. In case one never taught in schools, then special effort should be taken to become very familiar with the school context through visiting schools for classroom observations and Teaching Practice supervision. This provides the teacher educator classroom experience and examples to give the student teachers when teaching in class. Such a teacher educator will be well equipped with hands-on experience of what happens in real life school classrooms and will be able to describe examples with confidence while linking teacher education institutions to teaching schools.

Moving Toward Learner-Centred. Research points out that active, learner-centred education is the most acceptable and useful teaching approach in the 21st Century (Darling-Hammond, 2020; Weimer, 2002). And yet, ironically, the field of teacher education lags behind in applying the research. The teacher educator is expected to frequently update their own skills through research and attendance at seminars and professional conferences, enabling professional participation and exposure to these new avenues of research. This should ensure that student teachers are exposed to and taught from the most current methods and theories, thus, the field of teacher education could be also embracing change. Research demonstrates that when student teachers start teaching, they will most likely settle down to teach as they were taught in a teacher-centred approach regardless of how they were trained (Crowe *et al.*, 2012; Rotumoi & Too, 2012). This requires the teacher educator to strongly emphasise and model the use of learner-centred, active and experiential learning approaches. If schools are going to change to embrace learner-centred education and active pedagogies, then they must be led by teacher educators and their universities and teacher training institutions who themselves implement these methodologies in their own classrooms as a model of best practice (Amado, 2017; Darling-Hammond, & Bransford, 2005; Stutchbury, 2019).

Partnership with Schools. The teacher educator will also then become an advocate for sharing professional knowledge with in-service teachers through professional development in order to spread the message of learner-centred education to the field. By investing in the teachers

in the schools, we make better placements for our student teachers with co-operating teachers who will support their new philosophies in best practice rather than undermine or discourage them. Some have encouraged a space in teacher education to welcome the voice of the local schools as partners in the training of future teachers (Mutemeri & Chetty, 2011). Partnerships with the schools enable universities to invest in the field where their student teachers will be getting jobs. It is a mutually beneficial investment.

Qualities of a Good Teacher Educator. The qualities of an effective teacher educator include those of an effective teacher and even go beyond. A teacher educator must have strong mastery of content, presentation, writing and communication skills. They should act as a competent and caring mentor, advisor, counselor or surrogate parent at times. In those roles, they must display compassion, empathy, understanding and sometimes “tough love” as they guide the young adults who are their student teachers. The academic duties of a teacher educator are to teach, conduct research, disseminate it and offer community service. Teacher educators attend seminars and conferences in order to keep current in their field, and they author educational materials and articles, as well as offer service to the community. Therefore, teacher educators should be very well informed and productive in their service to society. The classes they teach can be very large amounting to hundreds of learners. Unfortunately, in some countries in Africa, teacher educators do not receive specific teacher education preparation, and are thereby not well prepared for the numerous and vital roles they play in training the youth of that country. The role of teacher educators cannot be underrated as they shape the future by sending out well trained new teachers to teach the next generation of citizens and prepare a country’s future human resource. The following case study brings these qualities to life to demonstrate their effective application.

A Case Study of a Teacher Educator.

Dr. Amani is a lecturer, no, rather a professor, in Pangani University. The term lecturer implies teacher-centredness teaching. Dr. Amani teaches Curriculum Studies theory courses which in her university include Instructional Strategies and Principles of Teaching. She teaches a class of 300 students and she would like to facilitate them to engage learners when they start practicing teaching. She is aware that student teachers finally end up teaching the way they were taught, regardless of the clear information they are theoretically given on active teaching and learning. She took some online courses with TESSA MOOC and got grounded in active learning. She taught the topic Making Lecture Method Learner-Centred. She asks the question: “What do we mean by Lecture method of teaching?” The student teachers keep quiet, facing down. Then she says, “Whatever you say is valuable and will be considered for discussion. Now stop, think about it.” She pauses for two minutes. “Now tell your partner what comes into your mind, then allow your partner to tell you their ideas; compare the two ideas and write what you agree down.” The room is full of conversations. Everybody talks. Then, she asks some volunteers to give their findings. She picks five from around the class. One student writes down in the whiteboard each idea. Dr. Amani goes through each idea with the class, then she sums up, filling in gaps.

Next, Dr. Amani asks the students to explore strategies of making lecture more learner-centred. The student teachers work in pairs, and then she picks five who report out what they found. She writes these on the board, asking others to add what was left out. Then, she picks from the students’ findings and expounds upon them, explaining further and using some of the ideas they had brought out such as questioning, detailed explanation, pausing for emphasis, repetition for effect, using humour and modeling enthusiasm.

Finally, Dr. Amani asks one student teacher, Jane, to come to the front and demonstrate a traditional lecture while another student teacher, Jamlick, demonstrates a lecture method that has been made learner-centred. Jane gives a boring lecture imitating their own lecture experience from their campus lecturers. When it is Jamlick's turn, he starts off by giving a brief overview of what lecture method is before running an interactive question and answer session for five minutes. He concludes by organising the class to work in pairs, while he asks another student to lead others in concluding the lesson. Students appreciate his demonstration. Dr. Amani commends the students for their contribution and asks the class to comment on their experience of Jane's and Jamlick's presentation. Dr. Amani then polishes up ideas which were not clearly presented and points out others which are up to the point.

Discussion Activity

In pairs, discuss how Dr. Amani presents content in his lesson and her choices of teaching methods and strategies. Do you find his strategies effective, why or why not?

This is a very large class. Yours will likely be smaller. Explain how you would present a lesson which is engaging to your learners. You could use teaching aids and even modern technology or realia.

We have seen that the term *lecturer* suggests a teacher-centred approach. Recommend a more appropriate name to give to university and college teacher educators and give reasons for your choice.

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PART TWO: LEARNER-CENTRED METHODS OF TEACHING

CHAPTER 4: Learner-Centred Approaches to Teaching and Learning

Introduction to Methods of Teaching

Overview. In the previous chapters of this book, we have built the framework for studying the teaching profession, and we have explored its component parts on a solid foundation of theory and definitions. We noted that the teaching profession is very important and teachers should be of very high calibre to enable them to effectively serve in their noble profession (*Darling-Hammond, 2017*). In Part II, we apply the theory in practical ways to explore *Methods of Teaching* in the following seven chapters. They illustrate active teaching methods for the teacher to use to promote the learner-centred teaching approach in their classroom. Part III will bring the reader up to the point of practicing teaching, and continuing the process of learning and growing through teacher professional development.

Definitions. Teaching is described using words such as: approaches, strategies, techniques and methods. For the purposes of this book, we have defined **approaches as broad collections of many teaching methods, strategies and techniques which all hinge upon a common attitude and belief such as learner-centred or teacher-centred.** An approach can have many methods (*Gill & Kusum, 2017*). In this book, we recommend learner-centred approach for the 21st Century learner where the learner is at the centre, and emphasis is on what the learner does to learn as the teacher facilitates. This is opposed to teacher-centred, the traditional approach where the teacher is at the centre, and emphasis is what the teacher does and the learner observes and repeats. With conviction that the 21st Century learning environment demands the learner-centred teaching approach, we then explore multiple learner-centred strategies and techniques to get the students to learn the content of their subjects presented in a systematic manner, which we call methods of teaching. There are many methods of teaching within the learner-centred approach.

Methods are systematic ways of doing something. Therefore, a method of teaching is a systematic way of teaching to effectively communicate knowledge, skills, attitudes and values to students in order to learn. No one method is appropriate for all content, or all students. The teacher's concern is to choose appropriate methods to match both the content for the lesson as well as the needs of the students within the context. For example, going outside to visit a garden when studying photosynthesis might be ideal, but not if the school is in the urban, cement-covered environment or if the weather is very rainy.

Selecting Appropriate Methods. An effective teacher should choose the right approaches to teaching and employ well planned lessons using appropriate teaching methods for skillful delivery of content. Students might not learn complex genetics through Socratic method, but they may learn genetics better through an experiential problem-based learning. By examining each method in turn, and noting the strengths and challenges of each, you will be able to choose the method most appropriate to use when teaching so that your students both achieve the learning outcomes and enjoy the lesson. You may find that you also, as the teacher, enjoy teaching more using varied, engaging methods!

A teacher could be very knowledgeable in subject matter, but the important thing is for the teacher to select and use the appropriate method to present that knowledge to students for **each one** to learn and not just memorise and forget after examination. A teacher could use more than one method in a lesson to raise learners' interest and curiosity and maintain it throughout the lesson. Teacher creativity and innovativeness play a crucial role in coming up with teaching methods that suit a class, the individual learners and the topic to be taught. No one method is sufficient to be used for the entire lesson. In the same way, there are many different suitable methods that would be appropriate, and the teacher must select the ones best suited for that class. Therefore, an effective teacher should be equipped with a toolkit of teaching methods to choose from, and the choice should be guided by the students' interests, skills, context and lesson objectives.

The main goal should be for learners to learn and not to merely cover content or pass examinations (*Weimer, 2002*). In the past, this was an adequate measure of a teacher's success determined by the many students who pass national examinations. The focus is now changing to the effectiveness of the full learning experience, developing a learner holistically. According to the 2012 Philosophy of Education, "The provision of a holistic, quality education and training that promotes the cognitive, psychomotor and affective domains of learners will be a priority" (*MoE and MoHEST, 2012, n.p.*). Understanding content is important, but the most important is for the learner to be able to apply the knowledge and skills to life situations as they arise.

Learner-Centred Approach.

The traditional teacher-centred approach which put the teacher on the centre stage as the sage and the learners sitting below passively receiving the content must now be laid aside in favour of the learner-centred where the student is at the centre of learning and the teacher a facilitator of that learning process. Learner-centred teaching approach is not a choice but a must in the 21st Century. Teach as though you are teaching individual learners to learn and not just attend class, as if their lives depended upon it, because they do.

A learner-centred approach is also called, student-centred or pupil-centred and involves active learning. It means that the learner is the focus of teaching and learning from the planning of teaching to lesson presentation and the later reflection. Maryellen Weimer (2002), a celebrated professor and specialist in learner-centred teaching, explains learner-centred as a shift in the balance of power in the classroom to a more democratic shared power model. Let learners make their own sense of what they learn and discover new knowledge. While the teacher is still in charge of the classroom, the focus shifts to student learning. The teacher takes the role of a facilitator to inspire and guide students in their active pursuit of learning. This means that the teacher will be facilitating the students' activities and progress towards meeting the learning outcomes. The lesson plan will be a guide, as student-centred teaching and learning calls for detailed planning. In implementation, though, the teacher will remain flexible to factor in student interest, input, and inquiry, yet still ensure students learn and achieve learning outcomes. This means that the teacher will take account of what the students know, build on it and engage them in learning, making sense of the new knowledge as they integrate it with their prior knowledge in their memory. In this way, students

own the responsibility for their learning, which is a powerful self-motivator.

To be learner-centred, as a teacher, even your beliefs must be tuned to the fact that each learner is capable of learning and should learn. You change your beliefs from “learning depends on students’ entry behaviour” to “every learner is capable of learning and no student should be left behind.” include all students in your teaching. To succeed in learner-centred teaching, plan many activities to keep students engaged and motivated. Choose those activities which develop skills such as critical thinking, communication, collaboration and creativity. Activities should provide students an opportunity to express their ideas among their peers and get feedback. The following is a useful summary from Scheisfurth (2013 p. 146) of learner-centred education:

In learner-centred teaching and learning, students should be engaged and motivated to learn; classroom relationships should be based on mutual respect; learning should challenge students and build on their existing knowledge; students should be given the chance to talk about their ideas to support their learning. In addition, the curriculum should be relevant to learners’ lives and activities and should promote a range of skills including critical thinking and creativity. The assessment should test a range of skills and give credit for more than recall of knowledge.

With learner-centred, the focus changes; the major emphasis is student learning rather than teacher teaching (*Armbruster et al., 2007*), and the learning **process**, rather than the final **product** though it matters too. This enables the teacher to focus on each learner’s progress in learning. In this way, learner-centred means more than the learners as a whole group, it also means focusing on the individual needs of the unique learners in your classroom. To be learner-centred requires a teacher to have a set of positive values, attitudes and beliefs about students learning. Such a teacher will find out what learners know and build on it, respect their ideas, keep them engaged and motivated to learn in a conducive, free learning environment. The teacher will support their learning by engaging activities which promote higher-order thinking and develop creativity and innovativeness. Assessment will cover progressive skills from simple recall to higher-order level. For teachers with large classes, this can seem a daunting prospect. Still, the more individuals that you reach, the greater your impact. One strategy is to occasionally group learners with similar strengths or characteristics in order to more strategically meet their needs.

The 21st Century skills such as critical thinking, problem solving, collaboration and creativity cannot be acquired through the traditional transmission teacher-centred teaching method. A teacher has to use teaching methods which engage learners such as role play, discussions, group work, and many others discussed in this book. This book prescribes learner-centred approach coupled with **active and experiential learning**, and explores a variety of methods that engage learners in many ways.

Active Learning Approach

What makes active learning better than passive learning?

What does active learning look like in the classroom?

Active student learning is a learner-centred, activity-based approach where the student personally engages with the content, often in the form of a hands-on experience, a problem to solve, or a task to complete. It is sometimes referred to as learning-by-doing and includes teaching methods which engage the learners such as real discussion, card sorting, drama, songs and experiential learning activities. It is an aspect of learner-centred teaching approach.

One can define active learning as “seeking new information, organising it in a way that is meaningful, and having the chance to explain it to others” (*Allen & Tanner, 2005, as quoted in Armbruster, 2017*). Active learning, therefore, includes a range of activities which engage students in investigating, exploring and thinking about what they are doing, and communicating that

thinking to others. It is developing knowledge and skills in a way that requires higher-order thinking and promotes critical thinking and ownership of learning. Brain research has established the superiority of active learning due to its engagement of multiple parts of the brain, the feedback loop which is crucial to learning, the peer interaction aspect and the emphasis on application of knowledge which makes meaning from the content. The human brain is particularly well-stimulated by action and engagement which increases the probability of retention with active learning (*National Research Council, 2000*).

Active learning is contrasted with passive learning which is characterised by lower level thinking tasks, answering simple questions, learning isolated facts, memorising and receiving knowledge from the teacher, a characteristic of teacher-centred approach. On the other hand, active learning engages with interest and motivation, involves higher-order thinking, encourages students to ask more questions than answer, connects learning in real ways, and co-creates knowledge with peers and the teacher (*Drew & Mackie, 2011; Prince, 2004*). It is learner-centred and one of the very best ways for learners to learn and develop the 21st Century skills such as critical thinking, entrepreneurship, problem solving, collaboration, creativity and innovation (*MoE and MoHEST, 2012*).

Active learning engages learners to ask questions, seek new information, organise it in new innovative ways and explain it clearly to others. The students have to be involved in a range of activities and feedback where they have opportunity to interact with peers and their teachers. Through this, the student is provided opportunity to apply their learning in class in meaningful, authentic ways (*Prince, 2004*). Some specific ways to incorporate a more active approach are to facilitate meaningful conversations among peers, ask students to reason through a problem, or model a chemical reaction (*Litster et al., 2020*).

Experiential Learning

Experiential learning is a branch of active learning where learning is through real life experience and reflection on that experience. The reflection element is added to hands-on learning, making it sometimes called “hands-on, minds-on” learning. It involves taking the students through an experience such as by performing activities, participating in field work, conducting experiments, or practicing by doing. Learning to play the piano is experiential learning, as you learn by doing it. It is usually a skills-based lesson, but embedded in context-rich content, and requiring application of the skills learnt. Experiential learning involves authentic tasks, usually outside the classroom. Field trips provide excellent experiential learning opportunities. Experiential learning is also best illustrated in the traditional, real life learning experience when a girl at home works alongside her mother to prepare dinner, or a boy does what are culturally considered manly chores with his father or older brothers and then learns through experience. Other examples of experiential learning include laboratory work and apprenticeships. A full chapter (Chapter Nine) detailing other types of experiential learning is included, but here we give an overview the basic components.

The aim of experiential learning is to use direct experience to learn and foster values and skills development, leading to increasing an individual’s deep learning and ability to serve their community and develop their holistic self. According to the Association of Experiential Education website, the principles of experiential pedagogy include, among others:

Experiences are structured to require the learner to take initiative, make decisions and be accountable for results.

Learners are engaged intellectually, emotionally, socially, soulfully and/or physically. This involvement produces a perception that the learning task is authentic.

Relationships are developed and nurtured: learner to self, learner to others and learner to the world at large.

Opportunities are nurtured for learners and educators to explore and examine their own values.

The educator’s primary roles include setting suitable experiences, posing problems, setting boundaries, supporting learners, insuring physical and emotional safety, and facilitating the

learning process (Gass, et al., 2012, as excerpted from Association for Experiential Education website, n.d.).

According to these defining principles, which parts, in teacher education courses might be considered to be experiential learning. Certainly, Teaching Practice (TP) is experiential learning since it is an activity where learners are expected to gain conceptual insight and practical experience resulting in deep learning. In experiential learning, the learner is engaged and focused over a period of time, often getting involved physically and emotionally in activities. In Teaching Practice, the student teacher gets engrossed in the teaching and learning experience to the point of becoming the real teacher in an actual school. This accelerates and deepens the learning.

Using simulations, imitations or mock ups such as micro teaching and experiential learning such as teaching practice are ideal ways to increase retention rates of information due to the increased brain engagement in its various regions. By stimulating more types of memory in more places in the brain, the learning is more likely to be remembered long term, and be transferable to other domains (Wolfe, 2010). A teacher in the classroom can incorporate some pieces of experiential learning through demonstrations that allow the students to all participate, or simulations that recreate real life situations. Overall, experiential learning is ideal, but not always possible to replicate in the classroom every time. Many of the methods which follow this chapter will engage learners and gain similar benefit as experiential learning, as they follow an active learning and learner-focused approach.

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CHAPTER 5: Improved Lecture Method

What are the advantages and disadvantages of the lecture method of teaching?

How could I improve my lecture method to increase student thinking and engagement?

Why Improve the Lecture Method?

You are no doubt familiar with lecture method of teaching, as it has been prevalent in schools for many years. Lecture method of teaching is the traditional means of instruction where the teacher explains information to passive students; this transfer of knowledge is also called *transmission*. The teacher behaves as one who knows everything, while students keep quiet and sit obediently to listen because they are assumed to know very little. Students are supposed to memorise the facts and reproduce them on an examination sheet. This is still frequently the case for national examinations as well, so teachers are trapped in a systemic expectation of coverage and replication of facts. This is also complicated by the large size of classes, making lecture a more common, easier means of disseminating instruction (Ndethiu et al., 2017).

Lecture may be an efficient means of conveying a large amount of information in a short time; however, its efficiency is often limited to a lower level of thinking which does not adequately prepare 21st Century students for their complex world. Lecture content is mostly memorised by the students, and then recited back to prove learning, yet the knowledge is only superficial and embedded in short term memory which will not endure. Students do not have time to internalise and make meaning from the information, thus limiting its retention (Deslauriers et al., 2019; Dubinsky et al., 2019). Twenty-first century skills require collaboration, co-operation, innovation, reasoning and creative thinking, among others. Students develop these skills through engagement in learning processes, ideally with their peers, and not just being narrated facts which they should memorise and reproduce during an examination as is often the case with lecture method. This makes lecture or direct instruction an ineffective teaching method for real, deep, applicable learning.

We understand, however, that lecture may be widely used, and is likely the method most familiar and comfortable to student teachers and practicing teachers by personal experience. Yet, cognitive scientists have helped us to realise that pure lecture alone is not the best means of learning (Deslauriers et al., 2019; Wolfe, 2010). Now that we have a host of other methods to choose from as teachers, we could vary our lesson delivery to include multiple approaches, and thereby increase the students' learning, engagement, and ability to retain and apply the knowledge. Furthermore, this new research on teaching and learning, and specifically brain research, has helped us to understand that our brains need time to process information, otherwise they become overloaded and lose interest easily. Processing in the brain needs to happen after every 5 to 10 minutes of input of new information, which means that direct instruction needs to pause and give a break for students to think and work with the information in their brains. This manipulation of information aids in embedding it into the brain (Jenson, 2005). Teachers can, therefore, amend their lecture practices to build in more brain-friendly approaches which will make lectures more learner-centred. This chapter presents several practical ways lectures can be improved to serve the learners' needs better.

We recognise there are some advantages of the lecture style which include the large amount of content that can be shared quickly in a straight-forward manner; large, crowded classes may find it easier to simply listen to a lecture on a topic; auditory learners are well-tuned to the lecture style, and may prefer it. Research has demonstrated, though, that even when students say they prefer the direct instruction method, their learning suffers in comparison to those instructed using active learning methods (Deslauriers et al., 2019; Wolfe, 2010). Lecture largely prioritises the needs of the teacher over the student. The lecture-based instructor has the ultimate authority on the information, and in the classroom; lectures are easy for the teacher to download, borrow, or prepare, and they may be the most comfortable to today's teachers since they have likely been taught in that format. The learner-based approach to teaching guides us to prioritise the needs of the learner over the

needs of the teacher. We can do this by making other more active additions and adjustments to the lecture in order to give opportunities for engagement and learner-to-learner interaction, hence, the “improved lecture method” described in the following sub-topic.

How to Improve the Lecture Method

There are many ways to improve on the standard lecture style of content delivery to make it more responsive to students, more engaging and more relevant. Here we discuss four specific ways to improve your lectures: make it more engaging for the students, increase your students’ comprehension of the content, share your organised outline format and practise powerful presentation skills. Each will be described more fully.

Which of these ideas might university lecturers and professors adopt?

Which do you wish all secondary school teachers would use?

How can you make your style of lecture presentation more effective for students?

Drawing Their Attention. By amending your lecture style, you may be able to make it more engaging for students. The best delivery of content is worthless if you do not have the learners’ attention. Your tone of voice sets the stage for successful delivery of the lesson. Be enthusiastic! Your own passion, enthusiasm and interest are contagious. Be enthusiastic and happy in class and your learners will catch it up. Perhaps you are the teacher who sings a song about human rights, some soothing teaching melody when teaching a History and Government topic, then use a melodious soothing verse of a popular song and allow learners to join you once in a while to break boredom. Humour can be an effective attention raising mechanism if it is employed appropriately to suit your teaching topic. Perhaps you always tell a story which relates to the lesson but also has a banana, a flower, a fruit in it or even an amusing person who lives in the neighbourhood. Could you bring any one of them into the classroom environment? Consider using real life, local examples and case studies which can illustrate your main points and capture the attention of the students. You might even get some examples from the students themselves to add in as illustrations, or from the campus or school compound. This is a good way to relate to their lives which builds connections with the learners, a key attribute to a positive learning environment. There are many ways to purposefully build engagement into your lecture to capture and sustain your learners’ attention.

Build Connections. There are also ways to increase the students’ comprehension of your content. While connections with their lives increase their *attention*, connecting with other topics they have studied increases their *understanding*. Brain research has demonstrated that interdisciplinary learning is superior to isolated subject-specific learning (Robinson, 2017). Link the lecture topic or sub-points to other topics the students are studying or have studied. Use connections to build to more successful retention rates and deeper understanding.

Use Illustrations. Illustrating your main points with examples, stories, and even visual representations, greatly enhances the interest and understanding of your students. You might think of starting with a problem, and have the students generate prospective solutions then wait to see if they are correct. Not only does this use higher-order thinking skills, it also builds a real sense of anticipation into your lesson. Having a particular example or a story that they wait for each lesson can also provide that source of anticipation. For example, be the teacher who always tells a riddle at some point that directly illustrates or relates to the lesson.

Use a visual aid of some sort to make the learning truly impact students’ understanding. With the expanding access to the Internet changing the way we teach globally, bringing multimedia equipment to the classroom has gotten easier and more readily available. Images in slideshows can be projected onto the wall, or a screen, and greatly increase both attention and retention of the lecture. This can literally bring the world to your classroom, and allow your students to travel to all corners of the globe or the inside of a microscopic amoeba using internet. Including IT in your teaching practice will revolutionise your lectures. Bringing the actual items, called realia, such as a

cluster of grapes if teaching fruits or a flag or national costume when teaching History and Government or Social Studies, which directly relates to learners' experience. You could cover a piece of realia to keep it hidden and have them guess what it is, then how it is related to the lesson. You could actually stretch your students' creativity muscles by having them think "outside the box" to discover the connections between a bottle of Coca-Cola soda soft drink and your lesson on globalisation. Illustrations help build connections which is how the brain learns.

Use Explanation Frequently. Explanation is being studied as a key component to learning. Using careful explanation – considering with your students the *how* and *why* of a certain phenomenon – teachers can improve the ability of learners to transfer the knowledge to novel situations. This is truly the goal of the learning—to increase their ability to apply their knowledge; therefore, students should frequently be asked to explain their answers and the thinking process that they used. This metacognitive action brings their thinking to light and allows others to also see how to produce the same results in their own minds. Rather than focus solely on "getting the right answer," try to emphasise the path to the right answer by asking the follow up question, "how did you get that answer?" Teaching students to be aware of their cognitive processing and the patterns of problem-solving will aid them in retention and further application. Students' brains will notice patterns and increase skills in generalisation, leading to more effective learning (*Williams & Lombrozo, 2010*). Understanding the world and how it works starts with asking probing questions of explanation. Consider how, when you explain something to someone, you often generate more complete understanding and new insights for yourself. Explanation is key to understanding past events and predicting future ones. Do not underestimate the role of real explanation in your lectures. Pause and ask students to explain the concept you have just taught to a neighbour; research tells us that this will definitely increase their own learning, and may help their neighbour boost theirs (*Wolfe, 2010*).

Organise your work. Good lecturers know the power of organisation to aid in clarity. When you use a set of objectives or learning outcomes to guide your lecture, you not only gain structure and purpose for the lesson, you also allow the students to own their own learning. Share them at the beginning with the students and check with them at the end if you have met those objectives. Organise the lecture in an outline format which you can then share with the students either before class on their phones, or during the class with a projector, whiteboard or chalkboard. Sharing an outline greatly assists students in knowing how to take notes which is an important skill and thinking exercise. Provide a preview of the main points at the beginning, and a summary or review at the end. This structure will aid their learning. Guide them with clues as you progress. Your organisation should hang upon a few main points, and you should alert the students to a main point when you get to it. Review the previous ones, and review them all at the end. Tell them what you want them to walk out the door knowing.

Powerful Presentation Skills. These skills also increase the students' comprehension and engagement. Vary the tone of your voice, but always be loud enough to be heard by all the students. Be sure to make eye contact with every area of the room; try to look at each student individually at least once throughout the lesson. Beware of reading your lecture notes and avoid it as much as possible. You can prevent that tendency by preparing an outline that you can glance at to make sure you remember the point you intend to make. Make the lecture flow smoothly by planning transitions intentionally.

It is important to keep time, even if that means you cannot finish the lecture as you had planned. Do not fall into the trap of simply increasing your speed if the end of class is approaching. Instead, choose the main points to teach, and leave off the details and supporting stories. The best lecturers have parts which they plan to shave off if there is no sufficient time. It is most important that you

do not forget your final conclusion. If possible, solicit input from the learners about what they have learned to summarise. This way you can check their understanding meaningfully and fill in any missing parts or address any misconceptions. Finish well.

Assessing Learning during improved Lectures. You might wonder, how can I be certain my students are understanding the lecture and I am not boring them? This is the role of formative assessment methods which will inform both you and the students about their levels of comprehension, and alert you to any misconceptions. Any methods which give you feedback during or after a lecture are useful only if you use that feedback to shape today's and tomorrow's lessons. The most common method is to ask if the learners have understood. Often, the teacher asks, "Are you with me?" While these might be useful to spur some response and waken sleeping students, they really do not give you accurate feedback about the level of their understanding. Have you noticed, everyone always answers "yes?" Instead, use the question and answer strategy and keep asking questions, pausing to allow individuals to respond. Encourage the students to ask questions, but if they do not, then you ask them. Consider having everyone ask one question to their neighbour, then the neighbour answers. If they cannot come up with an answer, ask the other neighbour. Then, ultimately, you will answer those which no one knows. The value in this is so much more than getting an answer; the value is in having students verbalise their learning which helps make the learning come together and be more deeply understood and retained (*Jenson, 2005; Williams & Lombrozo, 2010*).

Move around the class and listen to what they are saying so you know some common misconceptions that arise. You could also highlight to the entire class some of the positive answers you heard. This stimulates more energy among the other students by specific praising some of the best student contributions. Use wait time so that all students can consider a response to the question, not just the quick thinkers. Consider having them write down the answer then share it with their neighbour; this also allows the quiet time for those who need more time to process their thinking. Use the think-pair-share strategy which is discussed in an upcoming chapter, but basically means you ask a question, having the students to think first as individuals, then let them pair up to discuss, and finally one of the pair mates shares with the entire class.

In summary, we have considered that lectures are an excellent means of creating a generation of passive, obedient students in an authoritarian classroom setting. Lectures may also have their purpose in certain settings where the resources are extremely limited and knowledge must be disseminated orally. Yet, we have come to realise that modern environments which require innovative thinkers and group collaborators, problem-solvers and entrepreneurs demand a form of teaching which stretches the brain to new capacities. Students who engage with the material, reason and debate with each other, and persuade, defend, evaluate and create, are students who will drive the country forward and design the future. Teachers are now able to vary their teaching style with active methods, and, if they do so, they will find that adding varying methods adds rigour, meaning and retention of content learnt by their class. Here are some practical hints in the box below to improve lecture and make it more engaging and learner-centred. With practice, you can devise your own ideas to facilitate learners' active participation in class. Here are some ways:

be clear about objectives focus on single topics give brief outline of lecture use examples to provoke learners to think be enthusiastic look at the class use detailed descriptions do not read notes use stimulus variation speak loudly but vary your tone of voice allow questions use humour pose problem to provoke thinking	Make idea flow smoothly be organised make lecture lively by use of teaching aids establish a state of anticipation move around the room—do not be stationary keep time attract attention, pose a dilemma use teaching/learning resources include question and answer tell a story use realia sum up at the end. do not make lecture too long
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Pause to Review and Reflect:

Describe a time you saw some of these attributes of good or poor lecturing modelled. What was the effect on the learners?

Explain two ways you will improve your lectures.

Specific Ways to Improve Lectures

What follows, then, are brief discussions of four specific techniques you could add to your toolbox ready to apply to your next lecture. These will each have the advantage of making your lecture more learner-centred, as well as increase the engagement of your learners. The first, mind-mapping, is a visual tool that aids in a deeper understanding of the structure of a topic. Manipulatives and visual aids will be discussed further in the chapter on active learning tools, but are included here as a reminder of the importance of real objects and visuals to add to an auditory lecture experience. Then, we will discuss song and storytelling in turn, as both are useful ways to draw learners' attention to the lecture and make it more learner-centred in the process.

Mind Mapping

You might be wondering, 'What is mind mapping?' Mind mapping is a creative and organised way of representing a central topic connected to subtopics and other many points which are interrelated. You may have heard of it called *concept mapping*. The concept map visually represents the connections of information in one's brain and resembles a spider's web or a map of a city with roads leading to different intersections. It could be a very good tool for discussion and brainstorming to generate as many ideas as possible which could be represented in a graphic form. It is also an excellent tool for group discussion activity to summarise a lecture or unit of study, showing links among the topics demonstrating the students' ability to connect the learning. At the beginning of a unit, you might use it to find out what the students know about the topic you want to cover, so that, as you embark on covering the topic, you could fill in gaps, and draw the information from the students as you go.

Ask questions, draw on them to tell you what you already see they have on their mind maps. As a thinking exercise paired with lecture, it can be either a summarising tool of formative assessment or a pre-assessment of prior knowledge and familiarity.

Organisation. Mind maps act as visual tools which could help students to structure and organise their own thinking about a topic; for example, when planning to write an essay, they can put the topic in the centre, then the subtopics in bubbles around that, with the facts or details on lines coming off of the bubbles. It represents a hierarchy of thinking, with the big idea in the middle, working toward the finer the details, the further you move out from the centre. Each of the subtopics could be a paragraph using the details as supporting points in the paragraph. See the example below on the topic of water. Using the concept map helps to get your thoughts on paper as a plan for the essay, so that it is well structured and organised, and students will use it as a guide when writing their essay.

Example uses of mind-mapping. Mind-mapping could be used as a tool to help students organise their thinking in different tasks. As we just described, a language teacher could ask students to make a mind map in pre-writing of essays to organise their points and support; a science teacher might use it to organise lecture notes about plants or cells. A history teacher might use it to categorise thinking on groups of people in a region and their characteristics, or describing aspects of a religion. A language teacher might also label the centre circle “parts of speech” and then have bubbles surrounding the central topic with “nouns” “adjectives” “verbs” and so on. A science teacher could label a box “environmental disasters” and students come up with examples about environmental disasters in categories which fit into subtopic bubbles such as “pollution” and “oil spills.”

Benefits of a mind map. Just about any topic that can be categorised could be translated into a mind map. Asking students to take textual notes and translate them into this graphic organiser imprints them on the student’s brain and requires higher-order thinking to categorise and represent the information in this visual format. This is a superior study tool to introduce students to when revising for an examination because they must summarise the topics and choose key words, then describe the linkages among the subtopics, tracing them all back to the main idea. Each group might be tasked with making a mind map on a topic from the unit, and then lead a review for the rest of the class from theirs. It could be used to conclude a lecture where students could be grouped to discuss and come up with a mind map diagram of what they have understood. This thinking tool leads to divergent thinking by making connections, exploring many possibilities and encouraging creativity because there are many answers, not just one right answer. Divergent thinking helps train better flexible thinkers.

Making a mind map. As a means of interacting with the content and engaging your higher-order thinking skills, mind mapping is one of the best (*Marzano et al., 2001*). It will also appeal to the more creative students who can involve the use of colour in meaningful or decorative ways, as well as symbols and connecting words. The latter are written on the arms of the connections (spokes of the wheel) to describe the connection between the two bubbles. This too is a good exercise in higher-order thinking to label these connections. By mapping out content, you are actually reorganising and analysing it in your mind, making a graphic representation of your conceptualisation. If you then explain how you constructed your mind map to a neighbour, it further increases the depth of your thinking. No wonder this is a research-proven strategy that works! Here are some hints an example.

Be creative and create the mind map before telling students to make one.

Begin by drawing a box in the centre of a piece of paper. Write in it the main theme, topic or idea you are going to represent and explore.

Make connections from the main box that have sub-topics connecting the main topic

Creatively add in ideas that connect the main topic and on and on.

The boxes in the procedure we have just seen make a simple mind map on the topic *Water*. It could be expanded to bring in boxes on the many uses of water; other boxes to capture many sources of water; others to capture many dangers of water; and, still others to capture many water pollutants.

Manipulatives and Visual Aids

Manipulatives and visual aids are teaching and learning resources which are also included here to highlight their usefulness in improving lectures to be more engaging and learner-centred. Most of us remember around 10 per cent of what we hear, but closer to 60-70 per cent of what we see; therefore, the role of visuals integrated meaningfully into the lesson aids in retention and understanding. Visuals help us make sense of the content and embed it in our longer term memory (Jenson, 2005). Visuals can be both real objects and posters as well as projected images using IT tools in the classroom.

Manipulatives can be any physical object which the students can handle and use in their learning for hands-on manipulation. They include realia such as leaves from plants for students to sort according to type, coins to be sorted into groups, even advertisements from the newspaper to analyse for writing style. They are a concrete representation that aids in understanding an abstract concept. You could use them as a demonstration or illustrations of concepts in your lecture. The power of visual elements to bring your lecture to life cannot be underestimated. Or, hand them out for students to try in the middle of the lesson in order to help give a practical aspect to your teaching. More information about manipulatives and visual aids can be found in the chapter on teaching learning resources.

Manipulatives are most often spoken of as tools of understanding mathematics concepts, but in reality, any teacher can use them; though mathematics teachers really **MUST** use them. In any subject area, they assist students in visualising and conceptualising abstract ideas, examples of the theories or concepts that you are talking about in the lecture. Think about this: how does brain research support the use of manipulatives? We know from brain research that we learn best by using multiple modalities, and manipulatives give us visual and kinesthetic or tactile input that one can touch, feel and manipulate. This increases the likelihood that the process or learning will be more deeply understood and remembered (Nilson, 2010). The visual element is a crucial aid to otherwise auditory lessons; every lecture should have some sort of visual element such as powerpoint presentation.

Singing as a Learning Tool

Singing a song is good for enjoyment and relaxation, but it can also be a powerful learning tool. Adding a song to a lecture can be done when teaching any subject. A song could be sung at the beginning of a lesson as a way to capture the students' attention as a set induction, or as the lesson progresses when their attention is sagging, or at conclusion of a lecture, to wrap it up in a fun and memorable way. Humour can be a useful approach along with singing. Do not fear if you cannot even carry a tune, as long as you can laugh along with your students. Practise lightheartedness. Singing is highly participatory and an easy way for learners to memorise the content. Do not be surprised if students are humming the songs while they take the test. That is a very useful way to spark their memory.

You could turn some of your teaching content concepts creatively to a poem which could be sung. Singing also provides the teacher and learners an opportunity to enjoy the learning community together, creating a joyful atmosphere which arouses learners' interest and social-emotional well-being.

Benefits of songs

Songs reinforces language skills and content, breaks the general lesson monotony of lectures and gives aid to the students to promote easy memorisation. Songs are memorable. Some people in retirement age still sing or hum their nursery rhymes. Songs have a tendency to stick in the mind. Do you recall some from your own schooling years? Perhaps you remember your nursery rhymes to date.

Try this: Try composing some main points of your lesson into a song and sing with your students at the beginning and end of a lesson. A song that follows could be used when teaching qualities of an effective teacher. Look at it and construct one, picking out some main points or all of them.

Effective Teacher Song

Master content, effective teacher

Effective teacher (x2)

Master content, effective teacher, and plan your lesson.

Plan your lesson, effective teacher

Effective teacher (x2)

Plan your lesson, effective teacher, and commu-ni-cate

Commu-ni-cate, effective teacher

Effective teacher (x2)

Commu-ni-cate, effective teacher, and ma-nage your class

Manage your class, effective teacher

Effective teacher (x2)

Manage your class, effective teacher, engage them all

Engage all students, effective teacher

Effective teacher (x2)

Engage all students, effective teacher, as we all learn.

Storytelling

Perhaps you recall a teacher who would tell a story to their students, and you recall that story well even years later. For example, you remember your nursery stones to date. Storytelling is an age-old technique for passing along lessons and conveying truths and values. The human brain seems to be wired for making meaning which is exactly what stories do. Teachers will use this technique wisely in many different ways to capture student attention and teach important lessons. A teacher might narrate a story to illustrate a concept and expand learners' understanding or use a personal narrative to capture the attention of the learners before delivering some content. For instance, a mathematics teacher might tell a story of a farmer's goat which gives birth to twins every year and then teach multiplication and ask how many kids the farmer's goat would have in six years. A teacher of English started a story and asked learners to complete the story by working in groups using as many adjectives as they could. Another teacher in any subject area may ask some students to tell an interesting story from their own lives which illustrates the point of the lesson.

When would you use a story — the beginning or the end of a lesson? You could use a story as lesson introduction in a lecture, or within the lecture to break up the delivery of content and catch the attention of the learners, to vary stimuli to motivate learners and call their attention. In many cases, a short story might capture the lesson point well and make a memorable conclusion. In whichever case, you should have purpose for using it and not just to pass time.

Benefits of Storytelling. As we have seen above, storytelling, when well-conducted, develops students' imaginations, teaches moral values, acts as illustration of a point, stimulates brain recall, and develops listening skills. Stories should be exciting or engaging, drawing on the socio-emotional learning which is so powerful. Choose a story which is appropriate to the learners' level and experience, as well as to the curriculum set learning outcomes. Just as with songs, stories can act as set induction to draw learners' attention, provide information and enjoyment and develop language use. If you can access technology, showing stories through video clips of events helps to transport the viewers back in time or to another location and even part of the globe. It brings the context of the study to life, making the learning appear more real and memorable. Even problem-solving often starts with a story to contextualise the problem.

Uses of Storytelling. Stories could safely teach sensitive topics because they conceal the identity of real-life characters and provide a third person to talk about, rather than oneself. Learners may more easily discuss the dangers of bad behaviour such as drug abuse and smoking in a story character than talk about it in reference to themselves, their peers or any individual. Storytelling is also an excellent way to build appreciation for the diversity of cultures found within a country. Some use folk stories with moral lessons as a way to incorporate the importance of values and ethics.

The storyteller ought to engage the listeners by using voice variation, gestures and emotions to capture the listeners' attention. Surprise and suspense are effective elements in storytelling style which build intrigue. You can also read a storybook to help students hear correct pronunciation and improve their spoken language, as well as feel empathy with the characters. Stories with admirable characters could provide learners role models to emulate. You could record yourself talking and listen to the clip with students. Used judiciously and creatively, stories can maintain their appeal and genuinely add value to the lesson.

Summary. Interactive lecturing can be part of a learner-centred classroom when it involves times of students actively participating in the lesson by including the purposeful use of a teacher's personal story, a well-chosen song, or a set induction using a cupful of rice as realia when teaching types of carbohydrates food, for example. Consider breaking up a lecture into several parts with some interactive time provided for the students to stop listening to you, and process the information which they have been given. They will do that best by talking with someone near them on a particular prompt you have given. By limiting the direct instruction to only 8 - 12 minutes before pausing even for 1-2 minutes, you are greatly increasing the likelihood that they will understand remember and retain (Jenson, 2005).

More ideas of active learning strategies are presented in the upcoming chapters. These can also be used in addition to a short time of lecture to convey content. The key is to vary your methods and be attentive to the needs of your learners in guiding your instructional choices.

Pause to Review and Reflect:

Imagine your colleague is complaining about learners falling asleep in his lecture. What might you say to him or her? What advice would you offer?

Make a mind map of this book. Think about your own thinking as you do. Does it help you understand the structure of the book better? You will now remember the content better because your brain has a structure to hang the facts on.

Recall some of the songs you learned in primary school. What does that tell you about their usefulness of using songs for teaching?

Tell a story that has happened to you which illustrates a point you might teach.

Create a poem or song from the key points of a teaching topic which you could recite with your students.

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CHAPTER 6: Methods of Questioning

Imagine a classroom full of students sitting eagerly facing the front writing board of the classroom, hands waving in the air. What is generally going on in this scene? Typically, this could be a question-answer interaction, where the teacher is in front asking the questions, and the students being solicited for answers, competing with one another to be the one with the correct answer. While there is a place for this exchange in a learner-centred classroom, there is more to question and answer than simply recall and restate. Teachers can benefit from greater exposure to various questioning techniques and self-reflection on their own practice. Sadly, students are socialised to believe every question has one right answer. This expectation of there being a “right” answer diminishes the curiosity of students and their divergent thinking, as we explored and demonstrated in the last chapter on mind-mapping.

In order to raise a generation of critical thinkers, we need to expose learners to more questions with multiple right answers (open-ended questions), and encourage them to discuss their views and support them with evidence. In this chapter, you will find several methods of questioning, moving from simple to the more complex ones. Try each of these techniques in your classroom and you might find that your students become more engaged and more focused on the learning. You might even find that your lessons begin to feel far more learner-centred as you approach the class with curiosity. As, questions that lead to more questions, a journey of discovery awaits!

Role of Questioning Method

What role do questions play in the classroom?

How do questions help students learn?

Asking questions during instruction is as natural to teachers as quieting loud students before an exam. It is an important tool to assess learning and check for misconceptions or errors in thinking or incomplete understanding. It tests previous learning, stimulates recall of facts and concepts, builds connections to the lesson, and can develop skills of critical thinking if the question is higher-order. Furthermore, questioning can help keep learners alert and engaged in the lesson.

Consider, why would you want students to *ask* more questions rather than *answer* more questions? Prompting students to ask questions builds an inquisitive mind, and helps them see the world as a place where they can be curious and discover what interests them. Asking questions drives their brains further up, Bloom’s Taxonomy, toward higher levels of thinking because students frequently ask the how and why questions, rather than the lower-order, rote memory questions.

Try this: Let your students generate questions rather than focus on answers for a while. See how this builds their engagement and intrigue as they begin to wonder about the topic. Foster a spirit of inquiry!

Asking Questions during Instruction

When you ask a question to the class, how many students respond? Usually, it is the same handful of students who are eager to show off their knowledge or engage with the teacher. Other students sit idly by and do not even try to think of the answer because they know others will answer more quickly. Many teachers have been frustrated with this scenario. Try one of several other methods to alter your technique of asking questions in order to assess and expand the learning. Consider these alternatives which engage the full class in processing the information:

Instead of asking a question and getting a single student to respond, have everyone write down their answers and then you choose a few questions from different attributes and ask students to respond and read answers to the whole class.

Rather than asking a question with a stated answer, ask students to summarise three things they have just learned and tell a partner one of them. This will get all the brains functioning simultaneously by stimulating the students to talk. Research demonstrates students learn better when they talk about what they are learning (*Mercer, 2008; Saye & SSIRC, 2013*).

As a variation, ask them to personally respond to what you just taught (how do they feel about it? What emotional response does it provoke?) Soliciting their opinion about an aspect of the lesson raises their thinking to the higher *evaluation* level of Bloom's Taxonomy.

Distribute small slips of paper, and ask: "What questions can you think of about this?" Everyone writes the question they have thought of during the lesson. Collect those at the end, then draw some out randomly and if they have submitted a question that is most appropriate from the lesson, then they get a token or a bonus point.

Questioning in the course of teaching is a good form of formative assessment, which is assessment for learning and correction. It informs the teacher and the student how well the learner is getting the content of the lesson; it reveals misinterpretations and confusion by students which the teacher could then address and correct. It also helps the teacher to reflect on their teaching; questioning its effectiveness. Why did they get it right, or not get it right? Then plan to make adjustments in the next lesson.

Question and Answer. Question and answer is perhaps the most common use of questions in a classroom. However, the success of your question and answer session depends upon whether the students feel free and safe enough in your classroom to risk making a mistake. If they do not, then it is too risky to try to answer any question they are not absolutely positive about. If you have demoralised a student for giving a wrong answer, they will not be confident to participate in a future question and answer exchange. Students will take risks when they know they can trust you, that you will not make a fool of the one who makes incorrect response. Create a supportive, friendly environment to allow free thinking and to enable every student to participate in class without fear of ridicule.

Explain to the class that there should be no chorus answers during this time, and then frame the questions clearly. It helps to have questions written down in advance. In fact, if you rely on your memory to create questions on the spot, then you will likely ask mostly lower-order ones, not higher-order thinking questions which take more pre-planning, but the payoff shows in student learning making it worth the time. Construct a question about the big ideas you are teaching, then break it up to see what they understand about each of the supporting pieces and how they fit together. Imagine a student asking a question, and your lesson segments are the answers. Then, just write down those questions.

Make sure all students understand your question. Ask a question before identifying who to answer, so that you are asking questions to all students, not any one individual. Allow any student to volunteer to attempt answering, and commend the volunteer and every effort made to try. Do try to get all students to engage and not allow some students to dominate the question session just because they are more active than others, involve the timid ones too. You could also create cards with their names on them which you place in a box or basket and draw one out each time. That student is the one to answer, but the student might pass if not wishing to answer. The student's name goes back in the basket though for another question later. This will help ensure you distribute questions to all students equitably.

Question and Answer Session Management

Use Wait Time. Wait time is one of the most significant ways to increase the thinking in your classroom. Simply allowing what seems like a very long time after asking a question demonstrably increases the number of students who are able to arrive at an answer in their own mind, as well as the amount of thinking going on in the room, and the depth of the student answers (*Bergman, 2018*). Take any opportunity to guide the student to get it right by giving cues or clues, before allowing other students to attempt answering. Commend efforts made but make it clear what is wrong and what is right in a friendly manner. Allow trials by others before answering the question yourself.

Use Encouragement. A teacher has to be careful in the way we respond to student responses when we ask them questions. We should not embarrass them by telling them bluntly their response is wrong and they are stupid, or by punishing or ridiculing them. That way they may get embarrassed and never try again. Instead, be positive and look for any positive aspect in the answer and appreciate it; then ask what else they know about that topic, and use that to guide them further. Allow thinking time. You could ask peers to help. Help students to think more deeply by probing, restating the question and leading them to the correct answer to uplift their morale and build their confidence and self-efficacy. Use think-pair-share and see whether students will get it right now. Make sure students end with the correct answer, if there is one.

Where do I get questions from? Follow your stated learning outcomes and objectives. To formulate questions, break up your lesson content into small slices of questions which lead to students' achievement of the stated learning outcome or objectives. Be sure to focus on the important features of the content, rather than a superficial detail or sidelight. Strive for closer to 50/50 with lower order and higher-order questions, or open and closed questions. Learning is developmental and sequential, so follow a sequence of questioning. Build your questions from the simpler, lower-level thinking ones to the more complex analysis ones. Ask the students who are struggling the recall questions; challenge the more advanced students with the more complex questions which are higher order and open ended. See the example in the following table of where question come from:

Subject English Literature. Ngugi wa Thiongo's Novel, *The River Between*

Topic: Characterisation.

Form: 3

Learning outcome. By the end of the lessons, the learner should be able to use appropriate adjectives to describe the main character in the novel.

Which character appears throughout the novel?

Trace in the novel where the character appears.

What does the character do and say in each case?

What do you conclude about the behaviour from what that character does and says?

Describe that main character using adjectives or describing words supported with illustrations from the text.

What do other characters say about the one you think is the main character?

What does the author say about that character?

Use five adjectives to describe that main character.

Note that the questions on the table are close ended and low order.

Asking Higher-Order or Open-Ended Questions. Use open-ended higher-order questions to facilitate critical thinking. For example, why did the author make that character a villain? Why should that character have died? What would have happened if the character did not die, was not a villain? Explore learners' ideas as much as possible. Some helpful hints to improve the question and answer activity are to vary the people you call on for answers, or draw the sitting arrangement on your notebook and write names so that you call out the students' names and look at their face; you could assign numbers to the desks, and then draw a number randomly so that you call on all the students eventually. Students who volunteer might then go and explain their answers to someone else who would then tell the class. That makes students teach each other, and thereby, the learning multiplies.

Familiarise yourself with Bloom's Taxonomy which will help you to see that students should be asking and answering questions drawn from all levels of thinking. By far, most of the questions asked in the classrooms are lower-level thinking, or parroting back what the teacher just said. A team of researchers in Pakistan found that teachers asked predominantly lower-order, closed or convergent questions, with only 25% of the questions asked rising above the lowest levels of Bloom's Taxonomy (Bibi et al., 2020). Interestingly, this is frequently reported in many countries around the globe.

While there is a place and purpose for this type of questioning, there is also much to be gained by asking and answering deeper, more thought-provoking questions. These questions tend to

involve analysis and interpretation, are more open-ended, have many different and still correct answers, and involve drawing connections from prior learning. They teach students divergent thinking which includes problem solving, innovation, and critical thinking skills which we know build better thinkers and have been identified as the new focus of education (*MoE & MoHEST, 2012*).

Knowledge in the order of complexity and mental engagement was presented by Anderson and Krathwohl (2001) starting with the lowest to the highest as follow: remembering, understanding, application, analyzing, evaluation and creation. We refer to them and present the action words which you could use in statement of objectives, learning outcomes and in assessing learning in a table.

Levels of Knowledge and Measurable Action Words-Verbs			
	Level	Explanation	Some measurable action words (verbs) to use in statement of objectives, learning outcomes and assessment
1	Remembering	Demonstrated by Simple recall of facts as they are.	choose, define, find, list, state, name, relate, select, spell, tell
2	Understanding	demonstrated by retelling in own words, organizing, comparing, interpreting, describing, restating main ideas.	explain, infer, illustrate, interpret, match, outline, relate, summarize, translate
3	Applying	Demonstrated by ability to solve problems in new situations by applying acquired knowledge, skills and techniques in a new way.	apply, build, construct, develop, identify, model, organize,
4.	Analyzing	Demonstrated by ability to examine information by breaking it into parts, identifying causes, making references and finding evidence to support generalizations.	analyze, categorize, classify, compare, contrast, conclude, dissect,
5	Evaluating	Demonstrated by ability to defend opinions, make judgments about information, validate ideas and quality of work based on set criteria.	criticize, defend, interpret, judge, measure, justify, prioritize
6	Creating	Demonstrated by the ability to innovate and come up with something new and solutions to problems.	adapt, build, change, construct, design, estimate, invent, plan, modify

Bloom's Taxonomy of Educational Objectives

Since 1956, when Benjamin Bloom and his colleagues published their taxonomy of thinking called the *Taxonomy of Educational Objectives* (commonly referred to as Bloom's Taxonomy). Teachers have had a guide for how to help them conceptualise the levels or hierarchy of thinking. Bloom explained that the first two levels represent knowledge and the higher four are "skills and abilities" which need the knowledge as their foundation, but progress to much higher levels of complexity of cognitive function (Armstrong, n.d.).

The new version of Bloom's Taxonomy (2001) represents the levels of thinking as more fluid and dynamic. It uses verbs showing action where the initial version used nouns. The lowest-level thinking, then, is represented by *remember*. Use words such as define, state, name... Remembering is akin to rote memory, and simply refers to the recall of facts. Understanding is a bit higher on the framework and encompasses not only recalling, but also being able to reframe concepts in your own words. Use words such as explain, infer and outline.

The other four levels form the foundation knowledge and are the higher-order thinking, moving from *apply* to *analyse* to *evaluate*, then finally, *create*. Apply asks you to use the knowledge in some new way; analyse seeks to make sense of the parts of the whole use words such as compare categorise evaluate weighs evidence and makes defensible judgments; create asks you to design something new use words such as design, modify, predict.

Try this: Prepare questions or activities at each level of thinking, guided by Bloom's Taxonomy and explain how you will use them in your lesson (see references).

Student-Generated Questions and the *Question Formulation Technique*

Provide students opportunities to frame their own questions. After a lesson, ask students to use think-pair-share and generate three questions to ask you, the teacher, based on what you have taught. Let them work out answers for the questions. This builds students' understanding and gets them to practice inquiry. This provides insight into what the students consider significant after you teach. Prompting students to ask questions builds an inquisitive mind, and helps them see the world as a place where they can be curious and engage to discover what interests them.

Question Formulation Technique. This is a particular type of student-generated questioning activity where students are focused on creating questions in a non-judgmental atmosphere. Students learn to differentiate between *open* and *closed questions*. Open-ended questions have many right answers, tend to require more higher-order thinking, and are determined to be better for class discussions. Closed questions are more fact-based and tend to be lower on the thinking scale, and have less cognitive load. Questions are generated by the students themselves which gets them skillful in asking questions and critically evaluating those questions according to the standards. So, while the game is played with any content you are studying, the students are not only reviewing the content and analysing the internal structure of the topic, they are also learning more about how to be inquisitive, how to work collaboratively in a group, and how to think conceptually about big ideas.

The general idea is to have students in small groups brainstorming about what might be good to know about a topic. You can use this at the beginning of your unit as a way to access their prior knowledge about a topic, and get them thinking deeply about it. In this case, the questions they develop could be guiding questions for the days of the unit. You can use it at the end of your unit as a review and summary. In this case, the questions they develop might be used for a test.

The following are the steps of *Question Formulation Technique*:

Give the students 10 minutes in small groups (not more than five students) to brainstorm as many questions as they can on a topic which they are knowledgeable in. One person writes down the list, and everyone contributes. No questions are judged in the first round.

Then, for the second five minutes round, they evaluate and label the questions according to which are open-ended, multiple, free-form answers requiring higher-order thinking and which are closed (one right answer, usually lower-level, fact-based).

Students then rank the top questions in their group, and each group shares either their best one or two, and the whole class agrees on which one to choose to focus on for a stimulating class discussion the next day, or as their final exam essay question.

Teachers can then choose to collect those brainstorm lists and will generally find that the topic being studied is well covered by the student-generated questions. Teaching from those questions gives the teacher a natural link to the students by using the student-generated questions to guide or frame each lecture. Ideally, this technique can be demonstrated or experienced in a teacher education class prior to the student teacher trying to do it in their own class. Here is a constructivist exercise where students are generating the content and engaged in group discussions around the topic. *Question Formulation Technique* definitely meets the criteria for learner-centred active learning. You can get more information about this online if you google *Question Formulation Technique*.

Brainstorming

Brainstorming is an open group or whole class activity where students are free to generate as many ideas as possible on a given topic or problem (often expressed as a question), then decide which ideas offer the best solution. The group would be led by one moderator who could be a student or the teacher. Brainstorming calls for creative thinking by each group member in order to generate as many ideas as possible which address the issue in question. Each idea is respected and put down on the board, then finally the entire class goes through each idea discussing its worth. The entire group decides which ideas to retain, which to develop further, and which to leave out altogether.

Benefits. Brainstorming calls for students to think in new ways. They will be challenged to use creative thinking to generate, then critical thinking to evaluate the suggestions and choose the best. This enhances the development of thinking skills, team-building and collaboration. Students feel the pride of contributing to a group effort and coming up with a better product as a result of working together. Learners freely think and speak out their thought without challenge of wrong or right. Everybody's views are considered and valued, but not necessarily chosen, as the merits and demerits of each view are discussed.

Brainstorming helps students to think broadly to explore a new topic, generate different random ways to solve a problem and express a creative flow of ideas. The activity could get very energetic and loud because all ideas are respected without judgment as new concepts or ideas are generated. Everybody gets involved in this thinking activity, including the shy ones who get courage to talk without being judged.

Setting up a Brainstorming Session: Before starting a brainstorming session, you as the teacher need to identify a clear issue or problem which you could discuss with maximum learner participation and flow of ideas. The topics could be simple like *Energy* and what it means to the group, or something like 'How can we Improve our School Environment?' 'The Mole Concept,' or 'How can we Make Lecture Learner-centred?' In very large classes, questions can be different for different groups. Groups themselves should be as divergent as possible in terms of gender and ability. The group then sets ground rules which could include the following: everybody must participate, every idea is respected and written down, however unusual or incorrect, all innovative ideas are welcomed, no criticism, no sluggishness, giggling is not allowed, speak loud enough for all to hear, everyone in the group must be involved, no negative criticism of ideas or suggestions.

There needs to be a large sheet of paper or clean writing board that all can see. Ideas of

individuals in the group need to be recorded as the session progresses so that everyone knows what has been said and can build on it, or add to earlier ideas. Every idea must be written down, however unusual it might be, as a clear indication of respecting every contribution, thereby encouraging everybody to participate eagerly.

In conducting the session, the teacher's role is to encourage full student involvement and to ensure that ideas are recorded from everybody. The sign to close the discussion is when the flow of ideas slows down and students start struggling for them. Do not end too quickly, though, as deep thinking may take some time to emerge. It is in the quiet when things seem to be slowing down that the shy student is able to suggest an idea. After you close the brainstorming, in the remaining time, let the whole group critique each idea and sort which to retain. The teacher could facilitate this part of the session, as students critique and give their reasons, or the more capable students may be able to manage this once you have taught them the process.

Finally, give the class feedback on what they have done well; let them say what they found useful about their activity. What did they discover in the brainstorming that they had not realised before? Did the students enjoy this chance to participate in a non-judgmental, energetic way? Are they making progress on becoming tolerant and respecting each other's contributions? Using questioning methods such as Question Formulation Technique and Brainstorming will aid students in developing stronger minds and more tolerant dispositions.

Pause to Review and Reflect:

How are the questioning methods explored in this chapter different or similar to your own experience of questions in school?

How can you encourage students to ask more questions, especially open-ended questions?

What is the importance of brainstorming? What upcoming topic could you involve students in a brainstorming session?

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CHAPTER 7: Discussion Methods

Importance of Discussion

What is discussion and why is it important?

How do I plan for a powerful discussion in my classroom?

What is discussion? Various types and definitions abound, but the basic structure includes a dialogue between two or more learners, in which there is a goal to exchange information and to grow or benefit from the exchange. It follows the belief that civil discourse, or citizens talking together solving a problem or reaching a consensus, is a vital part of a healthy democratic community (Hess, 2009). And, schools train future citizens to participate in that healthy discourse. Therefore, including discussion in your methods of teaching has more significance even beyond the curriculum and into real life skill-building (Goodwin & Altman, 2020).

Importantly, discussion differs from question-answer format where the teacher asks a question, and the student answers it. It flows from a more democratic arrangement than an authoritarian one. In this case, the process is more important than the outcome. In fact, learning the skills and attitudes of discussion is crucial to students' lives within the global community.

The Role of Discussion in a Classroom

In the U.S., Diana Hess (2004) reports a study of secondary level classrooms which found 90% of them had no discussion going on at all. This is a real challenge facing education globally – to immerse students in more authentic and stimulating settings where they engage with one another in civil discourse and consensus building. The impediments to real discussions in the classroom may differ according to local circumstances, but the need for a new workforce that can collaborate, communicate, tolerate and respect differences is universal. In fact, there is considerable agreement among scholars of the importance of discussion to a larger context of training future citizens and building democratic, ethical values in them (Mercer, 2008; Gray et al., 2019; Hess, 2004, 2011). Discussion meets the needs of both individual students to have a voice and the greater nation to have competent, active citizens who can express their voices and work together to respect and understand divergent opinions and to grow consensus (Goodwin & Altman, 2020).

Discussions in the classroom should respect the student voice, as learners typically speak their own views and opinions. Often, for secondary school students who are developing their own identities, this is an important opportunity to express their uniqueness and “meet their unfulfilled social identity needs” (Gray et al., 2019, p. 66) It is in the best interest of the learners and the greater community for the school to be a safe place to grow these skills and virtues (Green, 2000; Hess, 2004, 2009). Recognising the need for social interaction in stimulating intellectual growth and wisdom, the wise Samuel Johnson (1709-1784) said, “The seeds of knowledge may be planted in solitude but must be cultivated in public” (as quoted in Green, 2000).

When Thomas Misco (2013) studied discussion in Chinese secondary schools, he found a similar pattern to the US: surprisingly few teachers engaged in controversial discussions with their classes. There seems to be a prevalent hesitancy to embrace the difficult conversations in class, presumably for fear that the students will become unruly, the teachers do not have such freedom, or the “correct” answer is too diffusive to land on a definitive solution. Diana Hess (2009), leader in the field of discussion in the classroom, addresses the inevitable puzzle of discussion that teachers face: trying to simultaneously grow community and adherence to a set of values, while also fostering independent thought and expression, including the ability to disagree with your

neighbour respectfully (see also Goodwin & Altman, 2020; Johnson et al., 2000). This is the challenge which discussion pivots upon, and the reason we must insist on its role in our classrooms. In this chapter, we offer several different styles of discussion as well as general qualities which are known to make discussions more successful and valuable.

Using Discussion Method in Your Classroom

Grouping. Discussions take many forms, and can happen in pairs, small groups, or full class. Many scholars recommend using small group discussions in order to facilitate all learners’ voices to be heard (Goodwin & Altman, 2020; Green, 2000; Marzano et al., 2001). This is particularly important in large classes, especially where a few speakers might dominate. Think-pair-share is an example of the smallest group – two students – and a simple, brief way to incorporate student processing and expression of learning. Other techniques involve groups of three to six students, or larger. Small groups offer the ability for students to practice authentic listening, collective reasoning, embrace difference, or build consensus, all which are key skills for fostering democratic values (Hess, 2011; Johnson et al., 2000).

Ground rules. Discussions need ground rules to be positive and effectual. Ground rules might include such things as active listening, repeating what you heard the last speaker say or building upon it, and respecting others’ views (Goodwin & Altman, 2020). The success of a discussion relies on students “buying in” to the format and the ground rules for classroom deliberation. To encourage such “buy in”, teachers can establish the rules collaboratively with the students, guiding them to the important values of respect and tolerance. Additionally, Fung (2014) has found that creating rules for discussion can be an ideal time to incorporate cultural values of the community. Some sample rules might be: Every group member must contribute to the discussion; you must contribute to and build upon the evolving discussion; give evidence for your thinking; listen actively in order to respond appropriately.

Developing Discussion Skills. The skill of discussion is not born, it needs to be taught. So, teachers should consider spending some time reviewing the skill at least the first few times before beginning real class discussions. Qualities of good discussions might help frame your instruction. You might begin by soliciting some qualities from the students of what they think a good discussion participant would do. Then, add to the list. Or, write these all on slips of paper and distribute them to students around the room to read out when their group is called. Perhaps in groups they could mime or dramatise their quality for the rest of the class in 30 – 45 seconds.

The following table shows twelve examples of positive discussion behaviour:

Positive Discussion Behaviour		
1. Practise active listening	5. Prioritise clarity	9. Respectfully disagree
2. Prepare; do the reading	6. Connect to another’s previous statement or ask a question	10. Use eye contact around the room
3. Inquire and probe	7. Use self-control; do not overtake your share of time	11. Communicate care

4. Use reasoning; back up your statements with evidence (from the text)	8. Synthesize arguments which have already been made	12. Resolve conflicts if possible
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Planning. Discussions do not just happen. Good classroom discussions must be planned and prepared for, by the teacher and the students. The teacher must select an appropriate topic and create a prompt for the discussion. Open-ended questions, sometimes called divergent, are determined to be better for class discussions, since they have multiple complex answers with different opinions, which provide fuel for the discussion. Closed or congruent questions, on the other hand, are more fact-based and tend to be lower on the thinking scale or have less cognitive load than open-ended ones. They tend to shut down the discussion because once the question is answered, there is nothing left to discuss.

In good discussion topics, some degree of controversy is necessary to prompt multiple perspectives which feed discussion. Students need to be taught how to participate in a discussion, as well as follow the ground rules. Ideally, students have read some background materials and even come with notes in order to participate in the discussion thoughtfully.

Reflection at the End. Closing the discussion period in your class is important. In many cases, a small group discussion time will culminate in bringing the issues to a full class discussion to summarise and finalise the experience. In such a case, the teacher uses that time to make certain everyone has been heard, and no misinterpretations remain. While the goal of discussion is not consensus, in most cases, you want to foster respectful disagreement and emphasise the multiple perspectives which were presented. Finally, lead the students in a reflection on the quality of their discussion, aiming to make improvements each time. Facilitate students as they learn to make points, listen thoughtfully, and support their views with evidence which are all skills which must be taught and practised. Praise the specific ways students have excelled. Remember, you are training the next generation of citizens who need these skills to live together in a peaceful community; you are genuinely impacting the greater good by your commitment to teaching discussion skills and values in your classroom.

Methods of Discussion

The following are various formats of discussion which you might try in your classroom. In each case, there is a set procedure which learners must gain some fluency with, in order for the discussions to flow with ease. Use them multiple times in order for students to gain experience and comfort to use them with ease, and the benefits will increase.

Think-Pair-Share

Think-Pair-Share (T-P-S) is a powerful learner-engaging activity which allows learners to process their own ideas about the content. Brain research supports the need for students to process

information after about 5 – 15 minutes of input, shorter for the attention span of younger children, and longer by secondary level (*National Research Council, 2000; Jenson, 2005*). Think-pair-share is one of the simplest and most efficient ways to accomplish this. No teacher should miss using this powerful technique. It is very convenient with large classes.

After some presentation of content, learners are given a brief time to think on their own, and then talk about their response to the prompt with someone sitting in close proximity to you. You could use it with any class size, and it is particularly well suited in larger classes where getting all students engaged is a challenge. To conduct a think-pair-share activity, the teacher acts as facilitator, and asks the students to Think about a problem, question or activity, Pair up with their neighbour, meaning to simply turn to their neighbour, and Share their own thinking. Both students should share with each other. If they think individually for 20 seconds, then share with their neighbour for 30–40 seconds, you can accomplish this in one minute which makes this a remarkably efficient way to engage all learners in processing information. If the problem you gave them is more in-depth, they will of course need more time to process it. Every second you engage the learners in processing the content, is worth it in terms of increasing their understanding and retention.

As the facilitator, you manage the pair discussion by making clarifications, redirecting off-topic excursions, and also listening to what students are saying to one another. In this way, you are collecting evidence of their understanding, as this is a valid formative assessment for teaching. After the pairs discuss, you could also have them turn to another set of pairs and discuss again. Green (2000) calls this “Think-pair-square-share.” They could find out which ideas were the same and which were different. Culminate the activity by having selected pairs share their thoughts with the entire class. Build upon these ideas as you move forward with your lesson, even praising students for their thinking and contributions.

This technique is a quick way to help students, rephrase what you have just taught, uncover misconceptions, make the learning relevant to their lives, and otherwise increase their understanding. When students rephrase points of the lesson in their own words, and tell it to a neighbour, they are building brain connections which embed the learning in their brain longer-term (*National Research Council, 2000; Wolfe, 2010*). Think-pair-share can be used in lectures up to 3–4 times to make it more learner-centred, as we have mentioned in the previous chapter. It breaks up the teacher-focus and allows input from the learners. This is a quick and easy way to turn a pure lecture into an interactive lecture, especially if you build upon the responses you solicit from a few students after they have shared. You wisely comment, reinforce, reward and correct misconceptions.

Pause to Review and Reflect:

Imagine a traditional teacher, Mrs Juni, has observed your lesson when you use think-pair-share. She has questioned the three minutes you used as “wasted time.” How might you answer her to defend the use of think-pair-share strategy?

You may tell her that you have learned the benefit of think-pair-share through experience, after being introduced to it in this book. Your experience will tell you that use of think-pair-share helps the students gain greater understanding and build their motivation. They are more attentive after a chance to engage with their neighbour, and generally find your class more enlightening due to this involvement in the teaching and learning. Encourage her to try it in her class a few times to see if she will notice how much more engaged the students become when she welcomes their contribution.

Socratic Method

Socratic method is a type of discussion teaching method modelled after the great philosopher Socrates who used this way to teach his students in Athens in 5th Century BC. He used dialogue with his students, challenging them to think deeper by asking them questions after questions after questions. The answers to the questions were not to be found from books but from one's thoughts

and reasoning. For example, What is truth? What is good? What is life? The method delves deep in ones' thoughts to uncover underlying ideas and interpretations, then come together with others to reach a conclusion. It helps to use higher-order thinking to explore a complex idea that might on the surface seem simple.

A teacher first gathers the students in a circle to prepare for the discussion session which in this case is often called a Socratic Seminar. Following the model of Socrates, a teacher prompts the students with a well-developed prompt which is designed to spark debate. This is usually based upon discussion of a certain text, and student responses must link back to the text. The class discussion takes place between and among the students, with the teacher entering in only to help keep it from derailing, or to refocus the class. With practice, students learn to form strong arguments, well supported by the evidence from the text. They also learn how to identify weak points, illogical conclusions and arguments straying away from the evidence of the text.

Students also develop keen listening skills which are actively employed in the Socratic Seminar. As an example, a teacher could teach a Shakespeare play such as *Romeo and Juliet* which centres on their love. Romeo and Juliet are from two feuding families. The long-lived hatred between the families hindered the open, blossoming love for their teenage children who, therefore, secretly marry in church, and then each commits suicide at different times thinking the other is dead. The teacher could then pose a question for a Socratic discussion such as what is love? What is hatred? Or, a teacher could also pose a general question to students: How can a government both protect its citizens and stabilise its economy during a pandemic? Then set up a Socratic Seminar once you have provided students with articles and graphs to point to as evidence from which to draw their conclusions.

Fishbowl Discussion Activity

Imagine the perspective of three fish on the inside of a bowl, and we are on the outside observing the fish as they swim around in their insular world, almost oblivious to our gazing. This is the format of a fishbowl discussion. A group of four to twelve students (group A) act as the fish, sitting inside a circle with their texts at hand to refer to in the discussion. The rest of the class forms an outer ring (group B). Participation in the inner circle of discussants is generally voluntary. Once they have been taught the method, students often take responsibility of managing the discussion themselves, with the teacher only facilitating as needed. The topic for discussion could be decided by the entire class based on a controversial topic that has come up in recent study or in the current events reports. Recent topic of content just covered or a general topic of concern such as, whether all schools should now be mixed schools, whether the colonial period benefitted or hurt the colonised more, whether charcoal fuel should be disallowed due to environmental concerns. The point of the fishbowl is also to help learners see the qualities of a good argument (see chart earlier in this chapter). If the teacher has already led the class in making a list on the board of qualities of a good discussion, this will be easier.

Group A begins to discuss based on the opening prompt from the teacher. Discussants ought to refer to the text or facts to back up their arguments rather than simply stating opinions. Ground rules for discussions will help to guide them; suggested sentence starters might be posted as reminders such as "I agree with your point that... but I question..." As group A discusses in the inner circle, group B listens and assesses the quality of the discussion, making notes. The observers (*group B*) will practise active listening skills which might be a challenge for some who like to dominate the discussion. They might refer to the chart on the wall about positive discussion behaviours and take note of the ones they are observing. The groups could then change positions. In the end, both groups offer feedback to one another at the end of the exercise on group discussion, with teacher facilitation, encouragement and comments.

This activity builds in the students' skills such as investigation, risk taking, close observation,

constructive criticism and reflection. The students also develop confidence and a greater sense of self-efficacy, which is believing in themselves to be able to effect positive change.

Structured Academic Controversy

This is a form of debate which is more manageable and preferable to the traditional debate format for several reasons. See if you agree. Structured Academic Controversy (SAC) has been developed to engage students in discussion of controversial topics or other topics for which there are two sides to an argument (*Johnson et al., 2000*). It gives the safe environment for individual students to express their opinions in a small setting without fear of repercussions from the entire class. It involves sets of four students, two arguing PRO and two arguing CON against a prompt which the teacher has presented. These learners should be positioned in a square with two facing two. The physical proximity and positions in this discussion matter, as they make the abstract positions more concrete to the participants.

The advantages of this format are that small groups of four students are debating, giving every student the opportunity to talk; whereas, in a normal full class discussion, there are many timid students who withdraw from participating for fear of intimidation or shyness. SAC offers a scaffold to help empower those students that their voices and opinions are valuable, and can be heard.

There are two unique aspects of SAC which differ from traditional debates or class discussions. First, within the structure of the SAC, after the first round, the pair of students representing the PRO side of the argument switch places (both physically and orally) with the CON side. This helps students to see multiple perspectives, and encourages close listening in the initial exchange of arguments, knowing that they will be responsible for arguing that side in the next round. Second, the final round of the SAC allows the participants to drop their assigned roles and present their own personal opinions. This is a unique attribute of the SAC since in a debate you are assigned a position and never allowed to give your own opinion. This models the valuing of your students' personal opinions, and allows them to reflect in the end how their views might have changed or become more well-grounded after this SAC.

The steps for conducting a SAC discussion are presented below. Teachers might find it helpful to arrange students in quads, facing each other. The process can become loud as there are many people talking at once; the teacher should circulate among the groups to be certain conversations remain on task and appropriate. It is important for the teacher to be directing and timing the sections of the SAC, and announcing what to do next. There are three rounds in the discussion, with the first round taking the most time. You might give them five minutes to prepare, and then round one will be 6–8 minutes per side for a total of about 15 minutes. Round two will take less time since it is basically recapping the arguments on each side, maybe a total of 10 minutes. Then, the last round which allows them to discuss their personal opinions may feed directly into the full class discussion. In all, this is manageable in a 40 minute class period, but will consume most of the class period if the students are engaged.

The following are the steps for implementing a Structured Academic Controversy:

Preparation: Teacher chooses controversial topic for debate and distributes materials to students. Students read background information for homework.

Set up: Form groups of four: Students form pairs within groups of four. Each pair takes one side of the controversy. Then they develop arguments in support of their side.

Round 1: Each pair presents their assigned position to the other pair, citing sources where appropriate, persuasively arguing their side. Other pair listens, take notes, ask questions.

Round 2: Pairs reverse perspectives. Each pair feeds back the other's arguments they heard in the first round until all are satisfied that the issue and evidence have been heard and

understood.

Round 3: Drop roles and deliberate as individuals. The goal is to try to reach a consensus. Students should listen well and feel free to change their mind. If no consensus can be reached, then aim for “agree to disagree” and clarify the points of dissension.

Debrief the results and the process in a full class discussion. Celebrate the practice of democracy in action.

You have now been introduced to the power of discussion to transform your classroom into a learner-centred, positive environment. Reflect on what you have learned.

Pause to Review and Reflect:

How is discussion vital to your classroom? What skills does it teach?

Which of these methods of discussion will you try? Why did you choose it?

What hesitations do you have about enacting these changes in your classroom? How might you alleviate them?

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CHAPTER 8: Group Work Methods

What is group work?

How do I conduct group work in my class?

What is the benefit of students working in groups?

Benefits of Group Work

Group work might be the most significant way you transform the learning in your classroom. Evidence demonstrates the potential impact (*Brandt, 1998; Darling-Hammond et al., 2020; Marzano et al., 2001*). In a large scale study involving over 3,000 students, the teaching method which greatly surpassed lecturing in raising scores on assessments was group work because it challenged students to solve problem and process the information (*Weir et al., 2019*). Group work raises assessment scores, and it also has many other benefits to recommend it as a potential frequent strategy in your classroom.

Group work is a strategy which requires groups of students to work together to complete activities assigned to them in order to achieve a set learning outcome or objective. The group could be larger or smaller than an average of five or six, but the smaller the group size, the more successful the learning because students would be better involved. Group work allows students to work collaboratively in a social learning platform.

Benefits. Some students learn better by exchanging ideas. Justification lies in the theories of Vygotsky among others who explain that learning is a social affair (*McLeod, 2018; Vygotsky, 1978*). Students may learn better when they freely explore their thoughts and figure out ideas amongst peers in small groups rather than in a whole class situation. Group work in school has positive lasting effects, Lazar (2014) points out the strong link between successfully working in groups in school to successfully navigate groups at one's job and in the community. The direct transfer of knowledge from the classroom context to the real world situation encourages teachers to use group work frequently as preparation for life because group work greatly enhances the individual's success in working together in real life after graduation.

Outcome. The product from a group work activity should represent the collaborative exchange of ideas and information that is greater than might be done in individual effort. Use of group work in class affords students' opportunity to work together and experience benefit of cooperative and collaborative work. The group members develop socio-emotional connection with one another and could continue working together in life or even become mutual friends. The benefit of this co-operative activity include the socio-emotional learning that takes place (*Darling-Hammond et al., 2020; Pahomov, 2018*).

Size of Grouping. Group sizes impact the effectiveness of the activity. Generally, the smaller the groups, the more engagement of each learner, and the more learning; three or four students per group is ideal. Groups of more than five or six individuals rarely achieve the objective of all students participating, as some are likely to sit back and allow the more vocal or diligent students to do the work. However, sometimes limited resources or oversize classes require larger groups. To compensate for the potential disadvantage, a teacher could assign certain tasks to each person in the group so that there is individual accountability to the work. In this way, you might have smaller groups within larger ones. One important consideration is the goal that students feel needed and recognised as a vital part of their group; this is less often the case in larger groups since with large numbers of people, some can fade on the outskirts and be overlooked (*Lazar, 2014*). In this way, small sized groups can make students feel a sense of belonging, an especially vital component of building classroom community (*Durlak et al., 2011*). Sometimes in a large, overcrowded class, having a small group to belong to can make all the difference for a learner. Where class is too large and grouping may not work, you could use think-pair-share, or in a boarding school environment, group work may translate into homework to be completed by the students in the evenings.

Organising Group Work

Creating groups: It is the teacher's choice of whether to make homogenous groups of students with similar attributes or heterogeneous groups, also called mixed grouping. The assignment may determine which is more suitable, or the context and your specific students may require certain grouping styles. Homogenous groups have the advantage of encouraging the quieter, hesitant students to work rather than the stronger students taking over and doing most of the work. However, research demonstrates that such students may also be disadvantaged without some strong leadership from their peers (*Marzano et al., 2001*). Heterogeneous grouping gives the opportunity to intentionally divide students, that is, mix the ability levels thereby build on the advantage of the stronger helping the others in their group, which is a collaborative peer learning approach.

If you wish random grouping, you might have the students number off by saying in sequence, 1, 2, 3, then 1, 2, 3. For example, the first student says out loud "one," then the next says "two," the next says "three," and the next says "one" ... and the rest continue in sequence, repeating 1, 2, 3. Then all ones, twos and threes make three different groups, meeting up in separate locations in the room rather quickly. One benefit of this counting off technique is to mix up the cliques that frequently form in classes. Students tend to sit with those they are friendly with, and usually share similar opinions. Generally, allowing them to choose their own groups, will opt to work with their friends which does not give them opportunity to intermingle with others who are quite different from them, to make new friends and discover others' abilities. If part of the purpose of using groups is to expose them to alternative views and give them experience cooperating with others they may not like or agree with, then friend groups must be split up. Numbering off will help make that happen. Ideally, you choose the type of grouping strategy to fit the project and the needs of your classroom community, and then vary it over time by doing all types. Different types of grouping advantage different learners, so varying the way you set up the groups is the most equitable (*Marzano et al., 2001*).

Assigning Task: Choose the task for group work that supports the learning outcome from the curriculum at that point. It is not extraneous, but rather, a well-chosen method of teaching a certain topic and achieving the relevant learning objectives. You could assign problems for groups to solve or research on. The students could conduct research on a particular personality, perspective, or aspect of the content and then report back to the rest of the class. Each group's topic should not

be repeated so that the presentations in class will not be repetitive and bore the learners to listen to. In history, they could research historical personalities like Julius Ceaser, Jomo Kenyatta or Kwame Nkurumah. In order to accommodate enough names for the number of groups, you might tie in the personalities from prior learning as a review, or individuals you will study in the future as a preview. Groups could investigate examples of what has been taught or apply the learning to a practical example. Assist the students by providing access to the appropriate resources to find the information.

Each group could then share findings in a creative format to the rest of the class at the end, or the beginning of the next class. Group work might take place over several days, as a break in the lecture instruction, giving students some variety to the activities in class. It will break the monotony and expand on the instruction by involving the students in their own learning. It could, and should, replace the lecture by allowing the groups to present on the content they were assigned. The teacher facilitates the presentations and fills in any missing or inaccurate information; thus, the presentations become the teaching of the planned content, rather than extraneous material or repetition. Students own it; their work is not merely peripheral but valued. This follows the theory of constructivist teaching, allowing the students to create their own sense of the knowledge, prior to further direction by the teacher. By giving students the opportunity to engage and explore, ask questions, seek answers, you have created more inquisitive minds who could easily adapt to learning on their own, a good life skill of becoming a life-long learner.

Teacher's Role during Group Work Activity

The teacher has to set a conducive, free and friendly learning environment which builds the classroom climate of trust and goodwill where group work thrives. Prior to any group work session, the teacher must go over the ground rules and expectations, as well as clearly outline the directions for the task. If possible and appropriate, demonstrate or display an example of the final product. Once the groups are established and in their own places, the teacher goes around the room to ensure that each group is on course and the assignment is well understood and being handled without confusion. The teacher's role is to facilitate and ensure there is ample and appropriate learner-to-learner interactions in the course of group work, and checking to be sure all learners are accommodated by their groups. If there are multiple activities, the teacher also guides the time-keeping and transition from one activity to another. Note that students in peer groups can frequently drift off-topic, so teacher supervision and proximity will ensure greater outcomes and good use of time.

When it comes time for the groups to make presentations to each other, the teacher manages the organisation of such and the flow. Students who are not involved in the presentation should be given a task to do which engages them in critically analysing the presentation, taking notes to absorb the content, or capturing one or two specific points. This makes them active listeners. Accountability for the audience prevents the presentations from being mere entertainment or an opportunity for students to turn off their brains, or catch up with peers. Instead, these presentations should contribute to the achievement of learning outcomes stated in the curriculum and instructional objectives. The students must learn from the presentations in order to pass the test as in any other method of content delivery. This will need to be taught to the students, just like any other skill. They may not be used to this approach. But once you train them in the appropriate behaviours during class presentations, they will proceed smoothly and with great benefit.

Pause to Review and Reflect:

If you were teaching History on the topic: Migration to East Africa, how might you use group work? Replace this question with one from a topic in your teaching subject.

If you were teaching Mathematics and the topic was: Measuring Angles of Triangles, how might you use groups?

If you were teaching any topic in your science subject area, how might you use group work?

You will see that learning in groups, and constructivist teaching, are part of many of the other methods included in this book. These methods can be used in conjunction with each other, and supplement and integrate to create multiple strategies for teaching.

Student Group Presentations

Student presentations can be conducted individually, though students frequently prefer to appear in front of the class in a pair or small group. There are other advantages to the group presentation method as well. This pairing or grouping also serves to minimise the number of presentations the class will need to sit through and pay attention to, as well as the time spent. In addition, it makes the presenters more comfortable not to be in front of their peers alone. Topics which are compatible with student presentations are those which are generally easily researchable and learned without teacher direct instruction. They should be easy to understand by students themselves, and not overly complex material. During the review time, student presentations are an ideal method to use.

Teachers must give clear directions of their expectations, and then check in with the groups frequently to be certain they are on task and not facing misconceptions or other hurdles. Make the statements and instructions clear to all. Assess students on their presentation skills as well as their content correctness and depth. Give the other students questions which they will answer from the presentation in order to keep them alert. This will make them keen to watch the presentations process, the message and lessons from the presentations. Perhaps they could fill in a graphic organiser as they listen. Then you could give an open note quiz afterwards to encourage them to take good notes.

Card Sort

Card sort is one teaching method you will want to use in every unit. Not only does it build brain power, it also gives students a kinesthetic activity to break up the lesson monotony. You can add a competitive factor and truly boost engagement in your classroom. Soon different groups of students will be coming in during lunch time to try to play the card sort games!

To do card sort, you simply make a set of cards out of index cards cut in smaller pieces, or pieces of paper cut in uniform squares or rectangles. Students can help make them. Then, you use the vocabulary words or main points from your recent lessons, writing one legibly and in large print on the front of each card. Shuffle the cards and place them in an envelope or some way to store them. You will need to make, or have students make a set of cards for every two to three students. When you do the card sort activity in class, the students will work in small groups to sort the cards all out into either pairs or categories that you give them, or that they decide themselves through analysing the separate pieces. They could organise the cards according to sense and flow.

Matching Game. A simple game of pairing the cards is to make a matching game using the words you want your learners to know on cards, one word per card. Make another group of cards with one definition per card. Or use characters and their role; or historical figures and their accomplishments. One task could be for the students to match the word with its definition or historical figure with accomplishment. Once they understand, you can make it a speed competition. The team that wins each time earns a bonus point or a biscuit, clap or praise, as you wish.

This is a fun formative assessment of their knowledge of the vocabulary words and other learning. As you walk around monitoring the room, you can quietly help those students who are struggling without drawing attention to their mistakes. This is a simple, straightforward way to differentiate the level of challenge to meet the student at their point of ability. You can also pair up a quicker student with a slower one so that they can help each other.

Pairing Activity. "Find your mate" is another game you can use this same set of cards which really gets the class moving around on their feet. This can be a good way to wake up a sleepy class.

If you hand out these cards to everyone (one card per person), they can walk around the room asking yes-no questions to guess and try to find their partner (*for example, pairing words with their definitions, or people with their accomplishments*). This can be a fun alternative to the more traditional think-pair-share.

Sorting Game into Categories. Another version is a sorting game where the important words or pictures, from the lesson are on cards, individually. Then, the team is asked to sort the cards into categories that make sense to them, and come up with labels for those categories. This is truly a higher-order thinking challenge at the analysis level since they are categorising information. There are multiple “right” answers or ways to sort the cards, depending on how their brains conceptualise the connections and shared attributes of the words. Once they finish with one sort, they can try another way of grouping the cards, or circle the room to see their peers’ alternative ways of sorting. Pointing out and praising these thinking skills once the class is finished will go far in encouraging others to strive to think deeply next time.

Many will strive to configure their cards uniquely, building some divergent thinking skills. In order to help ensure the learners are getting the most advantage, they must be encouraged to process their thinking out loud with their partners. In fact, the first time you do this in class, you will want to model by vocalising your thinking out loud for the students. Those who need more help can be given the titles for the categories, which makes it an activity for different levels of learners. Activities such as this sorting game help **make the students’ thinking visible**, giving you an opportunity to address any misinformation or aid students in making connections.

Keep the sets of cards from one year to the next. Remember to keep the cards orderly so you will not compromise your sets. If you are able to use a copier, your task will be easier. Otherwise, having students write the words and definitions is a helpful study tool for them also. If you have access to different coloured papers, you could make each set a different colour, in order to help differentiate. When one lone card is found on the ground after class, it will be easier to find the stack of cards it fits with. Alternatively, you could have students use a marker and give each set a colored dot in the corner. Envelopes or clips will help too. These cards are a teaching and learning tool which you can use from one year to the next, over and over, if you keep them safe and organised.

Why Use Card Sort? Card sort can be used at any point in the lesson; they might predict the learning for the day or review previous week’s work. They can provide an active break from teacher-directed instruction, making the lesson more learner-centred. One of the advantages is the conversation that occurs while the pair or threesome work together to communicate their thinking to each other. By having to voice their thinking, they are actually expanding it. Can you see the advantage of working the sort in pairs, even if you were able to have a set for each student? The pairs or threes make the thinking audible, and the cards make it visible. Simply adding this method to your repertoire or toolbox of teaching strategies will expand the thinking of your students and make an impact.

From a brain-based research point of view, the card sort engages students in manipulating pieces of information in a kinesthetic activity (*Jenson, 2005*). By being able to touch the cards, learners are using more areas of their brains than simply answering a question orally. This activity uses the higher levels of thinking involving categorising and analysing how things fit together. By employing the higher regions of thinking, the brain is better able to remember and more deeply access the material to make sense of it and apply it in new contexts. As teachers, building brains is our job. Consider the following two examples.

Example from History Class.

Teacher Laura was teaching her history class Coalition or Alliances in the Second World War. To help her students understand the connections between the countries, their leaders and their systems, she created a student-directed activity called a card sort. She wrote names of WWII leaders and the names of the countries

they came from on small pieces of paper/cards, one on each. She added other cards with the philosophy of each and a fun fact about them. These became the manipulatives which the students could work with in a group to organise into the correct categories. Her students loved the activity and wanted her to make more cards. They even volunteered to add some other elements to the sort such as their pictures.

As students matched the countries with their leaders and their primary government system, Teacher Laura was able to see how much the students retained from the lesson, the previous day, and the students could self-assess their own level of understanding or comfort with the content. After the activity, Laura debriefed with the students about whether they were surprised by their ability to match these, or how it made them feel. She often has these “metacognitive moments” as she calls them, asking her students to reflect on their own learning. She herself reflects on her teaching, and on the performance of the individual students in her classes. This time she noticed that the students seemed to struggle most with the philosophical cards, so she will review those at the start of class tomorrow. This is how the formative assessment of the card sort helped everyone better grasp their understanding.

Example from English Class.

Mr Omar taught literature characters and characterisation of a short story. He wrote sentences describing the characters; he also wrote out a list of the names of the characters. He planned to have the students match the statements with the names of the characters they were describing. This tested their reading comprehension as well as their recall without the students even realising it since they were so engaged, racing the other teams to be first. Having students move around, literally, manipulate, the cards help the kinesthetic learners because there is an active, bodily movement aspect to the activity. He notices that some of the boys who struggle sitting still during class seem to appreciate this opportunity to stand up and move around a bit. He then allows them to circulate and see how others are doing, in case they can help them. He gets an idea that he might use quote from the book next time, rather than his own words. In fact, he thinks he will assign that as a task for the learners to find quotes which can describe attributes of each main character. Then, he can use those for the matching game next time.

Mr Omar was able to access photocopy and he made enough matching sets for each group of three students to have one, which he then placed in an envelope for safe keeping. He thinks to himself, “These will come in handy next year when I teach this again, and I’ll be already prepared.” What he doesn’t realise yet is that the students will be talking and another teacher is interested to see what he has made and he will take them out again and all the teachers in the staffroom would be intrigued to give it a try.

Pause to Review and Reflect.

Using these two cases of teachers who did a card sort, describe the positive benefits of using this method for the teachers and for the students.

Make a list of what you would need to do so as to use this in your subject area for a lesson.

Discuss how the card sort activity could help your teaching and your class.

Use of Teaching Games

Using games is an active way of getting students to engage with the content and have fun learning! If you have chosen the game well to support your learning objectives, it can be highly motivating to the learners. Many teenagers thrive on competition, so you can use that as a motivator. Research demonstrates nearly equivalent results from competitive group work and non-competitive, so vary your approach to keep things fresh (Marzano *et al.*, 2001). Students can even make their own games to review the content of the unit. Assign as a group project and then have a day for all to bring in and play them as review.

Tic-Tac-Toe. Take a simple game such as tic-tac-toe and modify it to use in the classroom. Divide the class in half and assign one team to be X’s and the other O’s. Draw the tic-tac-toe board on the chalkboard or marker board. Ask students on Team X a question. They collaborate and are

given seven seconds to choose an answer. Their appointed runner gives the written answer to the teacher. If it is not correct, Team O can give it a guess. Then, whomever gets it correct can go up and put their mark on the board, trying to position to get a tic-tac-toe, three-in-a-row. There are many simple games which could be turned into rewards for correct answers in review games like this.

Online Internet Options. Using online games would be great. Many options for online games can be found on the Internet. This may take a considerable amount of time for you to locate and try out a game before using, but it will pay off in terms of student engagement. Be certain you have introduced it well, emphasizing the learning objectives and the structure and rules of the game. Be familiar enough with the game that you can predict some potential pitfalls where students may become confused. Playing games in teaching is popular with youth and will make one of the most popular homework assignments. Perhaps you could ask them to play several rounds, and then write up what they have learned in a brief review of the game and post it as a twitter post or a written response. There are some websites which have learning games on them.

Group work will build the co-operative learning in your classroom. Not only does it teach the content and thinking skills, it also addresses the highly important socio-emotional learning which is part of becoming a whole person. New initiatives and reform in education is redefining school to be more than a place for academic growth, but rather becoming a place for a more well-rounded, holistic approach to developing a country's youth (*MoE and MoHEST, 2012*). After reading this chapter, you can see how group work can benefit both the students as well as the teacher by shared construction of knowledge.

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CHAPTER 9: Experiential Learning Methods

What is Experiential Learning?

We have already discussed the approach to learning we call “experiential learning” in Chapter Four. Here we introduce specific methods which support the experiential learning

approach, namely problem-based learning, simulations, role play, miming and dramatization. These methods rank higher on the scale of student engagement than lecture or even discussion. Often, the methods provoke the students to create knowledge, fitting within the constructivist theory framework, and involve both high engagement and an inquiry stance. The distinguishing factor is that the methods' relevance to real world learning and their real-life context, which is either simulated, an imitation or actual (*Wurdinger & Carlson, 2010*). In the words of Kolb who pioneered the field of experiential learning, the experiential method is based on "the critical linkages that can be developed between the classroom and the 'real world' with experiential learning methods which foster lifelong learning and the development of individuals to their full potential as citizens, family members and human beings" (*Kolb, 2015, p. 4*). Several of these methods involve the learners in inquiry or discovery mode, so we begin there.

Inquiry-based Learning or Discovery Method

Inquiry-based learning is an approach to learning which engages the students in investigation. In this approach, the teacher does not provide answers, but guides learners to look for answers themselves. It is also known as discovery learning because learners are facilitated to find out answers by stating a hypothesis or problem to be investigated, collecting data, testing it and resolving the problem. It is popular in the sciences, but it can be used in all areas of study. Inquiry-based learning puts the student into the role of an investigator, and the teacher acts as a facilitator, helping to guide the students' quests to find information and solve real world problems. The teacher provides resources and teaches the skills needed to find and interpret the information. By emphasizing skill-building, this prepares the learners to become lifelong learners, not dependent upon the teacher for the explanation. For example, students could investigate whether bees cause cross pollination in flowering plants. They could expose some flowering plants to bees, and to others prevent bees from visiting, and later check which flowers turn to fruits and which do not, then write down their findings and share with others. In so doing, they have simulated what scientists do to answer questions.

Problem-Based Learning (PBL)

Problem-based learning (PBL) is a learner-centred method which prompts students to learn content by solving a problem, either real or imagined. The quest to solve the problem becomes not only motivational, but also instructional. In addition, students work in collaborative groups with the common goal uniting their efforts, thus building co-operative group skills as well. The real-life skills which are taught through PBL include the group work skills such as communication and leadership, self-directed learning, research and critical thinking (*Wurdinger & Carlson, 2010*). According to Linda Nilson (2010), a strong proponent for PBL, problem-based learning is paramount in preparing students to become active, engaged, skillful citizens (*Walker et al., 2015*).

Steps of PBL: To teach in a problem-based learning approach, you present the problem to the students prior to teaching the content needed to solve it. Then, the students are motivated to find and learn the needed content (*Nilson, 2010*). According to Drew and Mackie (2011), PBL also introduces the interdisciplinary nature of knowledge which prevails in real life more than the isolated subject-specific approach of academia. It is important to first teach or review the skills of problem-solving as you want the students to practise them. While there are other ways to approach problem-solving such as allowing chance to determine the outcome, following others, or simply avoidance, it is preferable to learn to approach problems and seek solutions logically and systematically. This involves viewing the problem from multiple perspectives, valuing the contributions from others, making a list of pros and cons, then choosing based upon that list and shared insight. Students should go through a set of steps similar to these in solving a PBL:

Identify and understand the problem.

Brainstorm prior knowledge of group members about the issue.

Figure out what further knowledge is needed and where to find it; conduct research.

Brainstorm possible solutions to the problem.

Evaluate those solutions.

Solve the problem and report on the results.

Students should work through a sample simple problem with you using the skill, as you model it. Then, you could present a problem of historical or present relevance for them to work in small groups, applying the method as you have already taught them.

Teachers who include problem-based learning in their classes are truly extending the learning of their students to life skills. Solving problems is a necessity in our modern age, and the more students can practise this, the more they will internalise those skills. It involves listening, brainstorming solutions, weighing and analysing those solutions, then factoring in the effect on various constituencies, and then making the best choices. Ethical problem-solving adds in the component of weighing in the moral implications of a problem. Because we are training the next generation of citizens who will run their country and communities, learning ethical decision-making is key.

Example of PBL. For example, in history class, discussing the ethical dilemmas of slavery could lead students into a discussion about child labour today, considered a modern version of slavery. The teacher leads the students to realise the problem of wanting to buy low-cost T-shirts, but realising they are unethically produced by using poorly paid child labour in sweatshops. Using the ethical principle of fairness, the teacher poses the following question to frame their group discussions: "How can we act with fairness, in a way that balances the interests of all people concerned?" Students then discuss and do further research in their groups before presenting to the class. The teacher might have also assigned each group a different modern problem related including human trafficking and other injustices. While students will not likely be "solving" these problems, they may articulate solutions such as expanding awareness through media campaigns, posters and other informational means. Ideally, the class will then create the posters and put them around to help educate others at school about these issues. This makes the problem-based learning lesson real and authentic, and models how students can make a difference in this world.

Role Play

Role play is a short, simple drama or play designed to engage and amuse students, often through humour or the impact of watching your peers dramatise a brief scene. Similar to the other forms of experiential learning, it involves imitations or simulation. In a role play, a student will assume a role such as a president, and then act out a scenario or action such as making a ruling about taxes. The dramatic effect of bringing the action to life implants it on the other students' minds much longer than reading about it in the textbook. Acting out a scene or historical action or relationship helps students conceptualise the content or skill in an amusing manner that captures their attention. One role play that is very popular with students, and sometimes happens spontaneously, is a student imitating their teacher's actions, usually accompanied with an eruption of laughter from their peers. But role play could be used to accomplish an academic aim by contributing to the learning atmosphere both emotionally and intellectually. It captures the content in an amusing manner to make learners interested in the lesson, and therefore, should be directly related to the topic and facilitate achievement of intended learning outcomes. In English class, for example, various scenes could be acted out from literature; in Mathematics class, students could role play a scenario from real life of when you would actually use the measurements of ratio and proportion in cooking in a restaurant, for example.

Uses of Role Play: A teacher could use role play for set induction at the beginning of a lesson.

For example, enter a class and perform a role play such as a mother taking care of a baby to introduce a lesson on environmentalism or maternal instinct of certain animal species. Students interpret the role play in light of the lesson, embedding the experience and the content in their brains. You comment on their analysis, and explain further to add to the explanation and clarify. Therefore, role play could also be used to make a lecture lively.

Role play allows a certain element of playfulness in your classroom, which may result in a more active and engaged class due to the power of humour and joy. Students enjoy watching each other assume roles and act out scenes. They may act out a historical event, a decision-making moment, the way to solve a problem or not solve a problem, the correct, or incorrect, way to approach your homework. Role playing how *not* to do a procedure evokes plenty of laughter. You might demonstrate how not to do a presentation by acting out obvious errors like talking extremely quickly, standing with your back to the audience, chewing gum and answering your cellphone while presenting. It is commonly used in primary grades, but role play can be extremely effective in all grades and helpful in bringing certain parts of the curriculum to life in secondary and even university. All human beings enjoy humour when not overdone. A debriefing discussion should normally follow a role play to be certain that the objectives of the lesson are being met. Students will usually remember the content of a role play more than if you lectured it.

Example Lesson with Role Play: The teacher asks some students to come to the front to act out a brief role play which will introduce the lesson. Following that, the class is asked to comment on the role play and interpret the connection between it and the lesson. The teacher gives all students a chance to respond to their neighbour with think-pair-share. Then, some students volunteer to share with the entire class what they thought the role play was about and how they think it connects to the topic. The teacher allows a few to respond, asks others to comment and winds up. The teacher explains more points of the lesson, building from the shared experience of the role play into the new content for the day. Remember a lesson has introduction, body and conclusion which should be distinct to an observer. At the end of the lesson, the teacher wants to conclude with another element of learner involvement since the students responded so well to the initial role play. This time, a student goes to the front, using role play, imitates the teacher and sums up the main points of the lesson. Finally, the teacher asks some follow up questions to clarify and closes the lesson, thanking the students for their good participation. Role play develops imagination and creativity as learners imitate and interpret. They also relive the experiences which aids their memory.

Simulations

Simulations involve imitations which are essentially more elaborate role plays. They give students a taste of reality by using a scenario created by the teacher to stimulate certain experiential learning and emotional responses. It can put the students into the shoes of people in the past, or people in different contexts. The simulation provides an imaginary setting and story where students often act as someone else and are asked to complete an authentic task within that setting. For example, a teacher could have students simulate the factory model of production and compare it to the individual craftsman. Or, the whole class might simulate an election process playing all the roles and levels of the election. Could students simulate changes to an animal's migration pattern brought about by human interaction? Simulations could involve activities such as re-enacting court trials, historic decision-making moments or historical events. These could be past, present or future events. If the teacher plays a role during the simulation, they ought to change their appearance in some way to indicate that they are no longer in the "teacher role" and now in the simulation role. Then, once it is ending, remove the additional hat or cap or uniform to signal coming out of the simulation. In the end, it is essential that students critically reflect on their experience, led by the teacher as facilitator who is bringing out the emotional reaction during the experience as well as the

cognitive learning which supports the lesson objectives.

Miming

Miming is another version of dramatization where the mimer is completely silent, does not utter a word, just like using sign language. Players use signs without producing sound; for example, mime an elephant and let others guess what animal it is. A short story or an event could be mimed by the teacher or students and others allowed to guess what it is. You could use it as set induction at beginning of a lesson or in the course of the lesson and let students interpret it, which would help them keep focused. Miming develops imagination and creativity as learners initiate and interpret the mime. It is a good way to have students recreate the learning as a review. Miming communicates powerfully and does not require a lot of preparation.

Have you ever tried to mime an action and have others guess? Read the following case where a mime was used in an advanced level classroom and comment on the effect.

Case Study of Miming

Professor Ogele, a professor of Communication Skills, one day came to our class which was held in a lecture theatre. He was dressed in a white shirt, a red tie and black suit. He approached the theatre running and by the time he was at the exit door, we had all stood up, those in front already close to him. Then he stopped and said, 'Comrades, why are you running away?' we laughed. He then went to the teacher's table and we went back to our seats. Then he asked us in pairs to express what his action communicated to us and mime the answer. In pairs, we mimed fear with much dramatic flair. Then he explained that we communicate in many ways and chief of them is our actions. He left the front table and walked towards the students who were in front of the hall. They noticed he was in slippers. They burst out laughing. We all then noticed the combination of suit and red slippers, causing universal laughter. He looked at us curiously and asked us why we were laughing. One student shouted "red slippers." Then he asked, "What is wrong with wearing red slippers?" Hands were up everywhere. He picked a quiet female student at the back and she said, "The dressing does not match." Then he asked, "In which other way do we communicate?" and he told us to discuss in pairs. Then he asked a volunteer to give the answer which they had agreed. One student then answered, "Our dressing communicates."

Dramatization

Dramatization is acting an event, story or play using action and speech sounds, unlike the mime which is silent. Dramatization involves more preparation and planning, but can have a more powerful effect. Students could be given situations to dramatise, problems to depict solutions for, or scenes from readings or history to bring to life. Literature class could act their set play. Dramatization makes the story become a living experience to be remembered for a long time. A teacher identifies an interesting episode in the teaching content and prepares a few students to act it out. They may even bring in a few costume pieces, props or items to help the audience visualise the scene. For example, they could dramatise immigration of any group of people, or they could act out a section of a play or novel. This could be at beginning of a lesson, in the middle after elaboration, or in summary as the lesson conclusion. Teachers need to plan this carefully to make it more than just a fun time to act out in class.

Dramatised play could be part of teaching and learning the literature set books. Dramatization develops creativity and imagination. It develops students' talents, voice, self-esteem, vocalisation and empathy. Even if they do not become an actor as a livelihood, they will benefit from these skills in everyday life. The methods which bring joy to the classroom and the act of learning have additional benefit, creating lifelong learners with a passion and joy of learning!

Pause to Review and Reflect:

Which of these experiential methods can you most envision using in your teaching (*PBL, role play, miming, or dramatization*)? How?

What benefits does experiential learning bring to the classroom?

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CHAPTER 10: Assessment Methods

Assessment has traditionally been used for evaluative purposes, to demonstrate to what degree a learner has mastered content. We call that assessment **of** learning to differentiate it from assessment **for** learning. Increasingly, teacher educators are calling for assessment **for** learning, which is a formative tool to identify modifications which need to be made in order to further

facilitate learning. Assessment **for** learning shows how much a student is comprehending what is being taught at that point during the course of instruction, and where any misconceptions or confusion exists. Assessment for learning is formative assessment and it is the most important because, if well done, it leads to good results during assessment of learning (usually summative assessment). This chapter explores various methods of assessment, many of which can be used for either formative or summative assessment, for altering instruction or evaluating. In both cases, however, we encourage teachers to use the results of assessment to gauge their teaching and make appropriate changes to meet student needs. In this way, all assessment is useful to creating effective teaching practice.

Formative assessment, as we have seen, is conducted during the teaching and learning process when an effective teacher collects data, studies it and uses it for self-correction and adjustment of teaching strategies to better meet learning objectives. The teacher also facilitates learners to correct their own errors. Therefore, in the process of teaching, an effective teacher keeps on checking whether the students are learning, just like a farmer plants crops and keeps on checking whether the crops are doing well and then takes measures as required and at the end of the season harvests the outcome. If crops were not taken good care of in the course of growth, the harvest would be poor, and so is the case with teaching and learning process. If assessment **for** learning is poorly done or not done at all, the learning outcome would be poor just as a farmer who does not keep checking crops and making adjustments gets poor harvest.

This chapter presents some formative assessment tools which could be used to help the learners and the teacher see what progress has been made towards achievement of the learning outcomes. Formative assessment operates as self-reflection in many ways. Students and teachers will both benefit from these self-reflective moments because the brain needs feedback to grow (*Jenson, 2005*). So, these methods are really food for the brain for everyone in the classroom which includes teachers and learners.

These methods are designed as quick ways to check understanding. We argued that a teacher must be continually gauging whether their learners are comprehending well or not. It is not enough to simply teach well, one must also know whether the learning is taking place, and make the necessary adjustments to ensure it does. We begin by introducing a few methods of checking learning progress in the course of learning which include check-4-learning slips, self-quiz, yes/no response cards and observation. Then we discuss more formal assessment such as tests, portfolios, performance-based assessment and rubrics.

Check-4-learning Slips

Check-4-learning slips or cards can be used midway through instruction to check on the levels of understanding, or they are also called exit slips when used at the end of class and turned in on the way out of the door. These are simple means to give a teacher an idea on the classes' comprehension or retention of what they just learned. This would close the gap identified at the beginning of this book where some learners were found to attend class but not learn. Such checkpoints actually give time for processing, which we know our brains need (*Jenson, 2005*). Students could reflect and write their thoughts on a small piece of paper to answer 1-2 questions such as:

What was the most confusing point of the lesson?

Which method of teaching helped you the most to understand the topic?

Name one important point you learned in the first part of class.

By using the student responses to shape your teaching, you can continue your own self-reflection and growth as an effective teacher. The mark of the best teachers is that they never stop learning. Your students can in fact be your teacher to reflect what goes well in the lesson and what needs alteration through their performance and feedback.

Self-quiz

Use of self-quiz is an informal means of helping a student realise how well a student is or is not doing in understanding the main points of the course or of the lecture. This can also be a class assessment because they are not penalised for wrong answers but rather shown how to correct oneself. The focus is not on collecting the data, but rather to inform the student of their own progress. Anyone who does not do well should be encouraged to contact the teacher for more explanation and also to conduct some research and further reading. Even the act of doing the quiz and then going over the answers is an instructional technique which shows students the important take-aways from the lesson or a lecture.

Yes/No Response Cards

In order to use Yes/No response cards, let each student have a card written on one side 'Yes' and another written on one side 'No' which individuals flash to the teacher to indicate "yes, I understand" or "no, I do not understand" at a quick break in the process of teaching. In a large class, these are particularly helpful to communicate quickly and efficiently to the teacher about which student is following and who is not following. The teacher assesses the class as a whole, rather than focusing on individuals for the sake of time, but is able to ascertain whether to move forward with the lesson, or go back and revisit the previous topic in order to gain a better, more comprehensive understanding in the class.

A sense of privacy is achieved by giving them two cards so that they have writing only on one side, and only the teacher can see which card is being held up. It is important that the word written on the card is clearly visible from a distance so that the teacher can make a swift observation. Students can make their own, but need to be taught how to make the letters very visible so that the teacher can catch the word at a quick glance.

Five Finger Check

In five finger check, a teacher can prompt a class to raise their hand with the number of fingers indicating their level of comfort with the material being discussed. For example, five fingers indicate that they "got it" and do not need any further instruction. They are confident enough to be tested on the material now. Raising only one finger means they are thoroughly confused. Three fingers might mean "for the most part, I understand, though there is still some areas that are not clear." When the teacher gives the cue, students hold up their fingers directly in front of their chest, not in the air. This gives a much more private indication which they are less hesitant to pretend to know it all. Based upon the teacher's observation of how the majority of the class feels, they will know whether to revisit the entire topic in a different way, or clarify briefly, or simply move on with the lesson.

By checking in with your students on their understanding, you are communicating care for them because you do not want to leave them behind as you move forward. After all, teaching is not about delivering content, it is about facilitating learning. In order to assure your students are learning, employ one of these methods each day as feedback for you. Then use that feedback to make adjustments to your pace or content or method of instruction. This is real teaching!

Question and Answer

Question and answer is a powerful way of conducting formative assessment. The teacher could ask questions at the beginning of a lesson to find out students existing knowledge and then build on it. After covering some ground, the teacher could conduct a question and answer session. Allow students to also ask you questions. Questions should be asked procedurally. Pose a question,

pause for students to think, then allow them to get ready and volunteer to answer. Or allow them time to think, then ask them to share ideas with partner, then allow some of them to share with entire class. That is use of think-pair-share strategy. Their responses could help in establishing whether they have understood and assist in cementing their learning.

Observation

A teacher must keep a keen observing eye to check on students' learning throughout the teaching and learning process and to guard against boredom. We will just give some examples. The teacher could observe student learning and keep adjusting teaching strategies to motivate and keep them glued to the lesson. There is no fixed method; it depends on the teacher's creativity, discretion and even intuition. The tactics to use could vary and may include change of method of teaching, engaging the class in question and answer session, employing relevant humour, using stimulus variation and slowing down pace of talking for those lagging behind to catch up. The teacher could observe and see some students lost in the course of an explanation and provide spelling of a word which might be bothering some learners or inquire the cause of their disturbance. When a teacher observes that most students are tired, sometimes the class could be allowed to take a break. A student may appear lost and the teacher guesses a pen is disturbing them, then offer assistance as required, including lending out a pen if that is the problem.

A teacher could explain a point, then break the class into discussion groups or ask students to work in pairs and observe their learning behaviour. A teacher could engage learners in activities and then go round checking; then finally, ask some group representatives to give a report and the whole class interrogates it and come to consensus with teacher facilitation. The teacher is carefully observing whether learning is taking place.

The teacher uses teaching and learning resources that suit the teaching strategy and observes the learning effect. These could be audio, like radio, audio visual like YouTube or TV, or visual like a chart and then observe learners' response. From observation, the teacher keeps changing student learning demands since every class is different, and every learner unique. What method worked last year may not work with this group of learners. Even the humour you use in class may not communicate well; keep observing its effects and make any changes you need to according to these students' needs and interests. Overall, a teacher keeps carefully observing students' behaviour and adjusting accordingly.

Performance-Based Assessment Tasks

Performance-Based Assessments are projects which engage students in creating a product or a presentation demonstrating their mastery of information and skills in response to a problem or a prompt. These are an alternative way to assess students' cognitive understanding of the topic and practical application of their learning. Due to the collaborative nature and group effort, this is an excellent way to incorporate the 21st Century skills of co-operation, critical thinking, problem-solving and creativity in a learner-centred, meaningful and engaging activity. These tasks are open-ended, without one right answer and often done in small groups, requiring complex planning, brainstorming, research and presentation as a group (McTighe *et al.*, 2020).

Students might do tasks such as creating a newspaper or blogsite, doing a dramatic presentation, or creating a museum display, travel brochure, or mapping an excursion to sites of cultural or historical importance. Groups of students might present in front of the class their own proposals or inventions to solve global problems with the class acting as the "Executive Design Board at Innovations" or the "United Nations Global Crises Committee." Performance-based tasks are set in the real world doing authentic tasks which happen in everyday life or could have happened in the past or future. For example, students in upper classes might create children's

stories to explain the stages of plant development in science class or the leaders of national significance in Kiswahili. They would illustrate the children's book and then go and read them with the younger children at the primary school. These projects encourage responsible work habits, organisation skills, group leadership and cooperation as they use real-world skills and application of their learning in an authentic setting or task.

Teachers often find examples of performance-based tasks online or collaborate to design them together (www.projectappleseed.org). McTighe, Doubet and Carbaugh (2020) cite the benefits of performance-based assessment, noting that it is gaining global attention as an alternative way to assess student learning in a more authentic and differentiated project instead of standardised testing. Performance tasks, as well as portfolios described here in the section that follows, would be assessed using a rubric due to their open-ended products.

Portfolio

In the 21st Century, the emphasis is not just test grades but competencies – what learners can actually perform after learning – and teachers are encouraged to use portfolios and rubrics for assessment (*MoE and MoHEST, 2012*). A student's portfolio is a collection of their work that demonstrates their effort and performance over a period of time. It would involve keeping a file folder which would hold some work for each student. For example, when teaching writing, a teacher can guide students to store their work in a folder to demonstrate how they are progressing in learning and developing the skills of writing. The portfolio has a progression. A portfolio from a history class student might display several pieces of a student's created work from the past term, such as a political cartoon they created after studying political cartoons in the newspaper, a map of the Ancient world which illustrates their skill they have learned in cartography showing all the accurate parts of a map, a written paragraph summarising their learning on the Ancient Egyptian burial practices and culture, a diagram of the Nile River Valley and their agriculture, and a mind map they created on the unit of study. From this collection of work, the teacher can assess how well the student has mastered the skills from the term and the content. This assessment grade would then communicate to the student how far they have come in the last term, and where they need to focus in their revision. Portfolio assessments are broad in scope and largely skills-based. In science, the students might create a portfolio with their diagrams of the Human Body Systems. They are a useful way to demonstrate a student's progress over a period of time. For even more evidence of progress, you may decide to have students make a map in the first term and put it in a portfolio file, and then put a map in their portfolio from the last term in order to demonstrate their growth in cartography skills.

Portfolios are excellent means for students to reflect on their own work. In higher levels, students collect their work over time, study it, and then write a self-reflection about the quality of their own work and progress over time. Portfolio assessment involves students in monitoring their own learning, stimulating ownership and emphasizing cognitive growth along with positive work habits and effort. Portfolios could be used for learning and assessment, as a student could keep reflecting and improving their work, while it is also reviewed by a school teacher or teacher educator. It requires great discipline and trust, but it also promotes ownership of learning and self-awareness. Because of their highly individualised nature, portfolios are best assessed by using a rubric, as described in the next section.

Rubrics

A rubric is an assessment tool which is used when grading a product of the students' work which does not have a straightforward set of answers, such as portfolios or performance-based projects. A multiple choice test, for example, would not be assessed with a rubric because those answers are either clearly right or wrong. However, a project such as creating a newspaper, writing

an essay, or making a poster, does not have a set of correct answers to mark it against, so a rubric would be used to evaluate it against a set standard or criteria. The types of products which might be graded with a rubric might be essays and other open-response written work, a performance task such as a presentation, or other group projects. Rubrics aid a teacher in protecting against biased judgment and unfair grading or marking. They make assessment less subjective by giving a standard to mark against, and giving students a clear explanation of your expectations.

What Does Rubric Look Like? The rubric describes in detail the expectations of the assignment to meet each level of competency. It spells out the criteria in a column on the left. These criteria are the areas that the work will be assessed on, for example, a research project on national parks could be assessed on content knowledge, use of resources, research skills and presentation skills. Then, the rubric has levels of performance in a row horizontally across the top. These levels might be 4-3-2-1 or 5-3-1 or A-B-C-D. In the boxes of the chart are the indicators of what that will look like when the student achieves that level of progress on that particular criteria. It is aligned with the planned course curriculum and specific learning outcome(s).

The following rubric is developed as an example covering general criteria for written essays in secondary schools. It could be adapted for any level and content. For lower grades, the expectations would be lower, and the rubric might have fewer columns and easier wording. The rubric ought to be written in student-friendly language so that they can fully understand the expectations and where their work aligns and does not align with those expectations.

Essay Rubric Model

Criteria for Assessment	A	B	C	D
Content	Content accurate, presented with original, well-reasoned argument	Content accurate and clear but less sophisticated	Content lacks some clarity and argument is weak	Ideas are vague or unclear
Organisation	Evident, advanced organisation. Well written introduction, body and conclusion	Organised. Sufficient clarity in introduction, body and conclusion	Some organisation; may have weak introduction, body and conclusion	No organisation; lacks developed introduction, body and conclusion
Understanding	Writing displays advanced and strong understanding far beyond expectation	Writing displays adequate understanding	Writing displays adequate understanding overall, but some areas of weakness	Writing displays insufficient understanding
Word Choice	Sophisticated use of descriptive words with clear	Ample use of descriptive words	Needs more description	Lacks description

	creativity			
Mechanics/ Grammar	Very few and very minor errors or none	Few errors do not impede reader's understanding	Several errors which inhibit reader's understanding	Numerous errors which impede reader's understanding

How Do You Use Rubric? Best practice requires you to introduce the students to the rubric as you initially give the assignment so that they know how they will be graded. It is a means of honest, transparent communication to the student about how much value you place in each component of the project. Help the students to understand how they should read the rubric and how it will help them. For example, if you have given an assignment of making a poster for a nutrition campaign, and you do not mention the neatness and artistic qualities of the poster on the rubric, and it is only assessed on the accuracy of the content, then the student knows not to spend 75% of their time on the drawing. They can see on the rubric exactly how to get the maximum credit by the description of the superior project. The use of a rubric makes the grading of the student's work fairer, more transparent and more standardised. For the students, they can be able to more clearly self-assess their work, and thus have more control over the final evaluation of their learning. Before they turn in their work to you, you might consider having them self-assess using the rubric, or peer-review, by exchanging their work with another student to check with the rubric to see where it falls short and give recommendations. Even after the teacher's grading, using the rubric, they will be able to see where improvements could be made. Portfolios and rubrics are good tools for assessment **for** learning, formative assessment, as well as assessment **of** learning. The teacher could also give assignments for students to practise during their free time, then look at what they have done and make right comments aimed at correcting. Effective assessment **for** learning ultimately leads to good results in assessment **of** learning.

Assessment for Learning Using Tests

A test is a tool used by a teacher to assess the extent to which the learners have achieved the set objectives or learning outcomes up to the point they have taught. Tests should be used by the teacher for reflection, not for judgment. Testing is defined as a tool or an instrument designed to measure learners' learning achievement in relation to set objectives (*Kisirkoi et al., 2008*).

Constructing a Test. Tests could be teacher-made or standardised. We recommend use of teacher-made tests for formative assessment because they should more accurately reflect what you have taught, how you have taught it and the emphasis you have given it. This makes the results fairer, as well as more informative to you, as feedback on your teaching. Tests could be given as continuous assessment tests (CATs) as often as the teacher finds necessary after covering a topic. Teacher-made tests should measure immediate learning outcomes and are formative in nature. They aim at improvement and not primarily in assigning grades to students; to understand students' learning needs better and improve teaching approach. They provide information about everyday learning for the teacher and serve the purpose of informing students of their progress, assisting with corrections and motivating students.

The test items, or individual questions in the test, are drawn from the expected learning outcome or objective Each teacher should set test for subject taught. For example, if studying a novel, *The River and the Source*, the learning outcome stated:

By the end of the lesson, the learner should be able to:

Identify the main character in the novel.

Explain the character traits of the main character in the novel and justify your choice.

Analyse the role of the main character in the novel.

The test items could be as follows:

In reference to the novel, *The River and the Source*, answer the following questions:

Identify the main character in the novel.

Explain five character traits of the main character in the novel.

Justify why you find the character you have chosen to be the main character.

Analyse three roles of the main character in the novel.

Analysing Results for the Students. The teacher would administer the test and then score it to find out to what degree the learners learnt. The results of an assessment test are not used for judgment, but used to guide learners in correcting their thinking. The teacher could also facilitate learners to make corrections on their own work, as error analysis is a key component to learning. In identifying where their thinking went wrong, a student is able to own their learning and expand upon it. Feedback is a key part of the learning cycle in the brain. Without feedback, the learning process is impaired (*Jenson, 2005*). A test diagnoses the extent of student learning in cognitive, psychomotor and affective domains; that is, in relation to intellect such as knowledge, affective such as attitude change and psychomotor such as development of manipulation skills such as handwriting.

Analysing Results for the Teacher. The outcome of the assessment does more than inform the students. It also could indicate effectiveness of the teaching methods, strategies, resources used and the teacher's method of teaching, or areas which were less effective. The teacher should use test results to reflect, make self-corrections and adjustment, usually in teaching methods and strategies, but also in how quickly to move through the content, whether they learned well from an audio lesson, for example, and how they are easily confused by the specific vocabulary of this content, for another example. Every teacher should be able to set tests from learning outcomes and objectives as assessment tools, then use the results to plan or adjust plans for several lessons if needed.

Attributes of Good Tests. A test as an assessment tool has specific characteristics. It should present tasks with a clear criteria to allow the teacher to make consistent, reliable judgment and offer feedback to the students. A test should be valid by testing what the students were taught based on the expected learning outcomes. It should also be reliable by consistently producing similar results if repeated in a suitable similar environment and learners' level.

The test items should be stated in simple terms. They should be clear and unambiguous and should be within the students' level. Organise the test items or questions beginning with simple ones and move on to the complex items. Vary the levels of thinking required to complete the questions matter. For example, some matching vocabulary questions may be much lower level on Bloom's taxonomy of thinking than short answer essay questions. Starting a test with difficult items frustrates the students and they may give up early and get into panic mood. They may also spend too much time and fail to complete other simpler questions that come later. A test should fairly cover the topics taught to achieve high test validity. A test should not be a trick to fail students; it should be easy for them to understand, easy to administer in suitable conditions and easy for the teacher to score. A test should be scored, returned to the students, and corrections made within a short time of the students sitting for the test. That way, the students get motivated and correct their misconceptions before building more learning upon a weak or impaired foundation.

Standardised Tests. These are tests administered to all students who have used a similar curriculum which should make the results standardised and comparable. The test items are the same and follow similar regulations; they are interpreted and scored using a similar criterion regardless of where the candidates sat for the test and their varying environmental conditions. All

the test takers experience the same testing conditions when taking the test. A good example of standardised test are the university end of semester exams, school stream examinations, mock examinations and standardised national examinations such as the Kenya Certificate of Primary Education (KCPE) and the Kenya Certificate of Secondary Education (KCSE). Standardised tests are used for comparison among the test takers. They are used for grading certification, selection and placement. A teacher should be able to set standardised tests.

Summative Assessment. Summative assessment is conducted at the end of the course, such as in primary and secondary school, as assessment of learning. It is assessed using standardised tests, scored and graded. Beyond learners' individual accomplishments, it indicates the effectiveness of teaching approaches and resources used. The learners are graded and certificates are awarded. It is the basis for selection to higher learning and training institutions. The information gathered forms important evidence to support decisions on curriculum review.

Pause to Review and Reflect:

What is the difference between assessment *of* learning and assessment *for* learning?

How will you use the information you gain from the assessments described here to shape your teaching? Create an example scenario.

How does effective formative assessment lead to good learning outcomes in summative assessment?

Discuss your view towards laying more emphasis on continuous assessment than final examinations.

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CHAPTER 11: Teaching and Learning Resources

What are teaching and learning resources, and where do I find them?

How are teaching and learning resources used in teaching?

How do I use technology effectively in my classroom?

Identifying Teaching and Learning Resources

Teaching and learning resources also called instructional resources are valuable and powerful tools that could aid the teacher in communicating to the learners in a deep way that helps to meet learning objectives and learning outcomes through learner engagement. They aid conceptualisation of the content which is critical in teaching for understanding. Remember the old

adage: *“If I am told, I will forget; if I see, I will remember; if I do, I will understand.”* Think of your own brain and see if this is true. Do you forget someone’s name if they only tell you once? Do you write a list if you have many things to remember to buy? Apply this in your teaching and you will appreciate the role of teaching and learning resources, especially in appealing to many body senses such as see, taste, smell, feel and hear during active learning. The more senses your learning resources appeal to, the more potential for building long term memory.

Why Use Them? Learning resources help to make abstract concepts easier to grasp by making them concrete. They facilitate an active learner-centred classroom by engaging learners, motivating them and keeping them interested in the lesson. They are, therefore, a solid investment which pays off in terms of students’ interest in the lesson, deep learning and retention. Indeed, there is no effective teaching without teaching and learning resources. They are the tools used by the teacher to make learning stick in students’ mind, and like tools, they can be used well or not well depending on the teachers’ innovativeness and skill. Using the right tools will always make the job easier. This chapter gives an overview of the many types of teaching and learning resources, where to find or how to make them, as well as their usefulness in your lesson delivery. When selecting the learning resources to use in class, a teacher should consider several factors such as your teaching objectives and content, expected learning outcome, the skills you want to teach, the values you intend to model, the appropriateness of the activity to your students’ age, interests, cultural context, your school compound environment and your ability to use them.

Where Do You Get Them? Teaching and learning resources can either be made specifically for use in the classroom, such as posters which you could purchase from a bookshop, or locally such as everyday items which could be collected by an innovative teacher from the environment. These include items such as a plant or stones for sorting or branches for creating a mobile illustration, all of which can be brought into class to support teaching and learning. If you begin investing in purchased teaching and learning resources to help you teach, be certain to protect them and store them carefully in order to preserve them for use each year. Bringing them back out during a review time will also aid students in remembering the past lessons and recalling the information illustrated by the resource. Posters and charts should be affixed to the walls in a way that they can be taken down and reused, rather than glued to the wall. Reinforcing the corners of the paper posters with clear tape will increase their longevity. They should be fixed in a position where all can view clearly.

Collecting teaching and learning resources easily found in the environment becomes a joy of a teacher. Cultivate the eyes of a teacher who sees potential in a discarded box to be able to use it in mathematics class for illustration when teaching area of a cuboid the following week. Gather items in advance of when you might use them. These might include tangible items as we shall see later. Everyday items include cards, posters, photographs and three-dimensional models. The two-dimensional resources are flat like pictures, while the three-dimensional resources have depth like a water bottle. You can pick them from the environment or make them. Enlist the co-operation of your students when they go home on mid-term break to bring back an empty cardboard of a used up tissue roll so that you might use to illustrate area of a cylinder. You are only limited by your own creativity; there is an unlimited supply of materials to use in your lessons from the location around you.

Realia refers to those objects which can be found in our everyday life, and can be used to communicate deeply a certain point in your lesson clearer. You might use items from home or your environment. Items which students are familiar with can teach them to consider alternative uses and perspectives on the tangible things they see everyday. These could include a weed from the dusty path, a flower from roadside, a discarded water bottle, a banana or some brochures from local market. You could use manipulatives which are simple objects used to count, model, or demonstrate skills often in mathematics. Another manipulative may be a learning tool such as flashcards which

you could make by telling students to tear off a piece of paper into small, even squares, or use cut small cards from used carton boxes. Students could then put their vocabulary words on one side, and the definition on another side, and they can play various quiz games with a neighbour or study with them. They may find them a good memory aid when studying for exams and they begin making them for their own self-study.

Examples: Teaching and learning resources make the abstract ideas more understandable by making them concrete. A sugarcane stem might be used to illustrate fractions in a mathematics class. You could cut one up into ten equal pieces and then another into five equal pieces. Students can be invited up to compare their portion if they were given $\frac{2}{5}$ or $\frac{2}{10}$. Which is larger? Or, investigate by measuring, is $\frac{1}{5}$ equal to $\frac{2}{10}$? Primary pupils can use pretend money to “buy” things from the classroom model shop. Secondary school students might use imaginary or pretend money and credit cards or checks to mimic the banking and payment of loans in personal finance lessons. As another example, yarn or string can be used by a pair of pupils to construct geographic shapes in primary grades, and it could be used to recreate a map, or show trade routes by pinning them on a map in secondary geography lesson. Using rocks and sticks, students may recreate a whole map on the ground near the classroom. Then, they could literally walk the migration patterns.

Using Teaching and Learning Resources in teaching: Sometimes students are able to manipulate the teaching and learning resources themselves, such as building an ancient Egyptian pyramid model outside, or making a small garden to grow plants in differing conditions to observe the effect of light and amount of optimal moisture. In other cases, the teacher uses a single resource in front of the classroom as a model for illustration setting of a play or a novel, and walks around so that all students can view it more closely. Bringing in an onion or a ripe avocado fruit and peeling off the layers in front of the class can represent the layers of soil and rock which form the earth, a topic of earth science. An onion’s layers might also help you discuss the literary technique of layered meanings in a short story. In physics, the students can help you make a model of a catapult, and then students will try it with objects of different weights, and measure the distance and practise calculation. Or, students themselves can make models of a cell or cellular respiration in a biology class.

TEACHING AND LEARNING RESOURCES	
Resource type	Example
Tools	Compass, straight edge ruler, tape measure, magnifying glass, test tubes, rain gauge, thermometer, calculators, writing board
Manipulatives	Strips of paper or cutouts of circles showing fractions, sticks or stones, tongue depressors, beads, pretend money, containers

Flashcards	Sets of uniform sized paper with terms on one side; index cards cut in half with vocabulary words on one side and definitions on the other; cards with events from history or chemical elements from the Periodic Table of Elements in chemistry, historical figures and their achievements
Chart or Poster	Alphabet chart, Circulatory System, Domestic Animals, Parts of Speech, or others you can make with manila papers
Visuals	Pictures, photos, brochures, architectural drawings, paintings, clip art
Realia	Banana fruit, jar of water, mirror, empty water bottle, full water bottle, bucket, scarf, yarn, ball, torch, candy bar, toilet paper roll, plants, onion, avocado fruit, an orange
Print Media	Maps, newspapers, brochures, receipts, flyers, labels, advertisements, books
Electronic Media	Websites, videos, power points, cellphone, laptop, tablets, interactive whiteboards, phone, laptop

Pause to Review and Reflect:

Look at the chart and select five resources you think would be the most helpful to you in teaching a topic in your class.

Discuss with your partner the resources you have chosen, how will you acquire them, and how you will use them in teaching.

Purpose of Teaching and Learning Resources

Why should you use teaching learning resources? Communicating your content can be greatly enhanced through the use of a tool or set of tools. Forgetting to use the hammer while hanging a shelf means the nail may not stick in the wall for long. Similarly, forgetting to use visuals could mean that the content will not stick in students' minds for long. For example, you could use models to teach slope in mathematics class. You could download clips of videos from the Internet illustrating plate tectonics for geography in YouTube and play them for students. They help learners conceptualise better and help in communicating content the teacher wishes to teach. Teaching and learning resources imprint on the brain of learners more quickly than audible teaching alone, and by engaging multiple areas of the brain to process the input, the brain will understand more thoroughly and remember it better (*Wolfe, 2010*).

Using Different Senses. When possible, try to incorporate different senses in the classroom. That might mean incorporating more taste, smell, visual, touch and diverse auditory senses. Using different areas of the brain which process the varied sense stimuli will help students to retain the information and experiences longer. Even changing the setting for the learning can provide

uniqueness which sparks the brain senses and promote remembering (*Jenson, 2005, Wolfe, 2010*). So go ahead and take your class outside your classroom to learn on occasion; the change in scenery will awaken their brains.

What might be the benefit of using resources which are multi-sensory? An understanding of the learner's brain will assist you in answering this question. We have seen that the brain recalls uniqueness which means something that is unexpected, colourful and creative, and different from the regular pace and practice of the class will spark more brain action. In addition, a learner's brain will be more apt to remember what they **do** than what they **see** or **hear**. Audio and visual together are also better than simply auditory, such as lecture teaching, since they involve connecting multiple parts of the brain in order to better remember the learning (*Burns, 2019; Wolfe, 2010*). Remember, your learners' brains are the key receptacles of learning, and the more you know about how they learn, the better you will be at optimizing those conditions for learning.

Using Teaching and Learning Resources in Assessment. Instructional resources are also used in assessment by assigning tasks, creating projects, group learning and outcomes, experiential learning and outcomes, as well as administering exams. As tools for learning, those same processes are formative assessments to measure the learning and identify gaps, as we have seen in the previous chapter. When you use an image to teach multiple perspectives, you may use another similar image to assess the understanding of that skill. The teaching and learning resource provides innovative and creative ways of assessing students especially when using modern technology. Even games on the tablet, laptop, or smartphone can be formative assessment.

Using Teaching and Learning Resources in teaching

Think creatively and innovatively. How might you use a banana as realia for teaching? Did you consider that a banana might help to teach a lesson in nutrition to analyse the best foods for breakfast? It could help you teach the colour yellow or to show a fruit. The shape of the banana curve can be used to demonstrate curve in mathematics or spur students to use descriptive words to describe it in an English class. A banana could serve as a pretend or imaginary microphone used in a dramatization which you could act out in front of the classroom with a few students to demonstrate telephone conversation.

English Class. As English teachers, you might obtain some blocks of wood from the carpenter's shop and paint or label them with the parts of an effective essay. You can even have students come up to the front and build the tower of blocks, representing the introduction, thesis statement, argument and point, justifications, evidence supporting argument, point, then conclusion. The argument blocks should be supported by multiple smaller blocks labelled evidence so that the structure does not stabilise without adequate support from evidence. As the tower is allowed to fall without enough evidence, this will imprint on the students' minds the importance of a solid case for each point in an essay. And, as the tower falls when a block is removed, so is the essay weak without evidence.

Mathematics Class. In mathematics, you could use various manipulatives such as bottles and food containers to calculate the surface area and the volume. Allow students to guess which is larger, and then test with water especially using different sizes and heights of containers. Give prizes for the closest guesses.

Science Class. In sciences, objects found in the environment such as different water samples can be investigated to practice scientific observation, hypothesis making and testing to determine impurities. Then use charcoal and other substances to filter the water, then measure the effect of the filtration process with various filtering agents. You could collect different items to teach ratio of their weight and displacement of water.

History Class. History class is an ideal place for using teaching and learning resources to make the past come to life. With some props such as a bedsheet, a volunteer could wear a toga to

be a Roman citizen while discussing citizenship in Ancient Rome. Food items such as chocolate can be brought in and distributed in small pieces so students learning about the chocolate industry in Ghana might have a taste of the export. Visuals such as political cartoons might be copied and placed in plastic sleeves to keep from one year to the next. These can be handed out, one per group, for each group to analyse the political cartoon and then teach it to the rest of the class. If possible, use an image on the PowerPoint display so that the whole class can see the cartoon being presented. Ask questions which move from simple to complex thinking to guide their inquiry such as: What do you see in the cartoon? Do you identify any symbols or stereotypes? What was the artist trying to say? What is his point of view? Whose perspective is not being shown here? What other views are there on the topic?

Geography Class. Geography students may create symbols using modelling clay representing the different products or resources and exports from a region. In groups, they might then make a large map outline on a piece of manila paper and place these symbols on the appropriate places, adding a key, a legend. Have each group of students make one for a different region so that they might act as review and comparison as all students visit each of the maps at their stations and engage in question and answer session with the group representative about the region. A final cumulative assessment would ask students to argue which of these regions or countries would make the best locations for an auto industry plant, a chemical engineering plant, or other industries based upon the raw materials or resources available.

Religious Education Class. Religious Education teachers could gather random objects from home or the environment to place in a bag, one bag per group. Their task is for the group to then use at least two of those objects in a small skit to illustrate the lesson of the day. Or, choose an object such as a small bean seed as an illustration for a lesson on grace or gratitude, illustrating how tiny choices or acts of kindness can multiply to feed many. Then give each student one to plant, or an assignment to go home and do a random act of kindness, and come back with a story of what they did. Ask students to prepare teaching and learning resources to use when demonstrating Bible events such as the Sermon on the Mount or the call of Moses.

In all of these examples, the use of an actual object will help to increase the chances of retention as the brain is wired to remember visuals more than auditory alone. If you can engage the students themselves in the actions, then there is a kinesthetic or movement part of the brain also engaged, thus exponentially improving the rate of retention and deeper understanding (*National Research Council, 2000; Wolfe, 2010*).

Purposes of Using Charts. Charts are used to present the abstract concepts of a curriculum in a visual and easily understood way. They can show relationships between concepts, summarise the lesson, illustrate the structure of a topic, or stimulate thinking by their symbolic visuals. Infographics are a specific type of visual representations which gives brief facts with small images in order to communicate understanding. They improve memory and understanding because the brain processes patterns, and thus make excellent teaching and learning resources.

Chart Preparation. Creating an effective chart or poster for your classroom is a skill that will pay off exponentially over the course of your career as a teacher. Learn the basic principles of design in order to make it visually appealing, captivating and instructionally effective. Generally, a chart should have some visual component as well as textual. Graphics such as pie charts or graphs, maps, or other symbolic representations of information make excellent choices for posters.

In order to create an effective learning tool, you need to understand your content deeply, and the internal structure that holds it together tying it to prior learning and other subjects. You must be able to identify the key points succinctly and organise the poster visually. A good chart should have clear, neat writing with very legible print. There should be no errors, no misspelling and no extraneous information. Limit the amount of text so that it can be large and visible from a distance in order to be an effective teaching tool. Reinforce the edges of the poster so that it will be preserved

with use. When you mount it to the wall, do it in a way that does not tear the poster or look untidy.

Evaluating Resources

How do you know which teaching and learning resource will be effective? Look for certain qualities to judge the best resources to spend your limited time. Ask yourself if the resource has these attributes of a good tool for teaching and learning:

Accurate and relevant. The teaching and learning resource should definitely teach accurate content in a way that adds to, expands, or reinforces the understanding of the content your students need to learn and understand. There should not be any spelling, grammatical or factual errors.

Eye-catching, interesting, provoking. Look for colour and images which attract the attention of the students. Engagement is half the battle of teaching and will prompt retention.

Clear and visible. If you are to use a poster in front of the classroom, you need large print in order for students to be able to read it.

Using Educational Media Resources to Teach

Teachers are encouraged to use any ethical and moral means to make teaching and learning better, more efficient and more effective. Technology holds the greatest promise as it facilitates learning and improves learning performance, prepares the students for their future jobs and engages them with captivating interest (*Chigona, 2015*). Educational technology includes software, hardware, Internet applications and computer-based activities.

Educational technology facilitates and advances students' learning. Some technological tools that can be used as teaching and learning resources include interactive whiteboards, laptops, desktop computers, cell phones, including smartphones, tablets and overhead projectors which, although somewhat dated, still have usefulness. When selecting the media to use in class, you should consider several factors: your teaching objectives and content, the skills you want to teach, the appropriateness of the activity to your students' age, interests, cultural context, your available resources and administrative support, and any limitations of your school compound.

Students should learn to use technology in class as a teaching resource appropriately. This will entail instruction in technical skills such as keyboarding, typing and use of word processing tools, as well as Internet search engines. While some of these skills will be taught by a computer teacher, other teachers should support these practices, not allowing students to abuse the computers or to type lazily with hunt and peck, one finger typing.

Information Literacy. In addition, teachers must instruct students in the information literacy skills of using the Internet ethically and wisely. How will students know which websites to use for accurate research? How will they judge the credibility of a source? Students should be taught that .edu and .org sites are more reliable sources of information; while, .com sites are usually companies which have an economic interest in what they are presenting which may bias their information. Therefore, information ought to be found on multiple sites to check for more reliability. These are critical thinking and information literacy skills which must accompany the use of technology in a classroom. Information Technology (IT) experts agree that technology skills must be embedded within the content of the classes to give it resonance and meaning (*Chigona, 2015*). Technology will need to be integrated into the classroom as a teaching and learning tool, as well as an aid to student learning. Support is coming in the form of training for individuals at local schools, one per school, who then train the others (*UNESCO, 2018*). IT is the wave of the future and has the great potential to carry teachers and students far, as long as we are able to resist drowning in the surge of new technologies and abandoning a critical stance.

Benefits of Using Educational Technology. One of the most obvious benefits of using technology is to expose children and youth to the realities of the present and the future. In the 21st

Century world, they will engage in jobs which require keen technological skills. Introducing and building those skills in school is an ethical responsibility if we are to prepare the youth for their successful careers (UNESCO, 2012). Besides getting them prepared for their technologically connected lives, using educational technology in the classroom has other benefits. You can access some high quality educational research materials which are free and easily available. They might be particularly well suited to your lesson objectives such as a simulation of blood circulation in the human body, graphing changing population growth over the centuries, or bringing faraway places to your classroom. Students with devices can also access these during their self-study time.

Computers can be used for individualised learning, for differentiating the instruction for different language learners, struggling learners, those who may have been absent and missed instruction, and those who have a natural propensity to be ahead of the class in learning (Chigona, 2015). All types of learners can benefit from the individual instruction. This allows students to move at their own pace, repeat segments and lessons which they did not retain without embarrassment or negative impact. These computer modules are usually designed to give instant feedback which the brain thrives on, and to help guide the user to the correct answer. They are patient and non-critical because their correction is not personal. Computers and technology in general have a wide appeal to students, which makes using it as a learning tool highly effective. Students seem to naturally have the curiosity to discover how to work the program, and to want to keep progressing. Thus, while they cannot replace teachers, computers can have an increasingly prominent and useful place in the classrooms of Africa (Global Education Monitoring Report Team, 2012).

Computer learning focuses on students' active participation and exploration. It feeds the curious mind with unending information. And, computer animations can truly help explain complicated concepts and expand thinking. Computer games could be used to challenge learner thinking even in the after school hours. They also expand opportunities to open up the entire world even to the most isolated and rural user (Global Education Monitoring Report Team, 2012). Imagine what a child with such limited access to real world learning might be able to explore online. Computer-aided learning software could be used to illustrate performance of laboratory experiments in science subjects such as chemistry, biology and physics. They could model concepts students find complicated such as the mole concept. Think of the opportunity to dissect a shark in biology online, if such laboratory opportunities might not be available. It provides opportunities to access pictures which are as close to reality as possible, thereby visiting the equatorial waterfall of Thomson's Falls on the Ewaso Ng'iro River in central Kenya, without leaving your seat.

Technology for Special Needs. Assistive software can be used with learners with special needs. This area continues to grow, since currently there are Braille readers but also the ability to increase the font size of the print in itself makes it useful for visual-impaired students. Text-to-speech programs allow "reading" of websites by those who cannot access them visually. Additionally, there is speech recognition built into most laptops which will type what the learner says. There are many apps available for smartphones and tablets which address the needs of various impairments, and the field is growing with an aim for universal accessibility.

Virtual Global Connections. Teachers can use the Internet access to travel the globe with their students virtually, and even connect with classrooms on other continents to have synchronous talking together "live" at the same time or asynchronous which is not at the same time, useful for time zones or connectivity does not allow meetings. Online communication can bridge the global differences and make the student in Arizona, USA the neighbour to the child in Mozambique and Kenya. Together they can forge a friendship which ultimately breaks down barriers and builds a more peaceful world. It is difficult to hold negative stereotypes about a group of people when you know some of them personally and care about them. Indeed, global connections can foster deeper understanding as when the pre-service teachers at a university in rural Kenya exchanged fears and realities with their compatriots in the US, Australia and Iceland. Both were concerned about finances and affording college; therefore, appreciation for one another's challenges, as well as their own

advantages, grew on both sides. Online global collaborations have the potential for truly moving us to a better world by bridging differences and demonstrating the commonalities we all have and the potential for friendship globally (Miller et al., 2011).

Using the Internet. Where it is available, you can use the Internet and technology to significantly aid your teaching, both in your own preparation and in the delivery of the lesson. You can download a brief video of a heart pumping from the “YouTube” website on your phone to illustrate blood circulation, and direct students who have smartphones to do the same and share with their peers. Many phones also have stop watches to use when timing competitive games in the classroom. Students can use their own phones in pairs if you send them out into the school yard to take pictures of items which have acute angles or natural resources. You could send one group out to take pictures of natural resources, and another to take images of human resources, and the last group to take capital resources. They can then come in and mix up the groups, share their images, and discuss which is which type of resource and why. Similarly in agriculture, they could take pictures of different plant and weed types to come back and classify according to their types. If there is one laptop plus a projector in the classroom, PowerPoint or other slide programs can add tremendously to the teacher’s lecture by giving textual reinforcement and visuals. Best practice with presentation software is to maximise the visual impact with large size images and minimise the use of text. However, a text outline along the left side of the slides will help students follow with a lecture. Be sure to choose the images and text to most efficiently guide the learners to the objectives you hope to accomplish in the lesson. Technology can in fact be a distraction as much as a benefit to your teaching and the students’ learning.

Whenever you have a chance, use the Internet to help search resources and plan your classes. You will find many resources if you search for “lesson plans on...” which will inspire you with new ideas you can adapt for your own class. Rarely will you ever find something that can be lifted entirely from the web; instead, you will find parts of different lessons which you can then change and adapt to your needs. You are the professional who knows the best learning aids for your class.

There are also many websites with already created materials, though you must adapt these to meet the needs of your students. Many of these are made in the West and need alteration to be most applicable in our classrooms. As more and more schools are gaining IT support and equipment, you may have an increasing opportunity to access these online materials even in your classroom.

Media can be projected, or shown via a projector onto a flat surface which increases the size and thus the visibility of the images. Video clips and movies are able to be shown in class, but be certain that they support the learning objective, and merit the amount of time they consume. Usually, the point can be taught or illustrated with a small clip or section shown, rather than the full movie or video. These are effective additions to a lecture in that they allow the learners to visualise the time and context of the lesson. Using brief three to five minute episodes of a video every few days truly engages the students and creates an appeal to learning in your class because you bring the learning to a digital place which learners greatly enjoy.

Creating Presentations. Presentation tools such as google slides and Microsoft PowerPoint assist the teacher in bringing the content of the lesson into a compelling visual format in the classroom. They have the advantage of being created or edited by the teacher in order to fit precisely the learning goals of the lesson. Although students can watch them on a computer screen, they work best if you are able to project, with the aid of a projector, onto a flat surface large enough for the whole class to see. Hanging a clean white sheet on the wall can create a smooth, clean, white projection surface. The interactive whiteboard has a projection component, and otherwise there are LCD projectors and televisions which can show the digital image using presentation software.

Effective presentations use high quality images and very limited text. Do not use complete sentences to make your points, simply put up the key phrases for learners to see, with the addition

of the visual which further illustrates the point. Good presentations include text which is simple, clear and brief, with only one key point per line. Words should be limited to no more than 18 per slide, with no more than six bullet points. Illustrate your point rather than writing it. Then teach with the images. Have students interpret the graphs or images by asking them what they see in the image, or what conclusion might they draw from the graph. Graphs, charts and cartoons are engaging, stimulating, and effective in presentations because they visually engage while prompting critical thinking. Use complementary colours, but choose a colour theme and be consistent through most of the presentation so as not to be too distracting. The presentation content and impact will be sacrificed if too many vivid colours, animated slides, or other distractions are used. A light font on a dark background is the easiest to see in a classroom. Make sure your slides are readable from all areas of the room. In order to increase their effectiveness, use large font and avoid writing in all capital letters.

Consider using the presentations interactively. Call students up the screen to point out places on the map, or have them interpret a painting. Ask questions about a graph that include both lower order questions and higher-order questions. Interpreting a visual image takes some planning and forethought. Choose an image for analysis carefully. It should have many details and aspects for the students to analyse, and a deeper meaning to uncover. Photographs are taken for a purpose. Many paintings can be interpreted from the point of view of the observer and the painter. Political cartoons are excellent for analysis. Maps can also be interpreted as they can have a bias or a message as well. You will want to ask your students a series of questions which are scaffolded to move from the simplest observation to interpreting meaning from the image. For example, you might ask, "What do you see here?" and have your hesitant learners reply to this question since there are many correct answers, so it is low-risk for their involvement. If appropriate to the image, you can ask them to imagine themselves in the scene projected. What would they see, smell, hear, feel? This is helpful to get them to think deeply about what they are seeing, and move it more towards experiencing the image rather than simply passively glancing at it. Then, after asking several students to describe the image, move up to asking about symbols or the meaning behind the objects in the image. Then analyse the bias of the creator of the image, their purpose or message and the effect on the viewer. Much depth of information can be explored in even one well-chosen image.

Using Multimedia. *Media* is a Latin word meaning ways to relay messages and information, hence its usefulness in aiding instruction. Media is plural for medium, a single means of storing and conveying information to another individual. Media can be newspapers, magazines, radio, television, audio podcasts, video programs and computers. Multimedia is a combination of several types of media such as using text, graphics and animation in one package. These various media work simultaneously to increase the input to the learner's brain in multiple modalities, making multimedia highly useful in the classroom. Combining media in multimedia presentations increases the learning and retention of students significantly by stimulating the brain more than auditory learning alone (*Jenson, 2005*).

Integration of different media multiplies the effectiveness of communication. The teachers' main concern is to communicate knowledge, skills and attitudes most effectively; therefore, the choice to employ technology in the classroom is a wise one in most cases. Integrating IT into the secondary and primary classrooms is a priority for the government. Research demonstrates, however, that it is happening very minimally (*Kisirkoi, 2015*). In 2013, Ramorola reported the causes to be the technical and maintenance problems of the equipment, the training of the teachers to use it, and the general lack of an integrated plan for technology integration at the school or district level. In 2015, Chigona's study found the chief impediment to implementation in South African context was the lack of training of the teachers. She argues that teachers need to be trained specifically with new pedagogies such as the Technological Pedagogical Content Knowledge-(TPACK) framework. Apart from specific, hands-on training in IT, teachers will resist the full integration due to a lack of confidence, in addition to the limited access to hardware and Internet. And yet, without full scale

retraining, though, there are still ways you can integrate technology into your lessons, either in demonstration, illustration or investigation, as this chapter has illustrated. Kenya Institute of Curriculum Development has prepared e- or electronic curriculum content which you could google and use with your students.

Helpful Websites. A list of websites current to the publication of this textbook follows with some of the most significant online resources for teachers:

TESSA/Teacher Education in Sub-Saharan Africa (<http://www.tessafrica.net/>): online open access resources available from Open University in England. Offers a wealth of professional training and online resources. Spend some time investigating the many areas of the website which are directly applicable to your context.

Go to the website and click on the *Resources: TESSA for Teachers* link. This is especially useful if you will be teaching science, as the secondary curricular resources are currently restricted to supporting science topics. However, you will find all the primary school topics, as well as general teaching references.

ShareMyLesson (<https://sharemylesson.com/>): an open resource (register for free) for teachers to collaborate together to share materials and ideas. They have over 420,000 available organised by topic and (U.S.) level.

Discovery Ed (<https://www.discoveryeducation.com/>): has access to some free classroom resources and lesson plans, especially supporting STEM education. For example, there are units on water, weather, understanding probability, and social studies topics too.

Scholastic Teachers (<https://www.scholastic.com/teachers/home/>): browse the free teaching resources available on this website from the popular trade book publisher.

Education World (https://www.educationworld.com/a_lesson/): has over 1,000 lesson plans for free. Check out their amazing, quality lessons.

Read, Write, Think (<http://www.readwritethink.org/>): offers teaching materials from the international literacy association.

Everfi (<https://everfi.com/k-12/>): focuses on “real-world learning” which is practical to help students be prepared for the 21st Century world. Also includes professional development for teachers.

U. S. Library of Congress (<http://www.loc.gov/teachers/>): borrow ideas from the U.S. Library of Congress which has incredible numbers of digital materials—visuals, documents, primary sources, maps, etc. Plenty of online teacher resources.

National Geographic (<https://www.nationalgeographic.org/education/>): searchable database of materials related to geography and our world. For example, get a lesson on how Ancient Rome relates to the modern world, or lessons for grades 5 - 8 on climate change.

NSTA/ National Science Teachers Association (https://learningcenter.nsta.org/mylibrary/collection.aspx?id=o383RLAXGnI_E): presents the leading experts in science education and their work. STEM focused. Plenty of free lesson plans and training.

Teaching Tolerance (<https://www.tolerance.org/classroom-resources>): an exceptional and helpful tool in teaching conflict resolution skills, valuing diversity, social justice and anti-bias to children of all ages.

TES (Times Educational Supplement (<https://www.tes.com/en-us/teaching-resources>): readily available lesson plans and other supplemental material for a total of over 700,000 free resources! Housed in Great Britain, created by teachers for teachers.

WeAreTeachers (<https://www.weareteachers.com/>): made to support the teacher in every way, from lesson plan ideas and free resources, to healthy living tips and advice.

Challenges. Challenges to the use of computers in the classroom remain. Still there is a

significant lack of trained personnel who can manage the IT equipment onsite. Limited connectivity or access to Internet bundles is also a restraint on the amount of usage. The actual equipment, hardware and software, is limited in the field. And, as soon as it is purchased for a school, it quickly becomes outdated with the speed of developments in the IT world. Even in resource-challenged settings, the use of IT is becoming increasingly expected and possible.

Television and Radio in the Classroom

Using Television Programmes. Television programming can be used effectively in the classroom. The Kenya Institute of Curriculum Development has developed programs specific to the curriculum which will enhance your lessons and give students a fresh new approach. Experts sit and discuss the school syllabus, focusing on areas that pose difficulties to students. They discuss the content in depth, set questions and answers, then create the programme which is aired live in the Kenya Institute for Curriculum Development (KICD) studio. The production is viewed and critiqued by other experts. It is then edited and the programme are packaged by producers in KICD and sold to schools. These programmes can also be viewed live in TV channels such as Edu Channel, The National Educator. Try these with your students.

In order to facilitate the most learning from the experience, have a clear sense of what the programme is about and how it will add to the students' learning. Communicate this purpose to the students in advance. This will give them a framework to hang their new information on in their brains. When you bring the television to the classroom and begin the lesson, give the students an overview or a preview of what they should learn from it. Give them a reason for watching it, and consider an exit card after the show which holds them accountable for having watched and processed the information by answering a higher-order thinking question about it. Be willing to pause and explain or ask questions to increase the effectiveness.

Using Radio Programmes: Radio lessons are especially interactive between radio teacher and radio students, and you can translate that into an interactive exchange between you and the students. Like creating educational television broadcasts, radio programmes are prepared by subject specialists and KICD media experts called producers. Teachers who are specialised in subject matter meet with the KICD subject specialists to discuss syllabus areas posing difficulty to learners. They simplify it by cutting it into small bits and prepare interactive radio programmes with radio teacher and radio student which support the students' learning in those areas. Then, the experts develop scripts that are structured in play form. The radio teacher plays the role of a teacher with mastery of the content, while the radio learner acts in the role of an intelligent student who asks questions which other learners would desire asked and answered.

Radio lessons provide a way for students to listen to a different voice which often means they will listen more; recall what we said before about novelty or something new attracting their attention. It will break the monotony of the teacher's own voice, especially if you have a lesson needing direct instruction. You will not want to overuse this resource, but adding in some appropriate radio programmes will diversify and add interest to your lessons. Radio used as a teaching resource can be effective, even if you are out of class briefly, the students can keep learning. Also, it may free you to do more intensive one-on-one assistance to the learners who are struggling, while the others are listening to the broadcast. Finally, it might be helpful in the case of distance learning. Use a similar approach to the television by giving the learners a clear understanding of the purpose for the radio broadcast in light of the lesson for the day. Have them take notes on certain points of interest. Follow up with a discussion afterwards to bring the main points out and cement them in the learners' memories.

Some additional challenges might arise making using the television or radio in the classroom more difficult. For example, it might not be possible if there is no electricity in the classroom, or if the technology is malfunctioning. Always have a backup plan in those cases.

Pause to Review and Reflect:

Student Teacher: “ Hmmm... next week I need to teach about the water cycle. I wonder how I could bring that to life for my students?” Where would you suggest the student teacher go to look for ideas and resources?

Divide up the websites and each person reviews one. Figure out the challenges and the opportunities each offers. Do a brief “commercial” introducing your website to the class. Then, write up a summary review of the top three you would prefer to use; be sure to justify your decision.

Which teaching and learning resources are most relevant to your subject-area of teaching? Give examples of how you would use them. Which would be the most challenging to try to implement? Why? What would you recommend for every student teacher to have in their “teacher toolkit” as they go to TP?

Which teaching and learning resources would you like your teacher educator to use to illustrate the attributes or parts of an effective lesson plan? Give a suggestion to them on how they might use them.

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CHAPTER 12: How to Be an Effective Teacher: A Vision of Learner-Centred Teaching in Action

What does learner-centred teaching actually look like in real life?

What are the ways in which I could help my students be successful in my class?

Reading this section will help school teachers and teacher educators at all levels: in training, in practice, and in higher education. It provides a vision of effective learner-centred education which will give student teachers, current teachers, and teacher educators a picture of what integrating all of the methods and approaches together will look like in real life. Although it may seem like a major shift in how we view the role of teacher, it is possible and practical to re-envision our roles to be more facilitators of learning than the master who merely disseminates content to be absorbed by students passively. Here you will see a demonstration of how the theories and the methodologies discussed in the first half of this book fit together to create the whole of active learner-centred effectiveness in the classroom. This chapter will first explore what an effective teacher looks like, and then investigate ways to maintain student engagement, and finally consider the significance of good communication skills.

Elements of Effective Teaching

Strong Content Knowledge: The skills of an effective teacher are many: pedagogical, content, socio-emotional, technological, creativity, organisation, management, communication and more. Of these, content mastery is a critical foundation. A teacher should only teach when ready with content mastery, otherwise one would be masquerading teaching and teach while no learning takes place. Remember a teacher is expected to competently teach two secondary school teaching subjects or the primary school specified areas according to the level of teaching course studied.

Before you go to any class, you must have a deep understanding of the content you will teach. Content mastery means having a firm grip of the subject content, including the main ideas and how they fit together. You might also have competence in relating those main ideas to other topics of learning and real life. This will give you confidence and enable you to present content in different ways to different learners, and to break it up in appropriate chunks for the learners to be able to learn (*Darling-Hammond & Bransford, 2005*). Your content knowledge ought to exceed that which you will try to teach the students. It will be more comprehensive than the pupils' textbooks; then, you will be able to answer their questions and create connections within and outside of the discipline you are teaching.

Humility and Lifelong Learning. With mastery of content you will feel confident as you present your lesson in class, but it would be unwise to think that you know everything on a subject. Being a teacher who models the eagerness and enthusiasm to learn more will be of more value than being a teacher who "knows everything." Try to make your enthusiasm for learning contagious to your students. If you do not know something or cannot answer their question with confidence, admit that to them, and then together search that missing knowledge; thereby you will model honesty and the reality that learning is a lifelong pursuit. Better to admit that you do not know something than to make up an answer that later proves to be incorrect or misleading. Encourage your students to join you in researching further to find the answers. Whomever asked the question could be encouraged to do further research and report back to you and their classmates. The greatest gift for you to give is that of curiosity and love of lifelong learning. The state mandated vision for education calls for an educational system which trains students to "be able to engage in lifelong learning" (*MoE and MoHEST, 2012, p. 12*).

Pedagogical Skills and Planning. In order to apply your content knowledge to the needs of

your students, use your pedagogical or teaching skills. Pedagogical skill means ability to use appropriate methods and resources to deliver content effectively to the learners. For a student teacher on Teaching Practice, your skill of planning and preparing professional documents will help you as you reference multiple schemes of work to produce your own. The practising teachers in schools could best prepare schemes of work as a team. If the school has no schemes of work and you are a student teacher, you will use the subject syllabus to prepare your own and other professional documents. From this you will prepare lesson plans, and then your teaching and learning resources to aid your learner-centred teaching. You will assess learners for learning and keep a progress record for each one of them. A progress record shows how each learner is improving or not improving in your subject. You are supposed to study the individual student's progress and take curative action if the students are not progressing as expected. All of this requires excellent planning for teaching skills so that you are not trying to do this the night before you teach. Preparation is key to smooth delivery in the classroom.

Creating a Learner Friendly Atmosphere. The teacher should create a friendly learning environment which supports growth in brain functioning. A friendly, caring, fair environment will set students free and the brain will be free to learn and create ideas. You will be able to do that if you have deep interest and concern for your students to learn, which is actually love for students and the teaching career. The socio-emotional well-being of your students should be a very real concern for you as their teacher, since it can be a real impediment to learning if the student feels threatened or ridiculed (*Durlak et al., 2011*). All energy in the brain becomes focused on survival, and the higher learning capacities of the brain do not function effectively at that time of stress. It is not that the student chooses not to pay attention, but rather, the student under stress will be experiencing a brain chemical reaction which is largely unavoidable without removing or lessening the emotional strain. Brains process learning best in a low-stress environment. What we have learned about the brain makes us more well informed teachers to understand how our students are acting in our classroom. The outside stressors they bring from their home-life greatly impact their abilities to learn (*Wolfe, 2010*). As much as it is in your control, create the positive, caring, inclusive, supportive atmosphere in your classroom in order to foster the most emotional health and well-being. This directly impacts students' learning.

Recognise Differences among Learners. You are well aware that your learners are all distinct individuals with multiple layers of identity, ability and interest. Meet their individual needs by focusing on their strengths as people and as learners. If you wonder, "Why are some of my students left behind while others learn very fast?" then remember students have individual learning differences which are a result of heredity, experience and environment. We need to look at each of them with empathy and let none of them be left behind. Different people have different learning preferences and individual learning differences. Learning styles, or preferences, are individual's preferred ways of processing information, though most learn best through a varied assortment of multimodal active learning opportunities. Create a stress-free learning environment that accommodates the different types of learners. Provide individualised learning, and offer choices to learners where possible, adapting the teaching approaches to learners' learning styles to bridge the learning differences.

Classroom Management Skills. You are the chief manager of your class. The seating arrangement, the cleanliness of the classroom and the classroom atmosphere depend on you. The best form of classroom management is to have a positive relationship with your students and engage them busily in productive and meaningful work. You will need smart strategies to manage a class.

Suppose you find your class chaotic, noisy and disorganised, with students shouting and out of control. How would you manage the class to settle down to learn? There are many different ways teachers may handle this predicament. Some teachers may rush back to report to the principal or the deputy principal. However, if you do, you give your power to the person who comes to control

your class. You may also communicate to those around you that you are not in control of your class which may feel like a failure. Another teacher may start shouting, 'Keep quiet!' Some students may enjoy the teachers' shouting, some may even laugh at the teacher and give them an ugly nickname. Finally, another teacher would be calm, find some students who are orderly, praise them and work with those students who are demonstrating respect. Give those who settle some work to do, and the others will begin settling, joining those settled in class. All may join class because when there are only a few misbehaving, they know they could easily be punished. Once settled, the teacher could work out with the class some ground rules to prevent future chaos, with agreed upon consequences for any failure to follow them. This teacher will then proceed with the lesson, aware that some time has been eaten up.

The point we have made is that you will teach effectively only when a class is settled. Use other techniques and strategies to start your lesson and continue on. Call your students by name to make them feel good and that they matter; model caring, and show genuine concern for their wellbeing, both inside the classroom and outside. A little teaching humour can go a long way in building relationships and setting a joyful classroom climate.

Build Positive Relationships with Your Students. Work early and often to gain and retain the respect of the students. You should be able to draw students' attention to your lesson without shouting or punishing them, but rather through enticing them to join you in the learning adventure of the day.

As you create the friendly atmosphere and show genuine concern for them, you will make it easier for students to trust you. They will feel safe enough to try to answer questions without fear of facing punishment, humiliation or ridicule. Never allow students to laugh at any other student's response. The tone of respecting one another that you set in your classroom may develop into every day behaviour in the students' character! Provide an atmosphere of respect, tolerance and compassion whenever they are attending your class as you set the expectations within your own classroom. You may even involve the students in developing some classroom rules. Have them brainstorm about what type of environment they need for optimum learning, and then describe that with positive statements about what "our classroom community would look like". Stating the ideals in writing and posting them on the wall would help when learners forget. They may begin pointing them out to one another. All of this training in co-operative living skills is useful for their full holistic lives. By developing decorum and enforcing it, you build an environment which encourages students to freely express their thoughts, ask and attempt answering questions, all of which are conducive to learner-centred education.

Create a Democratic, Open-Minded Thinking Classroom. One way to model a critical stance of questioning assumptions and becoming critical thinkers is by using the Socratic method. Provide them tasks of real-life problems, then facilitate them to investigate, hypothesise and freely express their views; help them thrive in a democratic environment where diversity of opinion is welcomed, where we expand our thinking, reject or support ideas with reason and evidence, and work collaboratively to solve problems. Keep eye contact with them, keep learners engaged in activities; sustain their interest in your lesson through varying teaching methods, using set inductions and monitoring their motivation. The chief skill in managing a classroom is to engage learners in their own learning meaningfully throughout the lesson (*Dubinsky et al., 2019*). Use set inductions to draw learners' attention, then use a variety of teaching and learning strategies to sustain their interest and sum up the lesson when they are still interested and desiring for more. Read the following portrayal of a Student Teacher who is experiencing some common frustrations in Teaching Practice. Think about what advice you might give him.

Case Study of Teaching Practice: "TP Nightmare"

Soni was so frustrated that he could burst in anger! Today, in his Form 2 Chemistry class, he found the students completely unprepared for the lesson and even the content he had painstakingly taught for the

past week seemed like a foreign language to them. It was as if he had not even been there in the room! Not only that, they blamed him for the confusion! To make matters worse, he hadn't seen his co-operating teacher for over two weeks now since she had told him she was leaving for a short trip. Even the university supervisor had not given him any specific guidance on when he was to come to assess him teaching. He had not yet come to see him but then suddenly showed up at that most inopportune moment. Soni didn't have a lesson plan. The supervisor did not tell him he would visit him that day. Soni could not remember what the campus teacher educators had taught about lesson preparation, communication, classroom management and control, motivating learners and all such stuff. He doubted even his own mastery of content at that moment. Things seemed to be going from bad to worse very quickly.

Pause to Review and Reflect:

What emotions was Soni feeling by the time his supervisor came? What prompted those emotions?

What are the elements of his training which he has forgotten?

What advice would you offer to Soni? Should he give up the teaching profession and go sell chicken?

In pairs, discuss the advice you would give Soni if you were his friend and you happened to be taking Teaching Practice in the same school.

Engaging Learners and Sustaining Their Interest

How do I capture my students' attention?

How do I use the methods here to sustain learners' interest?

Your success as a teacher will to a very large extent depend on how well you will motivate learners and sustain their interest throughout a lesson for effective learning to take place. A teacher must guard against students getting bored in the course of the lesson. Motivation in teaching and learning is a drive, a force, an energizer that makes students eager to learn, pay attention and participate in teaching and learning process (*Han and Yin, 2016*). An effective teacher has to motivate learners by being enthusiastic and igniting learners' curiosity. A teacher will require a toolbox of teaching methods and strategies at hand in order to switch among them as needed, finding the right match to challenge the students enough but not overmuch that they become overwhelmed and give up. Teacher creativity, innovativeness, wisdom and common sense play a great role here.

Use Set Induction. Set induction is a very useful strategy to use at the beginning of the lesson to get learners ready, set to learn. It helps to turn their brains toward the lesson, and away from the multiple other distractions and stimuli in their worlds. Then, you can use set inductions at any point throughout the lesson, whenever their motivation goes down and you need to spark it again to stimulate them. At the beginning of a lesson, settle students down and gain their attention by using a hook to the lesson or a set induction.

Link Learning to Their Lives. To hook the learners' attention, link the learners own lives to the learning for the day. You might ask them about what their favourite foods are, and then use that to link to the lesson on nutrition. Or, take a poll of how many students prefer a cold climate versus a warm climate before your lesson on Climate Zones and Meteorology. You do not always have to link the exact content; sometimes, you can link the learning through the skill you will be teaching. Demonstrate how they will use their learning in real-life. If you are teaching a topic and they will be making a Venn diagram, or a concept map, you could have them practise that skill in the set induction with something very familiar such as drawing their own life interests in a concept or mind map which was introduced in Chapter Five. This would prepare them to know the skill to apply later in the lesson, in history, where they could make a concept map of the executive government structure of the country. You could also have two students compare their individual traits to one another and record in a Venn diagram of two overlapping circles, where the differences go in the

outer parts and the shared traits in the overlapped section. Then, as your lesson progresses, students will use that same skill they just practised and compare the attributes of two chemicals or molecules in chemistry, or two poems in English, or Pakistan and India in geography class.

Use Learner-Centred Methods: Another idea is to use a familiar song related to your lesson and ask them to join you, such as:

Come by here, my Lord, come by here (x2)

Oh, Lord, come by here

Someone's dozing, Lord, come by here... (added if a student is seen dozing)

Creatively add things that would amuse the class. You could use a song to teach rhythm and rhyme in poetry. You could select a common song that has rhyme, then the class joins you in singing and together you establish rhyme scheme, such as:

Swing low sweet chariot (sang pulling pulling)

Coming for to carry me home (x2)

You could recite a poem related to the lesson, or you could also describe an interesting experience which you recently had. If you tell them about recent happenings in the world and stories of exploits by people of their age, they can relate to those and it will raise their curiosity. You could use transition set induction where, as you move from one topic to the next, you use question and answer strategy about the work covered. They could work in groups and one student representing a group makes a presentation of work covered. You could use appropriate teaching and learning resources as visuals to help conceptualisation and to engage learners (Perrot, 1982).

Make a Connection with students. You have to figure out what to do to make the class close to you, be with you and continue with you. Know your students, call them by name, give them tasks depending on their ability and praise them for doing well. Be happy, at ease and enthusiastic. You should also wisely correct their wrong responses while not discouraging students. Do not neglect to bear with the weak and shy ones; help each one to come out of their personal challenges. You could review their performance in the latest test you gave to them, but do not mention any name of a student. Engage all learners in making corrections as this is one of the very best ways to learn.

Stimulus Variation. Stimulus variation skill, which is using a tactic to catch students' attention, plays a great role in discouraging boredom. One repeated stimulus will bore them, so you must alter it once you sense boredom setting in over a good portion of the class; however, guard against becoming a joker in class by following every whim of their mood. Stimulus variation means that you have to keep varying the stimuli, and this relies on your creativity and the repertoire of teaching strategies and tactics which you have. An effective, learner-centred teacher will observe and quickly take notice of the room or the learning environment knowing that attention is lost when audibility is poor, the room is uncomfortable, or the learning environment is not conducive. Do what you can to make changes to improve the environment.

Learner-centred teachers use stimulus variation to draw student attention to the learning throughout the class period because attention is a central condition in learning. You have to draw students' attention by intentionally designing ways to captivate them and keep changing, because monotony leads to boredom whereas novelty sparks brain cells.

Move Around. Other ways of sustaining students' attention which you could use for stimulus variation include teacher pedagogical movement in class to demonstrate some point, including facial expression and gestures for emphasis to pass certain messages. For example, you could say you saw a huge elephant and demonstrate with your hands the size. Or say you saw a small fieldmouse, and likewise demonstrate the size with your hands. It could be accompanied by tone of voice which vary for big 'BIIIIIIIG' and small 'smaaall,' and also make a sketch on the board of the big and the small animals. Do not stand still for long; move about the room as much as possible as you check what students are doing. Talk and engage learners, but do not overdo

movement or move in class aimlessly lest you look awkward. It is said that teachers have eyes at the back of their heads as they develop the ability to sense misbehaviour even occurring outside of their field of vision! You could raise your eyebrows in wonder based on what has happened, whistle to draw attention, nod to agree, or shake your head to disagree. Each behaviour should bear a message understood by the students who are observing you.

Your enthusiasm as part of your personal behaviour is infectious; it makes students also interested in the lesson. You could clap hands to draw student's attention to you. Focus their attention by knocking the board or the table. Perhaps call out their attention by saying, "Listen to this; it is very important; look here" or knock on the board and say, "Now, this is very important," then move closer to students, use a visual aid and tell them, "Look at this." Then you smile when they do what you ask. Be an enthusiastic teacher and enjoy your lesson and your students as you teach.

Use Resources. The greatest strategy to catch students' attention is to involve them in their own learning throughout the lesson through the appropriate use of teaching and learning activities and resources (Prince, 2004). Vary your use of senses: hear, taste, touch, smell, see. The more senses you engage in teaching and learning, the better the retention and understanding. You could use audio, visual, video, TV, radio, smart phone, or laptop. Or, use activities that require manipulatives that the students themselves can make or collect. To teach them to be good listeners and observers, have them identify some sounds from the environment, or guess a piece of realia in a paper bag only using touch.

Resources that could be used as visual aids include pictures, PowerPoint presentation, writing board, realia, models, charts, photographs, illustrations, maps and images. The learners benefit by being able to form mental images, to understand context and to get clearly the intended content. They could also handle them and help in their preparation.

Storytelling. You could find stories which are captivating and useful in leading to a point for your lesson. One teacher wrote the following to read to her class to wake them up. Note how written passages can appeal to different senses.

Case study #1:

The teacher instructed her students: 'Now listen to this very closely and think of words to describe how you feel. Get ready to feel anything.' Then she read this story to them:

I heard gunshots. I was wearing a disturbing face mask which was choking me. I crossed the empty street and thought that now they had seen me. I then took a narrow path. I had to be careful not to step on dead bodies and blood that painted the floor red. Red blood meant they had not died from corona virus. No, somebody must have killed them. My heart sank. How could anybody help the evil pandemic to kill people? Hot tears were running down my cheeks. On my right was a vacant plot full of dirt and filth-dead bodies and fat rats tearing off human flesh. The stench was unbearable. I had a strong feeling that somebody was watching me. I needed to hide and this had to be my hiding place. I forgot about corona and took off the face mask. I lay among the dead to fake dead. A boy lying among the bodies moved closer to me. He was alive, not dead. I thought I should save at least this one. If infected, we shall both get treated later. He was shivering. He needed warmth. I thought about my son at home. I allowed the boy to lie on me and get warmth from my body. The killers came. I believe they were looking for me, but they ran on as though chasing somebody else. When they were out of sight, I picked my new friend and crawled away with him. When we got far away enough and I felt we were safe, I stood, picked the boy up and ran with him to the direction of the Red Cross camp which was 20 miles from that evil site. Arriving, I could not believe I was alive. At least I had saved a human being.

Pause to Review and Reflect:

Imagine using this in English class to stimulate a writing assignment. Name the senses this passage evokes.

What might the teacher be teaching a lesson on to use this as an introduction?

It appeals to sense of sight as you see dead bodies, the sense of smell as you can smell the stench of rotting fresh, the sense of feeling, as the boy needed to feel warm. Writing is powerful. You could create your own pieces and shape them as you would like, or find other passages to read from novels, newspapers or the Internet blog sites. Then you could have the learners write a descriptive story with as many adjectives and adverbs to evoke mood and emotion as possible.

Read another example to demonstrate the effective use of storytelling in class:

Case study #2:

I woke up to the inviting, nice aroma from the kitchen that sent me salivating. My mother's sweet melody as she hummed a song made the aroma more captivating. Was it chapati, eggs, pancakes or her favourite egg-chop which she was making for breakfast this morning? I opened my bedroom window. It had rained the previous day, but this morning the sky was blue and the early morning sun was warming my skin. A cool breeze swept over my face, and the flowers outside swayed as though beaconing me to join them to enjoy a nice morning. The flowers looked brilliant—pink rose, white rose, purple rose, all appeared to smile at me. Lost in my admiration and enjoyment, I smiled back. The bees buzzed happily from one flower to the next. Their buzz added sweet melody to my mother's humming which had changed to soft singing. Further, in the field the green trees swayed gently to the direction of the wind making a matching tune. What a perfect morning!

Pause to Review and Reflect:

Identify the senses the story is appealing to.

How do you feel after listening to the story or after reading it?

Students could now write their own narrative, having been inspired by the example. They could describe their own perfect morning or day. You could use it to teach a topic "Our Environment" or "close pollination."

Wait Time. We have discussed wait time earlier, but its usefulness bears repeating here as a strategy to hold students' attention. After making a point, stop talking for a second; silence causes curiosity and they pay attention. It could give them time to process what you have said already, and they could anticipate that you are about to say something important. Pausing is an effective tool as long as it is not overused. Giving 3 – 5 seconds longer than you normally do after you ask a question will allow more learners to process the question and think carefully about an answer. The longer wait time produces more depth in the student answers, and more engagement overall. Try it. This is a research proven technique for increasing the thinking in your classroom (Bergman, 2018).

Ask Questions. Vary your questioning technique using the several methods discussed earlier in this book. For example, ask a question and then allow them time to think and respond. Do not be quick to answer or ask another student to answer. Also, ask questions to the entire class rather than directed to individuals; then, allow for response, then reward correct response through praise. Consider responding with curiosity when the response is incorrect, trying to figure why the student might have answered that way. Wisely guide a student to make self-correction; you could involve others if the student does not answer, and give correct answer if all fail, ideally guiding the class to discover the correct answer.

Use Realia. More on the use of realia is presented elsewhere in detail, but here we consider a case study of its application in mathematics. A teacher was pondering how to teach her students to simplify fractions in Mathematics in a Form One (Grade Nine), class who had lagged behind and had convinced themselves that mathematics was a very difficult subject and fractions did not make sense to them at all. Here is the story of how a teacher decided to teach it in a creative way, bringing it to life for her students:

Mrs Ngetich came to class with a sugarcane stem which had six natural subdivisions. She placed the sugarcane stem on the table and asked one student to go to the front. The student led the class in counting the different subdivisions. Then the teacher said that one subdivision is one out of six and wrote on the board $1/6$. She asked the students what it meant and one student volunteered and said it meant one piece out of six pieces. Mrs Ngetich led the class in clapping for the student then she continued demonstrating two out of six up to six out of six. She asked another girl to cut the sugarcane along the natural subdivisions. Then Mrs Ngetich asked different students at a time to come forward and pick pieces and write what fraction they were holding until all were illustrated on the board: $1/6$, $2/6$, $3/6$, $4/6$, $5/6$ and $6/6$.

They all concluded $6/6$ makes the whole sugarcane. She then cut the sugarcane into smaller pieces and every student ate a small piece and said it was as sweet as sugar. Everyone agreed this was their favourite mathematics lesson of the year so far! The teacher determined to brainstorm about making similar real-world connections in her class because the students responded so favourably. Even the next week when learning adding fractions, they remembered the illustration and the fractions when normally most would have forgotten.

Another teacher used oranges to explore the concept of adding and subtracting fractions such as half, quarter and whole.

Mr. Robi brought oranges to class. Working with students, they cut them into two pieces and wrote the symbol $1/2$ on the board. Then, he cut the halves again and wrote $1/4$ on the board, and then, joined all the 4 pieces together to make a whole and wrote $4/4$. Then, laying the pieces of oranges on a table in the centre where all students could gather around to see, he illustrated the addition and subtraction of the pieces of oranges by simulating dividing the oranges up among individual students. Mr. Robi asked the students, "If Susan has half and I give her another quarter, how much will she have?" and "If Leon has a whole and I take a quarter, how much is left?" he asked a volunteer from the class to write those mathematical expressions on the board. After exploring several combinations, Mr. Robi distributed a piece each to all the students to eat for their hard work thinking about addition and subtraction of fractions.

Another student teacher was teaching mathematics, shapes for Form One (Grade Nine). He asked his class to name the different shapes in the classroom looking at the roof, walls and the items on the shelves. They come up with many shapes, then he supplied the students with papers to cut into different shapes.

Pause to Review and Reflect.

What is case study? How would you case study in teaching and learning?

How would you continue with the lesson on shapes?

Analyse the effect of using realia to learn from any experience you have ever had.

Employ Technology. Modern technology makes very good teaching and learning resource to capture student interest in varied ways. Videos capture and present real life situations which bring the real world to the classroom in vivid colour with an unequalled ability to capture student attention. Supplement this also with pictures, photographs and websites which make learning interactive. According to the governmental projections, IT will become an integral and expected part of every teacher's skill set and teaching toolbox, to add new dimensions and reality to lessons like never before. Soon your class will be doing mathematics problems with students in Japan, learning French from a teacher in France and sharing art projects with students in Ghana! Learning is becoming a more global, interactive event in an increasingly technological world especially with the onset of COVID-19 pandemic.

Effective Communication

Be an Effective Communicator, Effective communication is one of the principles of teaching. Communication is conveying meaningful information. Some of this communication is verbal and explicit. Much of it is non-verbal and implicit. Teachers communicate with their voices and words,

their actions, their movements and their attitudes. Students learn from all of these aspects of a teacher's communication style.

In teaching, the message sender is the teacher, the message is knowledge, skills, attitudes and values, and the intended recipient is the classroom student or the learner. The channel for communication is the methods and the resources used to deliver the message. The communication cannot be considered complete until the learner has understood the message and responded to it effectively. The response has to be relevant and related to the message. The response is the feedback from the receiver. Feedback in teaching and learning is achieved through formative assessment such as question and answer, exercises, tests and examinations. A teacher has to facilitate the learners to develop the requisite social skills for communication: listening, speaking, questioning, observation, and the use and correct interpretation of gestures.

Use Appropriate Verbal Communication. Teacher's word choice plays a crucial role in classroom communication. A teacher has to select words which are appropriate to the age, environment, culture, religion, family background and language level to communicate effectively and appropriately, being careful not to hurt students' feelings. Your language must also be appropriate to the position of authority and respect you hold. A teacher is a professional and must always let that guide their behaviour and speech. The words must be understood by the learners and also suitable to the subject, as well as related to the learners' experience. The teacher has also to structure the language, sentences and expressions to communicate the desired content.

Certain elements in speech, such as tone of voice and speaking style, affect classroom communication, therefore, they need to be modified to suit the class and subject you are teaching. The teachers' tone of voice needs to be adjusted for teaching, not too loud to seem irritating and harsh and not too soft to fail to be heard. The voice will need to be clear for everyone in class to comfortably hear.

Remember Non-verbal Communication. This is a very effective and powerful speechless communication used in classroom teaching, where content is not put in words but expressed through non-verbal cues. It is passing information without uttering a word. This includes your manner of dress, facial expression, eye contact, tone of voice, use of personal space, gestures and body movement around the room. These, as simple as they appear, may have greater impact on your students than what you are saying verbally in regular classroom communication. Always be conscious that somebody is watching you; you are a role model to your students.

Handwriting also acts as non-verbal communication, and therefore, a teacher should use legible, neat handwriting. The care you take to arrange your curriculum and lessons, and prepare for class, communicates your regard for your students, their school and your profession.

Barriers to Effective Communication. These barriers include message overload where one message contains others. One needs to separate points and give one point at a time. Sometimes a teacher gives a complex message where vocabulary used is beyond the understanding of the intended learners. Generally, use vocabulary of the level of the students you are teaching, although you can help them learn new words. Repeat words they may not know, and give a synonym, so that they can learn them and build their vocabularies. Do not use ambiguous words. Set tests using the simplest language possible. Avoid physical barriers in your classroom; these include distance between you and the learners, though social distancing is allowed to combat COVID-19. Objects such as tables and even a wall between you and the students create physical communication barriers. Other physical barriers to effective communication include poor lighting, dust, an uncomfortable environment which is too hot or too cold, noisy or dirty.

Attitudinal barriers make one of the worst barriers to effective classroom communication. These include negative attitudes from the teacher toward a student, or students' negative attitude towards each other or a teacher. The presence of disrespect in the classroom community impedes

learning for many. Other causes of attitudinal barrier are teachers' lack of self-confidence, lack of motivation leading to dissatisfaction, and negative attitude towards the teaching career and the students. Listening to rumours about a teacher or a learner creates an unnecessary negative attitude which becomes a barrier to communication. A teacher needs self-confidence which is brought about by mastery of content and pedagogical skills. You also need to create a friendly learning attitude, free of unfair favour. Handle individuals in your class wisely.

A teacher's poor linguistic ability also creates a communication barrier. These are evident in pronunciation of words and use of inappropriate words. The students will not understand what the teacher is saying and this creates a fertile ground for a chaotic class. A teacher needs to polish up personal language use to be appropriate for a professional.

Disorganised presentation of content also poses a barrier to effective communication. When a teacher mixes up flow of content, where one cannot tell the introduction from the body nor the conclusion of the presentation, the students get confused and irritated. There is a need for a smooth flow of presentation. In order to maximise the clarity of the content, you will need to organise it well, logically and well sequenced. Intended points should come out clearly in a logical, sequential, smooth presentation using an easy manner which invites interaction with the students.

In the end, becoming an effective educator is really what this whole book is about. By reading it in small chunks, and trying to apply what you are learning, you will become the effective classroom teacher or teacher educator you would like to be. Continue reading for the next part of the book outlines the progression of a teacher, from student teacher through accomplished master teacher and sustaining quality teaching.

Pause to Review and Reflect:

Think about your best teacher when you were a student. List the top five personal qualities, skills or attitudes which made them so effective.

Now, join some four other students, try to find some common themes from your lists of qualities, skills or attitudes.

Be prepared to share with the class your common findings and whether you feel these are the qualities you most want to exemplify in teaching. Is there anything left out of the list?

Did you include the following qualities of an effective teacher in your list?

Friendly, sense of humour, fair, enthusiastic, diligent, mastery of content and teaching skills, firm and fair, decisive, innovative, intelligent, well informed... continue adding to the list as you continue your training. Keep it in a place you can easily access.

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PART THREE: TOWARDS TEACHER PROFESSIONALISM

CHAPTER 13: Preparing Professional Documents

Becoming a teacher requires many steps along the journey. We have just learned the nature of the profession and some of the underlying theories that shape our instructional practices in the first few chapters. Then, in the most recent several chapters, we have focused on many methods to create a learner-centred classroom which are valuable for all teachers and learners. In the following portion of the book, we will look at each of the progressive steps toward becoming a professional teacher. Many of these pieces, such as the preparing professional documents in this chapter, actually relate to all teachers, not just those who are beginning Teaching Practice. Then, Chapters 14 and 15 will outline the nature of Microteaching and Teaching Practice, which is a unique piece of your journey which involves professional teachers and teacher educators as well. They will also benefit from the discussions of their roles. Finally, Chapter 16 will conclude the book with an overview of Teacher Professional Development, your link to the continuation of your learning. A good teacher never stops learning. Each step is intended to help give you the tools and skills you will need to be an effective educator.

Student teachers need to be fully ready to proceed for Teaching Practice after having taken course units in general methods and principles of teaching, specialised subject methods of teaching, and then, microteaching. You need to prepare schemes of work and lesson plans from the syllabus and curriculum designs, whichever is appropriate, in order to be well prepared for your teaching. This chapter will outline these important documents and give guidance on how to prepare and use them.

What are the syllabus and curriculum design used for?

What does the schemes of work include?

How do I write instructional objectives or expected learning outcomes?

How do I design the lesson plan?

A teacher should be able to prepare and use the official professional documents for teaching and learning using the syllabus and the Competency Based Curriculum (CBC) Curriculum Design. Teaching Practice official documents are those which the university requires you to prepare for teaching during Teaching Practice. You will have to use and follow them as you teach. They include the syllabus or curriculum design, schemes of work, lesson plan and students' progress record, which are also made by the regular teachers already teaching in the schools. Therefore, regular teachers already teaching in schools are also required by the Ministry of Education to prepare the professional documents. They will benefit from this chapter as well.

The Syllabus and Curriculum Design

The two curriculum documents used in schools in Kenya are the syllabus and the curriculum design. Syllabus and curriculum design are the national formal curriculum documents, the product of curriculum development process developed by the Kenya Institute of Curriculum Development (KICD) which is the former Kenya Institute of Education (KIE). The syllabus and the curriculum design are developed at the national level to provide a standardised education where the teachers teach same things across the country. As such, they are the official guiding documents to follow when teaching by everybody in Kenya. Both are developed for specific subject in every grade. Each of them specifies all that should be taught and learnt, the scope of the content to be taught, the learning experiences, expected learning outcomes or objectives, assessment procedures and the time allotted to teach. Therefore, there are two systems of education, the 8-4-4 system which was introduced in 1985, and is progressively being phased out since 2017; here the syllabus is

in use. The 8-4-4 system implies 8 years of primary education, 4 years secondary education and 4 years minimum university education. There is also the 2-6-6-3 system referred to as the Competency Based Curriculum (CBC), launched in 2017, where curriculum designs is in use in the place of syllabus. The 2-6-6-3 imply 2 years of Pre-Primary, 6 years primary education, 6 years secondary education and 3 years minimum University Education. Both syllabus and curriculum design are used to:

Enable common learning in a school across the country in a national standardised curriculum. It helps to control type of education provided in schools. The same things are taught and learnt in all schools in different parts of the country.

Facilitate the preparation of schemes of work by the teacher, which will then be used in lesson planning.

Enable school heads, principals and Quality Assurance Officers to monitor learning in schools and check whether set standards and procedures are being met and followed.

Guide in assessment and evaluation used in the examination setting. It guides the scope of the examination as examiners base questions on objectives and learning outcomes given in syllabus units and curriculum designs.

Assist in development of teaching and learning resources, course book and other syllabus support materials.

Components of Syllabus and Curriculum Design

The syllabus and the curriculum design have different components, but they are used for the same purpose. The national curriculum in Kenya is moving to the Competency Based Curriculum (CBC) model, but until it is fully phased in, there are some classes still continuing with 8-4-4 system. We have addressed both in this chapter; however, most of the examples are from the CBC since that is the direction in which we are heading. The components of each model are listed below for comparison.

National Goals of Education	National Goals of Education
Topic	Strand
Sub-topic	Sub strand
Specific objective	Specific learning outcome—usually Specific, Measurable Achievable, Realistic and Timebound (SMART)
Suggested learning experiences	Suggested learning experiences—includes activities
Suggested assessment	Suggested assessment

National Goals of Education: The national goals of education in Kenya appear in both CBC curriculum designs and the 8-4-4 school syllabus and they are currently eight in number. Six goals were originally developed by the first Kenya Education Commission in 1964, just after independence, and then revised in 1992. Two more goals were added in order to address dynamism in society such as environmental degradation and health due to emergence of HIV and AIDS around 1982. The national goals of education are broad-based and specify the country's vision which is to be met in social, political and economic development of the country, through education. As the official policy in curriculum development, national goals of education guide selection of subjects and also selection of subject content. Therefore, they serve as the policy during curriculum development process. The national goals of education also serve as the standard or criteria for assessment of achievement in education in Kenya (*MoE & MoHEST, 2012*).

Sample Competency-based Curriculum Design Excerpt from Grade Three: Environmental Activities

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question
1.0 Environment and its resources	1.1 Weather 5 lessons 1.1.1 Exploring unfavourable weather conditions	By the end of the sub strand, the learner should be able to: Describe unfavourable weather conditions. Observe the effects of unfavourable weather conditions. Develop curiosity in identifying effects of weather conditions in the environment.	Using relevant stimulus materials learners to discuss the meaning of unfavourable weather conditions (floods and drought)- Using multimedia resources learners to play relevant educative games on the effects of unfavourable weather conditions. In groups learners to share experiences of unfavourable weather conditions. Learners listen to stories on unfavourable weather conditions. Learners gather more information on unfavourable weather conditions from Internet, library and	How could weather conditions be unfavourable? What happens when the weather conditions are unfavourable?

			<p>then write a paragraph on each unfavourable weather condition.</p> <p>Learners share the information gathered.</p>	
<p>Core competencies to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy</p>				
<p>Links to PCIs, ESD: effects of unfavourable weather, disaster. Citizenship: social cohesion</p>			<p>Links to values: Responsibility, respect-experience sharing</p>	
<p>Links to other learning activity areas: Language: Listening to cultural stories on weather</p>			<p>Suggested community service: Learners find out from their parents or guardian how to keep safe in unfavourable weather</p>	
<p>Suggested non-formal activity to support learning through application: Learners to develop keep safe messages from school</p>			<p>Suggested assessment: Written work, oral questioning</p>	

Suggested Assessment Rubric

Exploring unfavourable weather conditions	Consistently and correctly describes weather conditions and identifies its effects.	Demonstrates ability to observe and identify effects of unfavourable weather and keep safe.	Demonstrates some knowledge to observe and identify effects of effects of unfavourable weather and how to keep safe.	Unable to demonstrate ability to observe and identify effects of unfavourable weather and keep safe.
Keeping safe from unfavourable weather conditions	Constantly and correctly identifies ways of keeping safe and demonstrates ways of keeping safe from unfavourable weather conditions.	Correctly identifies ways of keeping safe and demonstrates knowledge of keeping safe from unfavourable weather conditions.	Sometime identifies ways of keeping safe and demonstrates knowledge of keeping safe from unfavourable weather conditions.	Rarely identifies ways of keeping safe or demonstrates knowledge of keeping safe from unfavourable weather conditions.

Source: Republic of Kenya, August 2017 Lower Primary Curriculum Designs P.110-111

The rubric, as shown in the table, measures acquired competencies and not just grades.

Innovations in the CBC Curriculum design mirror best practice in pedagogical design. They include core competencies to be developed, interdisciplinary connections, link to PCIs and Education for Sustainable Development (ESD) and values. The CBC curriculum includes a focusing question called the Key Inquiry Question. It is grounded on the core competencies to be developed such as communication, collaboration, critical thinking, problem solving and digital literacy. References to current issues such as the detrimental effects of unfavourable weather and environmental disasters are included as ESD elements. Citizenship and national unity are included as points of emphasis for social cohesion, as well as values such as responsibility, respect and co-operation. Examples of the new features include Language: Listening to cultural stories on weather, as well as suggested non-formal activities such as learners are asked to develop 'keep safe messages' from school (for more activities, see performance tasks). The suggested rubrics for assessment of competencies are a major innovation to assist teachers in assessment (Kenya Institute for Curriculum Development, 2019).

Key Inquiry Question: Why do you think the Key Inquiry Question was added to the curriculum design in the new Competency Based Curriculum? What does it lead the teacher to do? Consider that the addition of the Key Inquiry Question helps to prompt the teacher to ask this essential, open-ended, big picture question. This creates a lesson approach of inquiry, as the teacher guides the students towards discovery of the possible answers. This addition dramatically demonstrates the shift in focus in education toward a more inquiry-based approach and away from the traditional transmission approach. This book supports the teachers in implementing CBC

learner-centred teaching approach.

The curriculum design and the syllabus are supported by curriculum support materials such as textbooks and other teaching and learning resources. Curriculum design and syllabus are used when developing schemes of work from which lesson plans are made.

Schemes of Work

Schemes of work is a teaching plan that breaks down the syllabus into teachable units to be covered by a class in a certain subject area in a specified time. A scheme of work could be defined as the interpretation of the syllabus by the teacher that indicates the specific work the teacher is likely to cover within a given period of school time, either six weeks, a term or a year. A high - quality scheme of work is clearly developed from national school syllabus or the curriculum design. It gives an overview of total subject content by sequencing the learning tasks and connecting them to the suggested support materials such as teaching and learning resources. A teacher will be able to use it as a basis for long-term planning and evaluation of teaching and learning. Schemes of work should be regularly updated to ensure their continuity, use and to capture current situations.

Purpose of Scheme of Work

Schemes of work are prepared at school level and they are drawn from the National syllabus or curriculum design and following it hence ensures that the national curriculum design or syllabus are followed. Schemes of work is used by school administrators to find out whether teachers are following the official syllabus or curriculum design and also keep the administrators informed of where a teacher is within the scope of the curriculum, and how much is still left to be covered before examinations. In addition, learning across the stream could be monitored and common stream examinations could be prepared based on coverage shown in schemes of work.

For the teacher, schemes of work guide teaching and learning in the classroom. They provide an overarching framework to inspire a teacher to plan ahead, to create the teaching and learning resources before they are needed. It is from schemes of work that teachers draw their lesson plan. Teachers also use schemes of work to sequence the teaching and learning process. In addition, a teacher who might need to be taking over a class from another could check schemes of work coverage to get where to start from.

How to Prepare Schemes of Work

Components. The schemes of work are a teacher's strategic plan outlining the week in the term and the lesson to be covered in the week, the topic or strand and sub strand to be covered, and the objective or expected learning outcomes to be achieved by the end of given time. It also indicates the teaching and learning activities and experiences which should include teacher's activity and learners' activity. It also contains a description of the teaching and learning resources, assessment, references and remarks. Basically, the schemes of work is a summarised forecast of work for a class to cover within a given period of time from topics that are already set in the syllabus. By checking it, the school administration is able to find out whether the teachers are following the national syllabus and curriculum design, and also serves those other purposes as outlined earlier.

Before preparing schemes of work, you need to thoroughly study the syllabus or curriculum design in order to interpret it accurately. Identify how to break the content up appropriately to ensure achievement of the set learning outcomes or objectives within the lesson time. In order to decide the pace and activities, seek to know the learners you are planning for, their ability, culture, age and background. Also, consider your learners' previous experience, what they already know and do not know, so that you could link up and make a smooth flow. In addition, you should be aware of the available teaching and learning resources. As much as possible, use teaching and learning resources from the environment to support your teaching.

Different teacher education institutions have different ways of presenting their schemes of work but the basic components remain the same; a sample could guide you to develop yours.

Sample Schemes of Work Guide

Week and lesson: Specify week in the term and lesson in the week, such as Week 3 lesson 7

Topic/strand and subtopic/sub strand: Indicate topic or strand or sub strand.

Objective or learning outcome: State general and specific objective or learning outcome. It will guide in construction of specific instructional objective. Example: a learning outcome or objective could read:

By the end of the unit, the learner should be able to:

Write official letters.

Use language of official letters correctly.

Content: Indicates the spelt-out content appearing in the specific objective:

Writing official letters.

Language of official letters.

Teaching and learning experiences and activities: Indicate what the teacher will do to facilitate learners to learn in a sub column and what the learners will do and experience to learn. You could sub-divide into teacher's activity and learner's activity. For example, teacher's activity: teacher assigns group work and checks group activities. Learners' activity: Learners participate in group discussions.

Teaching and learning resources: Indicate the resources you prepared to use when teaching to support learning. They could be bought, acquired, developed by teacher and learner, picked from the environment, cited from a textbook. They should be used to motivate learners and to make concepts clearer. For example, use a sugarcane with natural segments to demonstrate fractions in mathematics.

Assessment: Indicate how learning outcome or objective will be assessed. You could use quizzes, CAT, test, examination and in CBC rubric.

References: Indicate the textbook you referred to or students use in class. Indicate the publisher, title of the book and page.

Remarks: Write brief description of your lesson, touching on a number of issues: Were the planned objectives or learning outcomes achieved? How do you know they were achieved? What was done well? What was not done well? What enabled or distracted? What could be done better in next time?

Note: Focus on what the students learned rather than what the teacher "covered."

At the school level you could work as a department, collaboratively, to develop schemes of work for specific subjects. Teachers should master their own subject contents and understand their learners. Draw the schemes of work from the syllabus or the curriculum design, noting the flow in relation to unit objectives or the learning outcomes. Weigh the objectives in terms of complexity of the action words used in statement of the objectives, giving adequate time to cover them. Master the topics content in order to follow the criteria of moving from known to unknown and from simple to complex when sequencing the topics. Make a decision which topics are best to be covered during a specific time of the year. Some topics are best covered during a particular time of year, for example, writing compositions after December break would give more exciting topics to write about such as *The Most Interesting Event in my Life*. Clearly indicate the time for CATs, tests and the examinations. Consider time for non-formal school activities such as drama, athletics, games, clubs and deduct such time from your teaching time as you plan. Arrange the topics in logical and progressive manner that enhances effective teaching and learning. It will be necessary to choose

appropriate teaching and learning resources for use in class, as well as the appropriate teaching strategies. In the end, you will be well set up with your schemes of work in order to then prepare lesson plans from the schemes of work.

Lesson Plan

Purpose of the Lesson Plan

A lesson is the most important part of education. It is where the learning happens which shapes individuals' lives and determines the quality of a country's education, and thereby, the future of a nation. People are made or destroyed in the classroom through lesson content, management, classroom environment, teachers' attitude and presentation style. A lesson is very powerful. Teachers hold the future of a nation in their hands. Therefore, you should take time to think through the shaping of your lessons.

A lesson plan is a structure, a frame of work prepared by a teacher to act as a guide to the flow of the lesson from beginning to the end. A lesson plan should be drawn from schemes of work which had been drawn from the national syllabus or curriculum design. The pieces build upon one another to support the ultimate National Goals of Education; the three, which are syllabus or curriculum design, schemes of work and lesson plan, are interrelated. A lesson plan should be a brief plan that can be followed by the teacher at a glance while conducting the class during a lesson. It summarises the stages, time, and steps of a lesson; for example, in a lesson of 40 minutes, you could have introduction taking - 5 minutes, body or presentation - 30 minutes and conclusion - 5 minutes. It is critical that you plan your lesson before going to class in order to not waste time, make well thought-out decisions, feel confident and teach well. Not planning your lesson in advance sets you on the path for failing in that lesson. Failing to plan is planning to fail! As an effective teacher, you will systematically arrange activities, resources and teaching strategies to be carried out by you, the teacher and the classroom students in a way that facilitates achievement of learning outcomes or objectives.

How to Prepare a Lesson Plan

In order to write a lesson plan, you will need knowledge of a child growth and development to help you to organise learning experiences. You also need knowledge of psychology, philosophy and sociology. Writing this plan is really the culmination of a teacher's training, demonstrating they have learnt all the skills that go into making learning happen in the classroom.

When preparing a lesson plan, you will need to closely study the relevant part of the schemes of work and close check with syllabus of curriculum design. You will also study the content and research further on it. You might refer to the course book, but also use outside resources including the reputable sites on the Internet, mass media and your colleagues who have taught this before. Your goal is to acquire content mastery in order to be able to convey the big ideas clearly and recreate a structure for your students' brains to hang the individual facts upon (*Wolfe, 2010*). Make sure you master the content before and after this lesson in order to connect with it. You also need to be aware of what amuses and what motivates your learners in order to use appropriate humour. Expand the content, but ensure that the heart of it is simple enough that students can grasp it. The more you understand something, the better you can simplify it to teach for others. There is truth to the saying that, "to truly know something is to teach it." Break up content into chunks fit for different students in your class. The abilities of the students in your class will shape your choices to present the content in the best way they understand. Strive to know your students' strengths, weaknesses, fears, and aspirations so that you might tailor the content to fit their needs and interests. At the same time, you will shape the content and skills of the lesson to meet the expected learning outcomes or objectives which are your guide.

Make it Concept-Based: At this point it is helpful to draw attention to the big picture. While

you have the lesson components from the schemes of work, do not neglect to remember that CBC has added a **Key Inquiry Question** which should drive your lesson. It might be larger in scope than the objectives, and overarch several lessons, thus providing a way to link several lessons together rather than having disjointed individual exercises in learning unrelated topics. Consider the key inquiry question as drawn from a *concept*, which is one word or phrase in very general abstract form such as conflict, conservation, love, integration, sacrifice, human rights, community, or equilibrium (Erickson, 2007). These concepts relate to real life, and will aid you in connecting your lesson with the learners' lives. Real world connections is what gives your teaching meaning and significance (McTighe & Wiggins, 2004).

Instructional Objectives or Learning Outcomes

The learning outcomes in a lesson plan are also called instructional objectives. In your lesson plan clearly state your instructional objectives. Best practice also advises that you inform the students of the objectives or the expected learning outcomes at the beginning of class, either by writing them on the board or announcing them. That way, you and your students will be working together in pursuit of a common set of learning outcomes, and you all know where you are going. You should also be able to know when you reach them. The first step of writing a lesson plan is identifying the objectives or learning outcomes. This is followed by the lesson presentation, plan for the writing board, and self-reflection. We begin with objective or learning outcome writing.

How to Write Objectives or Learning Outcomes: Writing objectives and learning outcome is a skill that becomes much easier over time. After much practice, the verbs used in objectives become comfortable, and you will write them with ease. State very specific instructional objectives or learning outcomes which have to be achieved by the end of a given lesson. In CBC, the term *learning outcomes* is used instead of *objectives* used in 8-4-4 syllabus. Define clearly what you expect the learner to be able to do by the end of the lesson as a result of your teaching and facilitation. You should describe the behaviour the students will exhibit to show that they have learnt. Emphasis should be on what *pupils, students or learners* will do and not what the *teacher* will do. How will the learning be observed? What evidence will be there to indicate that the students have learnt? Indicate these in the objectives or learning outcomes. Here is an example from Form 1 English class:

Form 1 English; Writing 40 min.

By the end of the lesson, the learner should be able to:

List parts of an official letter.

Describe the parts of an official letter.

Explain the kind of language that is appropriate for official letters.

Identify official letters.

Use Action Words Verbs: When writing an instructional objective, use a verb that describes an observable action which has an observable product. Examples of such words are; identify, explain, describe, solve, demonstrate, calculate, assess, evaluate, simplify, write, summarise, present an argument for or against. Note that it is not possible to observe the thinking process and other brain activities such as 'think 'know' and 'understand'. The verb and the objective should be clearly defined pointing to observable end products. The stem of the statement indicates the time frame. For example, we could state instructional objective as follows:

Form Three English Literature: Character and Characterisation

By the end of the lesson, the learner should be able to:

Identify the main character in the short story, *The Visitor*.

Describe the character traits of the main character you have identified using appropriate adjectives.

Use the adjectives which you have identified to describe a person you have known in your lifetime.

Qualities of Good Specific Objectives or Learning Outcomes. One way to remember the qualities of a good instructional objective is to make them “SMART objectives” which is an acronym meaning:

S - specific

M- measurable

A- achievable

R- realistic

T- time-bound

To be effective, instructional objectives or learning outcomes should be learner-centred; describe what a student should be able to do to demonstrate learning by the end of a lesson. Learning should be demonstrated through observable behaviour. Instructional objectives should not be ambiguous. Each lesson should have instructional objectives which should be achieved by the end of the lesson by involving both the teacher and the student in learning experiences and activities. Instructional objectives are stated in a way that the work is narrowed to what can be achieved by the learner at the end of the lesson by setting limits on the content to be covered. They bear the scope, topic and skills, hence the work set for the lesson, and thereby are a fundamental building block for the rest of the lesson plan.

Lesson Presentation

In a lesson plan, lesson presentation should come after the statement of the objective or expected learning outcome. This is the heart of the plan for teaching. It generally has three parts: introduction, development and conclusion.

Introduction (5 minutes). You will have to plan how to introduce each lesson you teach each time you go to class. The purpose of this lesson introduction is to focus the learners’ interest, make them alert and draw their attention. This should not take more than 5 minutes, but it may be the most important five minutes of the class. Without engaging the students’ interest at the beginning, or wetting their appetite for learning, you may have a feast of a lesson go to waste. In selecting a way to introduce your lesson, consider relating the concept you are teaching to the students’ lives. For example, if you are teaching about World War II, your concept or big idea may be “conflict.” You can then introduce the lesson by asking students about a recent conflict, either in their personal lives or in the local news. While the introduction should be related to the lesson, it might be related to the concept or the skill you are teaching, rather than the exact topic. Inquiring what students ate the previous night could be very embarrassing and it is not part of lesson introduction. Taking roll call, too, is not part of lesson introduction. Asking a question about what students learned in the previous lesson is good practice, but not a particularly engaging way to begin the lesson. Choose a more captivating introduction, then ask prior knowledge questions afterwards.

Your lesson introduction sets the pace and the mood of your lesson, it creates an environment for learning that should be positive, enthusiastic and energetic. There are many strategies to use to introduce a lesson which would engage the students. Many of these are discussed in the methods chapters prior to this, but here is a short list:

Present a real-life situation related to the lesson that arouses the learners’ interest and involve them, such as relating an argument among some students which leads to the concept of conflict, leading to World War I.

Refer to some current event in the media that relates to your lesson, for example, the trade conflict

between two countries which has its roots in geography.

Lead a class to sing a verse of a song related to the lesson.

Tell them a short story and ask some of them to complete the story, for example, "There was a time when I was so scared...."

You could display a chart with items related to the lesson then learners say what they see and what it makes them think of.

Bring with you to class some real objects, called *realia*, to have the class predict their connection to the lesson, for example, bring some flowers from the side of the road for students to choose adjectives to describe them.

Use pictures in their textbook to elicit questions from the students about what they might be learning today. Ask, "What questions does this image prompt in your mind?" In doing so, you are training them to be inquisitive and develop a questioning mind.

Lesson Development (30 minutes). Lesson development is the main part of the lesson where the learning outcome is achieved and knowledge, skills, attitudes and values are taught. The learners are facilitated to make sense of what they learn and construct new knowledge. By leading your learners through active learning experiences with different methods, you set them up to truly learn and not just memorise. You must have mastery of content, able to break the content into chunks small enough for each learner to understand; and, you have to involve the interest of each learner, motivating them to achieve your set objectives.

In sequencing your lesson and presenting it, consider the level of the learners, age, ability, nature of subject, amount of content to be covered, weight of the content and the level of the expected learning outcome/objective. Content to be organised and presented from simple to complex, known to unknown. Make the lesson interesting enough to sustain their engagement, while ensuring the atmosphere makes each learner feel valued and respected. You could arrange content delivery into teacher's activity and learners' activity which should be correlated. For example:

Teacher Activity	Learner Activity
Teacher conducts a demonstration	Learner repeats demonstration and performs the activity

You will need to use varied resources and methods to achieve the learning outcome or the objective. The learner should acquire new content, make sense of it, develop it further and construct new knowledge. Repeatedly use set induction to regain the learners' attention, as needed, and relate your content to real life experience and learners' immediate environment as often as possible to make your lesson memorable and significant to them.

For the last part of this sub-section, after about 15 to 20 minutes, emphasise application by using formative assessment strategies such as or question and answer, some problem to solve or a simple written quiz. You need to measure the level of achievement of learning outcome. Keep the learners involved in the lesson throughout.

Lesson Conclusion (5 minutes). Lesson conclusion should be planned for as it comes in the last few minutes which might get easily swept away by not keeping time. While this may seem less important at the very end, it is vital that you send the learners from the lesson remembering what they have learned and anticipating tomorrow's lesson. Engage them in the conclusion by asking several of them to summarise their learning from the lesson, ask a question that they still have, or predict the upcoming lesson. Ensure you do not embarrass any learner; lead those who get it wrong to correct themselves gracefully. Wind up the lesson involving learners and leaving them happy,

wishing it could continue and looking forward for the next lesson. Of course, different lessons will require to be handled differently, but the lesson should be concluded logically, satisfactory and reasonably by you the teacher, instead of the bell ringing to send them to lunch, for example. Even in a lesson where the students have not learned up to your expectation, or it has not gone as smoothly as you would intent, a solid conclusion can often save the day.

Self-Evaluate by Reflection. Conduct an honest self-reflection exercise immediately after the lesson and record your thoughts on the lesson plan in the relevant box. Reflect on how you planned the lesson, the learners’ behaviour and your own behaviour in class. Your comments should include yourself, the teacher and the students, and the teaching and learning experiences. Aim at improving future lessons. Point out positive and the places where improvement is needed. As an example, read this self-evaluation written by a teacher:

The class achieved the set objective earlier than I had planned, so the lesson ended before time. In future, I should plan more activities for this class. They seem to enjoy competition, so I will plan a game to review for next weeks’ lessons if there is extra time.

Plan for Use of the Writing Board. Writing board can be either a chalkboard or a whiteboard, and it is the most used and oldest teaching and learning resource to assist the teacher in teaching the learning activities and content. The modern versions include projecting a PowerPoint or slide presentation or an interactive whiteboard. Having a plan for how to use the space on the board will remind you to use it efficiently, as it aids the students in their notetaking. Commonly, the learners will pay closer attention to something which is written on the board and taught, than some content which is only orally presented. The addition of the visual element not only helps them to remember and process the information better, it also guides them in selecting what are the key parts to remember. In the lesson plan, there will be a chart to use to demonstrate how you intend to present the work to facilitate teaching and learning.

Sample Suggested Writing Board Plan

Class _____		Subject _____	Date _____
		Topic _____	
		Sub topic _____	
Here write:	Here is the main teaching part of the writing board.	Here you could post the teaching aid such	
Spelling			
Examples	Include main points of the lesson. Use it	as: picture,	
Key words,	interactively as you teach. It is a tool for your	chart	
etc	instruction. An outline of your lesson would be	illustration	
	most helpful to students.	diagram or	
	Do not write detailed notes during teaching time.	draw illustration	

Keep the writing board neat. You may want to divide the writing board into work areas as shown in the diagram. On one side write down new words, examples and key words. These should assist the students in spelling as they take notes, as well as alert them to the key terms in the lesson. On the other end, hang your illustrations. Keep the board clean, and do not wipe it with your bare hand, but instead use a clean piece of cloth or a duster to wipe the board. Ensure what you write or hang on the board is visible to everybody. Write on straight line from left to right in legible handwriting. If you are using a whiteboard, you will need to keep your pen capped immediately after writing as you talk to the students so that it does not dry up. Only important points should be written on the board.

It is a good idea to remember not to show learners your back or they may take advantage of such an opportunity to get off-task or disruptive. Keep eye contact on them. When writing, stand sideways at an angle and do not cover the written work with your body. Ensure what is written on the board is both correct factually and has correct spelling. Although you may not be an English teacher, you are a role model for the students and your attention to such details matters. You are underscoring the importance of accuracy, attention to detail, correct grammar and spelling, and effort to make a good impression. These habits of mind and practice will set the students apart as educated and high calibre people.

Use the writing board for noting down students' responses, illustrating main points, defining terms, spelling words that are unfamiliar, focusing learners' attention, writing down questions or directions for group activities and having students work solutions. Do not neglect to use the power of peers teaching. Allow students sometimes to use the writing board. Remember, do not use the writing board for presenting detailed notes but only to give highlights of the notes. If the students are merely copying notes off of the board, they are not really processing or learning the material. They are solely copying words without meaning. A useful approach may be to write a very brief outline – maybe four to five short phrases – on the board in order to aid the students in comprehending the lesson. The brain works better with structure. Giving a visual structure to the lesson will help them immensely. You may refer to it also as you teach, reminding them of the previous two points before moving on to the third, for example:

Use Time Efficiently: Spend time teaching, engaging learners and checking on students' learning but not writing notes. Do not occupy yourself moving from student to student marking their work. The rest will be idle and may become disruptive, and it wastes valuable learning time. If you must, all students should be engaged in the next activity, not waiting for your approval. Better yet, teach them to check themselves or their neighbour's work; this builds accountability for their own learning. Ensure every learner is meaningfully engaged throughout a lesson. A sample lesson plan format is included here to aid your processing of these documents.

A Sample Lesson Plan

Topic _____	Date- _____	Class _____
Sub topic _____		
Expected Learning outcomes or objectives: By the end of the lesson, the learner should be able to:		
Identify _____		
Calculate _____		

Explain			
Lesson Presentation Stages			
Step	Time in mins	Teaching activities such as:	Learning activities
1. Lesson Introduction	5 min	Teacher starts singing a familiar song and learners join	such as: Learners join in the song
2. Lesson development	15 min	Emphasis on the learning outcome, content and skills with learner involvement Teacher activities	Learner activities
3 Application	15 min	Application Teacher activities	Learner activities
4 Conclusion	5 min	Conclusion	Pair work, summary of lesson

Pause to Review and Reflect:

Of all the official documents, which do you feel is the most important? Why?

Which of these documents is the most confusing to you? Why?

Now that you have been introduced to the documents which accompany your development as a teacher, we move on to the next stage: Microteaching. Included with the microteaching description is an emphasis on the development of the skill of reflection, a true mark of an effective teacher.

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CHAPTER 14: Microteaching and Reflection

A Look at Micro-teaching

What is the purpose of microteaching?

How is microteaching conducted?

Before going for Teaching Practice, student teachers attend and participate in microteaching lessons. **Microteaching is a campus-based course where student teachers are taught how to teach in an experiential learning approach.** One student teacher, teaches peers who pretend to be school students. The teacher educator and peers observe and give feedback. As such, microteaching is a popular course because you are finally getting to do the real teaching but in a simulated environment. In fact, it is a real simulation of a classroom, where the other classmates act as school-age students while one student teacher plays the role of the classroom teacher. It is important to make this experience as real as possible, giving the student teacher a taste of standing in front of the class and leading the learning. For many student teachers, this is where it dawns on them that they are really going to assume the role of teaching which they have seen their teacher mentors serve for so many years.

What Is the Purpose of Microteaching?

Microteaching provides student teachers the opportunity to practise teaching skills in a safe environment where students work with other student teachers and receive gentle constructive criticism and feedback from their peers and the teacher educator. This technique developed in Stanford University is commonly practised in schools and colleges of education around the globe, and has become an essential component of pre-service teacher training in most African nations such as Eritrea, Zimbabwe, South Africa and Kenya (*Elias, 2018; Kisirkoi et al., 2008; Majoni, 2017*). Another approach is to record the teaching and watch the recorded lesson later and have the whole class analyse and critique it alongside the student teacher who taught it.

Microteaching has a vital place in the teacher education programme. Student teachers improve both content and methods of teaching, and develop and practise specific teaching skills such as questioning, the use of examples, and teaching and learning resources in order to make lessons more interesting. By watching their peers teach as they sit in the role of school students, the other student teachers are able to see the immediate effects of a boring lecture, a lesson without a set induction, a teacher who writes on the board excessively while teaching. Somehow seeing these mistakes in vivid live action makes microteaching real and memorable, thereby making microteaching a useful teaching simulation whether acting as the teacher or the school student.

Throughout microteaching, student teachers are strongly encouraged to facilitate active learning to keep the learners engaged and their brains stimulated. They also learn and practise skills of lesson introduction, reinforcement, motivating learners to learn, raising their curiosity, sustaining it and closing lessons effectively. Microteaching offers economy in use of resources. It is a valuable teacher preparation method (*Elias, 2018; Majoni, 2017*). The learners practise use of focused feedback. They receive positive criticism giving them opportunity to practise and put in place the suggested improvements in a practising session. Most important, the students gain confidence to face school students during Teaching Practice which follows microteaching. The student teachers practise preparation of official teaching documents and use them as they teach. They also prepare teaching and learning resources and use them integratively with content and teaching strategies and techniques.

How Does Microteaching Work?

Playing the Role of a Teacher. Student teachers on practising microteaching prepare a

schemes of work covering about two weeks, lesson plan covering the 15 minutes, and teaching and learning resources before the lesson. The student teacher, whose turn it is to be the teacher, conducts a mini-lesson of about 15 minutes which is observed by the teacher educator and the fellow student teachers, acting as the school students. To make the lesson short and to enable you keep time, state a learning outcome which can be achieved in 15 minutes and still go through introduction, body and conclusion of the mini-lesson. The lesson introduction must arouse learners' interest by use of set induction and sustain that interest during the lesson development. The mini-lesson should still have a brief conclusion despite its brevity.

In some cases, two student teachers could team up and conduct team teaching. They prepare teaching documents and resources together and take turns while teaching. The dialogue between them whilst preparing is helpful in having a reflective friend even as you plan and prepare. Talking about your learning is a significant learning strategy, so the assignment of pairs for microteaching could have an advantage as the two negotiate their ideas and articulate their thinking with one another.

Role of Peers. The peers acting as school students and also in the class observing the microteaching can be asked to take notes on some particular issues. You might even divide the class into three using numbers 1-2-3. Then all the 1's will write particular feedback on the formative assessments (how did the teacher monitor and receive information about how well the students were receiving the content or developing skills). The other two write on different areas (presentation skills, use of questioning techniques and higher-order levels of questions, for example) and make reports during the feedback session at the end.

Feedback Session. After the lesson, a critique session follows, guided by the teacher educator. Giving feedback on others' work will become a major responsibility of the student teachers. They do not instinctively know how to effectively and appropriately give useful feedback; instead, they must be trained on how to give positive comments first, then helpful "points to grow" indicating the areas where improvement is needed. By participating actively in the assessment of their peers, they are learning skills of giving helpful feedback (*Cude & Kisirkoi, 2018*).

The fellow students give their observations of the positive and negative aspects of the lesson, and offer suggestions and the student teacher conducting microteaching is offered a chance to reply. During microteaching, it is important to mimic as closely as possible the issues and challenges they will face in the field in order to help guide them prior to their being on their own during Teaching Practice (*Majioni, 2017*). Teacher educators should also try to give the student teachers some guidance on reflective teaching and then encourage them to self-reflect. In this way, they are building lifelong learners and reflective educators.

Assessing Microteaching. Finally, a grade is awarded to the student teacher based upon the joint opinions of the performance. A scoring guide is used by the assessor to score the student teacher's work, including the student teacher's ability to plan for teaching as evidenced by the abbreviated set of teaching documents. These are the schemes of work for a few weeks, as well as the daily lesson plan which should be drawn from schemes of work. The student teacher is assessed on whether the stated learning outcomes are SMART: specific, measurable, attainable, realistic and time bound. The learning outcome should be simplified enough to be achieved in the given time. Mastery of content and pedagogical skill is the key point which guides the entire teaching process. Assessment in this case is largely purposeful for the student teacher to gain valuable feedback on where they must continue to focus efforts to improve prior to Teaching Practice.

Reflection Afterwards: After microteaching, an assignment could be given to guide the reflection. Ideally, such an assignment could be in two parts: self-reflection on their own teaching and peer reflection on what they have learnt from their peers. Much useful instruction occurs in the observation and debriefing critique session. Students need to be directed to gain from that experience or they may miss the important opportunity to learn.

Sample Microteaching Reflection:

Reflection questions **after** a microteaching experience:

- What strengths did you note in the lesson?
- How did you check whether the students were learning the content you taught?
- Which skills of teaching did you demonstrate?
- What could be done better and how?
- How did you feel during the teaching? What actions were a result of how you felt?
- What will you particularly work on before the next microteaching assignment?

Reflection questions **after observing** microteaching:

- What can I learn from watching others practise microteaching?
- What specific action or choice did my peer do that I want to mimic?
- What teaching methods did you observe your peer using?
- How did my peer do to bring the lesson to life and capture the students' interest?
- What would I recommend to improve in my peer's lesson?

Reflection in Teaching

What is the Role of Reflection in Teaching?

Reflection is the process of thinking deeply about your performance in some capacity in order to learn from your experience to better yourself; it is a vital component to growing and maturing as a teacher. It is discussed here as this is the beginning point where reflection becomes integral as the student teachers begin to do actual teaching. Therefore, beginning in microteaching, reflection upon practice becomes an essential part of the training process. As such, it is a compelling approach to improving teaching, where the teacher is actively analysing their teaching with the goal towards improving their practice (*Salifua et al., 2017*). Thus, this section is equally important to teachers at all levels, including teachers in the field and teacher educators. Reflection has been identified as one of the most important qualities of an effective educator (*Dreyer, 2015; Meierdirk, 2016*).

Reflection is a tool used by all three persons in the Teaching Practice triad, to enrich and engender best practice in the field (*Ross, 2002*). It involves introspection, or paying attention to one's inner voice, and is part of developing one's identity as a teacher. As such, reflection-*in*-action supports the perspective of a teacher as decision-maker. Farrell (2015) looks at reflection as a compass. Thus, it tells teachers where they are at the moment and invites them to compare that with where they want to go. Thus, reflection is a tool for improving practice, as well as teachers' self-awareness, efficacy, and personal and professional growth.

How to Be a Reflective Educator

To grow as a teacher, you must embrace criticism and feedback and practise a reflective mindset, constantly self-evaluating your performance and thinking through what went well and what did not, and why. By examining your beliefs and your behaviours in teaching, you are able to make changes and improve your skills. Ask yourself: How might I make changes in the next iteration?

Reflective teaching is a cycle which repeats endlessly. Teach-reflect-research new techniques-teach-reflect-REPEAT; in this pattern, the reflection on teaching yields areas of growth or investment for research, which is then done and then applied to the teaching, which then starts the process over. For each step, the teachers ask themselves about the impact on self and students. This cycle might take place either while teaching, or afterwards. Thereby, researchers differentiate between two types of reflection: *reflection-on-practice*, done after the lesson for guiding future

iterations, and *reflection-in-practice*, done during teaching in order to make changes in real time (Ulrich, 2009). Both types are important to developing better teaching skills.

Reflective teaching means that you think about your lesson as you plan, especially about the students and their possible reactions to the lesson. Prepare teaching resources, select teaching strategies and ponder their best use. Consider the students' individual learning differences and how you could possibly handle them. Once in class, reflect on what you are doing well, what you are doing ineffectively. If doing poorly, reflect on the cause and predict a remedy. It may be humour, or it may be using a different strategy. If you are doing well, reflect on what you are doing so well in order to repeat it in the future, and also reflect on how you could improve it. Never blame students; instead, reflect on your actions and attitudes and the role they play in your class. After the lesson, reflect further on how the lesson proceeded. What lessons you have learnt? What went on well? What did not go on as planned? What made it go on so well? What could you do to make it better for the next lesson?

Teacher educators need to recognise that reflection is not an inherent skill, but rather one that must be taught, as Russell argues in his article, "Can reflective practice be taught?" (2005). He suggests that teacher educators should model this stance, reflecting out loud with student teachers as they themselves teach. As the authors of this book, we practice and recommend to teach transparently, sharing your constant deliberative stance and decision-making with the students to model how the reflection in action works, and how you alter your teaching to meet changing needs. For example, if you see students beginning to grow weary and lose attention, reflect out loud with them that you observe this, and what you will do to counteract this, that you will choose to adjust your lesson plan to include a group activity at this point to get everyone moving and talking. This "think aloud" models for students how to self-analyse in the midst of teaching.

Gathering Feedback: Being a reflective teacher means you are constantly analysing how things are going on and making midstream adjustments or plans for the future. It is an appropriate mindset for teacher educators and co-operating teachers, and a goal for their student teachers to embody as well. By considering the impact of your teaching as you are doing it, you model best practice for reflective educators. By writing down your thoughts after you teach, you can revisit them the next year when you are teaching this topic again to make improvements in your teaching.

Reflective feedback can also be given by the students. They might reflect on a small piece of paper (exit/feedback slip) to turn in at the end of the lesson: What was the most confusing point of the lesson? Which method of teaching helped you the most to understand the topic? By reflecting upon their performance on the exit slips or their performance in the class discussion, you can also give yourself the tools for self-reflection and growth.

Having a Reflective Stance: In order to truly benefit from reflection, the teacher needs to have a "reflective stance," meaning, to be willing to be vulnerable, honest, transparent and humble. We all can grow and get better in our work. Committing to self-reflection is not always easy, as we must admit that we also have things to learn (Meierdirk, 2016; Ross, 2002).

One of the struggles with student teachers assigned to reflect is the common tendency to retell what happened in a teaching segment, rather than reflecting upon it with a critical lens. Growth needs the more critical approach to truly supplant poor practice and replace with more enlightened decisions (Dreyer, 2015). To foster accountability in reaching that level of deep reflection, teacher educators need to teach the skill of reflection and model self-reflection in think aloud. We need to facilitate our student teachers to develop the ability to reflect critically, honestly and deeply upon their own teaching. Perhaps reflection is better "caught" than taught. Modelling self-reflection both during our instruction and afterwards, leads by example to demonstrate the advantage of learning from one's own experiences. Reflection supports the old adage that "Mistakes are only mistakes if we don't learn from them."

Thinking about Motivation: In Ghana, a group of three scholars studied the reflection

practices of professors and added an additional element of analysing the motive behind their decisions (Salifua et al., 2017). This deepens the reflection to consider not just outcomes, but also intentions and motives. To help student teachers develop awareness for their own thinking and reasoning process with regards to their motivations in teaching, consider asking these questions:

Why did you make that choice of action?

What motives influenced your decision?

How do you feel about the outcome?

Reflection involves looking back critically with the important goal of moving forward in a better way. In this case, after a microteaching, student teachers could reflect and submit a written reflection outlining what they learned from watching others as well as in conducting their microteaching lesson. The guiding questions offered as a model help to support a reflective stance. Perhaps it is that act of reflection that is most instructive and prompts the true growth of a professional teacher.

Reflective Journaling: Some argue that student teachers need to provide documentation of their reflection on their teaching and the resulting improvements in their practice (Meierdirk, 2016). It is not enough to model a reflection on an isolated teaching event. Instead, student teachers and beginning teachers should be encouraged to keep a journal of reflective practice. This encourages self-reflection on a regular basis, in order to begin integrating it into one's personal habits. Research widely supports the benefit of a journal to instill the value of reflection as a tool for self-improvement (Dreyer, 2015).

Self-Reflective Exercise: Choose some of these to reflect in a journal. Keep it to refer to in a year from now to see your own growth and changes in perceptions.

As a future teacher, or a current one, what are some of the expectations of the role of teacher that inspire you? What are some that intimidate you?

What are some aspects of teaching that seem mysterious? How does that feel to have areas of uncertainty in your future?

What are you most looking forward to?

What goal do you have for your further development as an effective teacher? How will you assist yourself in achieving it?

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CHAPTER 15: Teaching Practice Experience

Congratulations student teacher for making it to a time to practise teaching which is in many ways the climax for student teachers learning experience, and the culmination of the work of teacher educators. Here, all the efforts of the past several years of coursework and training come to fruition and a real teacher is born. It is an appropriately exciting and daunting end of the long journey to become a teacher.

This chapter will benefit all three players in the Teaching Practice (TP) experience: the student teacher, the co-operating practising school teacher and the teacher educator who now becomes the college or the university supervisor. After generally describing TP, its goals and structure, there are separate sections for each of the key players: Student Teacher, co-operating teacher and teacher educator. These sections outline the responsibilities and suggestions for making TP the most mutually rewarding experience for all involved. Ultimately, it will be the school students in the classes who will benefit as well from having the fresh input of a student teacher, effectively guided by the regular teacher and the college or university educator acting as the university supervisor. Well executed Teaching Practice will benefit all.

Introduction to Teaching Practice

What is the purpose of Teaching Practice?

What is the structure of Teaching Practice?

Teaching Practice is an experiential learning component in teacher education course where the theoretical knowledge, skills, values and attitudes learnt in class are put into practice. Research demonstrates that this is the most important part of a student teachers' preparation to teach (Soininen & Merisuo-Storm, 2015). It provides a student teacher the opportunity of teaching *real* subjects to *real* students in *real* classrooms in *real* schools. It is the culmination of three years of efforts to become a teacher. It is the laboratory of teacher preparation in teacher education, usually a unit in teacher preparation course which is assigned higher grades than all the other units. It also serves as a practical examination for student teachers and its scored grades of two units.

Teaching Practice (TP) preparation should *not* start a month or two before the student teachers leave for the Teaching Practice schools; rather, it should start immediately upon student teachers entering their first teacher preparation class at the college or university. It is our view that every teacher educator should teach each lesson, whether theory or practice, bearing in mind that emergent teachers are in the making and carefully observing the way they are taught. Teacher educators should teach theory with the clear goal of preparing students for Teaching Practice.

Partnership with Local Schools

Teaching Practice also marks the point of full integration between the university or college and the school system. Both partners must co-operate in making this experience meet the needs of the student teachers and the schools. Student teachers are attached to specific schools to practise teaching the subject of their specialisation for a full school term. During this time of Teaching Practice, the student teacher assumes responsibility for the full operation of the classroom not only the content delivery and assessment, but all matters involved in teaching in the school.

In working in a real classroom setting, with an experienced teacher, who is called a co-operating teacher, the student teacher gets the valuable opportunity to experience close supervision in teaching, receive continuous feedback and guidance in areas of demonstrated deficiency and practise helpful self-reflection to improve practice. In addition, they get the total school experience of formal, informal and non-formal curriculum, observing and interacting with the school staff and students in the school. It is the laboratory for teacher preparation and the entry point into the profession.

Who is involved?

Teaching Practice involves a partnership of three individuals, who all work together to facilitate student teacher growth into a professional teacher and for the ultimate benefit of the school students, the student teacher will be teaching; you as the **student teacher**, the **co-operating teacher**, and the **university supervisor** make the triad. All is done with care so as not to negatively affect the school student for they must learn without slightest disruption. The collaboration among the trio is essential, as even the host schools will play a role in your success during Teaching Practice. Their partnership with the university plays a crucial role in the arrangement and the needs of the school students they serve must also be seriously considered. It is the host school's generosity, in allowing our student teachers teach their students and some cases pupils, which makes Teaching Practice succeed. Each part of the trio has different expectations and roles to play. This textbook will clarify the different responsibilities, explore some of the challenges and ask the reader to consider fundamental application of the content. Now that we have made an overview of the basic vision of TP, we will turn to each of the three main participants in turn, detailing their roles in developing confident beginning teachers from somewhat tentative student teachers.

Roles and Responsibilities of a Student Teacher

Preparing for Teaching Practice

Expectations. As student teachers, you are expected to be thoroughly ready for Teaching Practice. During the course of your university or college preparation, you will have covered the pedagogical skills and content on teaching, in theory, prepared schemes of work and lesson plans, prepared teaching and learning resources and used them for teaching during microteaching, and received critical feedback on your teaching and reflected on it. During Teaching Practice, you are expected to have thorough mastery of content and pedagogical skills of the subject you will teach, skills for classroom management, including arousing learners' interest in your subject and sustaining it, as well as lesson planning skills. Here, in this sub-section, we discuss with the student teacher addressed as 'you', though others benefit too.

In your Teaching Practice school, you will be expected to prepare a school student's progress record where, after giving students assignments and tests, you will be recording their work and detailing their progress including comments on how they are progressing in the subject you teach them. Of course, by this point, you will be aware of the school dress code and decorum expected of you in Teaching Practice schools. Having progressed successfully through the program of training, you will be well prepared to take up the responsibilities and rewards of teaching in the placement.

Prepare for Getting Feedback. Remember Teaching Practice is a practical examination for student teachers. As a student teacher, you should expect to be evaluated and your work given critical feedback, with the aim of improvement. You will be graded based on your performance. As a student teacher, learn to accept critiques and criticism and take them positively. Some comments could be painful to hear, and very directly critical. However, you should learn to swallow them with humility and focus on what you can glean from them to improve yourself. Remember you are a student, and this process of becoming a professional always includes missteps, mistakes, revisions, and critiques. No one escapes this pruning and shaping of their skills, later you will come to appreciate the process as necessarily purposive and developmental. Finally, you will be awarded a grade and no one can graduate without getting a good grade in Teaching Practice. Do not worry, if you follow guidance, you will certainly perform very well!

Arranging Teaching Practice School Placement. Your university, college or other learning institutions may identify schools for you to practise teaching; or, you may be given some freedom and expected to make your own arrangements with a school near your home. Your learning

institution will also be consulting with the administration and your co-operating teacher and making regular visits to see how you are faring. Make sure the school is accessible. Most preferable the school should be along a tarmac road. Well-behaved students in a school are also a factor to consider.

The teacher educator in charge of your zone will visit the Teaching Practice schools for introduction and to create a rapport with the administration. Your TP school will need an official letter from your institution before accepting you in their school. The school principal or head teacher will need to be visited for a talk about the presence of Teaching Practice students in the school. That way, your learning institutions' zonal co-ordinator will give a list of students from your institution who are to be expected in the TP school. The list should indicate the subjects the student teachers are to teach, identify the co-operating teachers and have a word with them. The zonal co-ordinator will ensure every promise made to the school is kept. The students should report to the school as agreed.

You need to acquaint yourself with the set-up and dynamics of your Teaching Practice school. Creating and sustaining a good friendly working relationship with such schools is a primary requirement. The role of your institution in getting you attached is crucial. Secure a school which is convenient to yourself and the university or college supervisors. The activity is a daunting task; therefore, one needs to be in good physical health. You also need to be neat according to the dictates of the Teaching Practice school and of untainted character. You must pay royalty to your Teaching Practice school. You should already have begun preparing Teaching Practice official documents to be ready when needed.

You need to be fully ready to proceed for Teaching Practice. Among other courses you should have covered General Methods and Principles of Teaching, Specialised Subject Methods of Teaching and Microteaching. You need to prepare schemes of work and lesson plan from the syllabus and curriculum designs, whichever is appropriate.

Getting Started at Your TP Placement School

You should report to the Teaching Practice school as agreed with that school. In some schools, you would be expected on opening day, and you will attend the school assembly and staff meeting if invited. In other schools, student teachers report to their TP school a day before opening and then they hold their first staff meeting in the term. Follow what is done in your TP school, without concern for how it operates in other schools. This is a school-based decision. By the time you are reporting there, your focus will be on following the procedures and routine of your TP school to the letter without making demands of favours given to TP students in other schools. Your loyalty belongs there, and your good-hearted service, remember to exceed expectation. Remember, you are a guest, and your purpose is for the school students' benefit ultimately and for you to pass the TP with high grades. Some student teachers get employed by the TP schools. Gratitude serves well as you approach the school which has agreed to host you. Be courteous to those in the school at all levels, from the head teacher and principal to the gatekeeper.

Case Study

It is Monday morning. Furaha receives a call from the supervisor informing him that she would be coming the following day to observe him teaching Biology. He had planned to teach the Form Two West students a 40 minute Biology lesson on the topic "The Digestive System". Now he is wondering if that is the best choice since there are some students in that class who have behaviour problems. Imagine you share a room with Furaha. He is your best friend and your pair mate during class work and during microteaching in campus. You teach the same subjects. He comes in the afternoon and shares that information to you. Both of you have a free afternoon from duty.

Pause to Review and Reflect:

Write five most important points of the advice which you would give Furaha on how to prepare for the following day's TP assessment.

Explain to Furaha your own experience when you were in a similar situation.

Note that the Teaching Practice unit is the most important part of your teacher preparation course. There would be no progress in your teacher education without passing it, and it cannot be replaced or complemented by any other. The fact that you are studying and preparing yourself for TP researching and reading this book, makes it most likely that you will certainly succeed in TP.

Student Teachers' Attitude and Conduct in TP Schools. Remember, all schools have their own unique culture. Observe the culture of your Teaching Practice school and adhere to it. Be wise and work to be accepted by the school administration, students, teachers and the parents. Learn peoples' names and call your colleagues respectfully by name or title with respect as appropriate. Observe the dress code, the way teachers relate to one another and to the students. Make wise decisions, though, not always following what an individual teacher who works there does, as they may be freer than you ought to as a Student Teacher. Quickly learn your school procedures and routine and keep to them. Attend to all activities as needed, such as assemblies, meetings, parent visits and special events. Be a model of punctuality: attend class on time, keep to the deadlines, keep time. Get involved both in class and out of class activities; the formal, informal and non-formal school curriculum. You may also be on duty one week, so be sure you are clear about what responsibilities will entail so that you can carry them out properly.

Attention to such details can make the difference between a good reputation and a poor one in the school and community. You will set and mark formative tests for your class, yet, sometimes the co-operative teacher and the department members may set tests; in such a case, observe keenly and learn fast. Mark tests and keep a student progress record. You may, too, have to set, administer and mark school exams. You will have to do as expected and you should be reliable. Mark and make marks entries with diligence to detail as required. You will also need to display initiative by offering to help; go the extra mile. That is really the nature of being a teacher, to go the distance in whatever is necessary to help build the positive learning environment of the school. Volunteer to carry out duties inside and outside your assigned classroom, and ask what *more* you could do to improve educational experiences for your students and to serve the school.

In addition to doing all that we have detailed, you will need a lighthearted attitude of positivity and a commitment to give yourself a break. Do not take yourself – or your inevitable mistakes – too seriously. Resisting the prevalent habit of complaining which could make the heavy burdens more unmanageable. You must fulfill the expectations of your co-operating teacher *and* your supervisor and your campus. In this regard, you will have to arrive early in school each day and remain there until the end of day unless you have permission to be away; in that case, you will need to make your co-operating teacher and supervisor aware. You will cover teaching content as assigned to you by the co-operating teacher as assigned by the school, and where you are not clear of the expectations, consult someone to clarify.

Prioritising Clear Communication. As a teacher, you will need to be an effective communicator. Besides communicating content to your students, you will also be communicating with your colleagues in the staffroom, your co-operating teacher who will be mentoring you, your university supervisor and even parents of your school students at times, if need arises. Of course, you may also be talking with your fellow student teachers, workers in the school, other community members, and any others who you will work alongside. Clear, honest, respectful, and appropriate communication is always the first step towards understanding, improving and growing as a teacher. Actively seek to ask questions where you are not clear. You could ask your supervisor, co-operating teacher and your fellow students. With fellow students you could work collaboratively in lesson preparation, or even securing living accommodations in your placement school's location.

Clear and open communication will solve many problems before they even begin.

You may need to help one another look for a cheap house in a safe environment. Learn to help one another with your university fellow students and look out for each other. You may also get such assistance from school colleagues, teachers and your co-operating teacher. Learn also to live at peace with the community. Act wisely, as you are a representative of your college or university. You may be the one people are watching to see how a university student behaves in the community. Be a positive role model who makes wise and ethical decisions, lives a moral lifestyle, and models kindness, fairness and generosity; that will speak well of the value of education.

Making the Most of Teaching Practice

Observing and Co-teaching. One of the most valuable parts of TP is the opportunity to observe other teachers. Teaching Practice is the time you ought to take advantage to learn from as many mentors as you can, not just your assigned co-operating teacher. If it is alright with the school, try to observe many different styles of teaching and classroom management from other teachers and even teach together in class at the same time, parts of the same topic to achieve same learning outcome as you co-teach. Keep notes in your journal and reflect on the differences you observe, and the powerful learning this affords.

You could request your co-operating teacher to go to class with you so that you could observe them teach. One of the best learning opportunities is to experience co-teaching together with an experienced teacher. As you get to know each other and learn each other's patterns and instincts, it will become easier. At first, you can watch the teacher teach and then copy what they do in the next class. Then be sure to debrief with them afterwards to compare your impressions and high or low points. Learn as much as possible from your co-operating teacher. This is your best opportunity to learn on the job.

Preparing for Supervisor Visits. When the supervisor is coming to assess you, be ready for their visit. Be careful to note the days you expect supervisors and alert the school as well. Your supervisors will be your visitor and you will be their host. Be sure to introduce them to the principal or deputy principal. They need to bond with the school. They may not know how to navigate the compound, so you may need to guide them to your class. Once in your classroom, quickly direct your supervisor to the place you have prepared for them to sit. Ensure that they have a table in class and a seat, as they will need to write. Do not meet supervisors for assessment outside the school compound.

Being Responsible. You will need to be responsible because the task of Teaching Practice is daunting. You will be assigned content to teach by your co-operating teacher, therefore, you must prepare your lesson plans from the school schemes of work, curriculum design or syllabus. Then prepare teaching and learning resources, and do not forget to actually use them in class. You will give assignment marks and keep students' progress records up to date. You will give examinations, mark and record marks, among many other paperwork duties. You will organise your work in a file for easy retrieval and have it ready for your supervisor.

Your appearance could make you fail to get a Teaching Practice school or even have trouble practising in many TP schools. In Kenya and many other places, there is unwritten dress code in schools for men and women as we have repeatedly said. Be certain you are exceeding the expectations for teachers on appropriate dressing. Use polished language acceptable in your school and observe teaching and learning ethics as stated in the school and in Teachers Service Commission Code of Conduct and Ethics and fit in your school culture. Do not be lured to do anything wrong; keep your morals upright! Other school teachers, villagers or people around you could aim at diverting your attention. Keep focused to your responsibilities.

There are multiple expectations of you during Teaching Practice, but you are well prepared

and capable. Many have endured before you and many will come after. This is only a small part of your teaching career, but one you will not forget soon. Consider it an adventure, and you will have stories to tell in the future! Give yourself some time to allow for mistakes, as they are inevitable; as they say, "The only real mistakes are failure to learn from mistakes."

Requirements of Teaching Practice

Setting Your Classroom Well. Remember, as the student teacher, your classroom appearance is part of the examination. You are the master or mistress of your class. It is in your hands. The context of learning is very important, therefore, make sure the classroom is clean and the physical environment is conducive to learning. Organise seating arrangement in a way that students can see one another and the teacher. Hang important eye-catching teaching and learning resources on the walls. Create talking walls.

More important than what is hang on the walls, though, is the climate of the room. Your manner will determine the mood and the learning environment in that class. Your enthusiasm will spark the class, along with some sense of appropriate teaching humour, to be likewise enthusiastic and excited to learn and participate. Let the classroom climate be conducive to learn, free and friendly.

Following Regulations. The only employer of teachers in Kenya after graduation and qualifying is Teachers Service Commission (TSC) of Kenya. However, a large number of teachers are employed by the school Board of Management and private schools, even though the ultimate goal of every teacher appears to be employment by TSC. Teachers Service Commission regulates teaching in Kenya. Every teacher must master TSC Code of Conduct and Ethics for Teachers (2015) and TSC Code of Regulations for Teachers (2015). Each teacher must adhere to TSC standards and register as a teacher with TSC immediately upon graduation.

Specifically take note of TSC Code of Conduct and Ethics (2015) stating that a public servant, which include teachers, should maintain professional competence, protect and promote human rights of students without discrimination, evaluate students honestly on basis of their performance. There are also strict moral codes about the behaviour of a teacher. You must realise that you are a role model and in a place of authority and influence. Use your position of respect to influence in positive, healthy ways. Refrain from sexual activity with a student, nor pressure students for sexual favours or flirt with a student. Never supply pornography materials to students or help them access pornography; a teacher should also not supply illicit drugs to students or assist them to access them. A teacher should not sexually harass a member of public or a fellow staff member. Furthermore, a teacher should observe official working hours; they should not be absent from duty without proper authorisation and reasonable cause. A teacher shall ensure the safety of all learners under their care (*Teacher Service Commission, 2015*).

Cultivating Good Relationships with Placement School. Your conduct and behaviour in the Teaching Practice school is the greatest determiner of the relationship between the school and your institution. You are the ambassador of your university in that school. Work hard and leave a good name for your university. Attend to all school activities as assigned to you, and teach in the effective teaching methods we have described, and you will leave a positive impression. Have model behaviour so that there is no complaint, but only compliments which will create a positive reputation for you and your school. Some students get employed by their TP school immediately because of their excellent work and behaviour. The schools even ask for more student teachers from that university whom they absolve in their school as BOM employee, and later recommend them to Teachers Service Commission, followed by an interview and employment in the school.

Reflecting during Teaching Practice as a Student Teacher. Your university supervisor or teacher educator will ask you to submit various reflections on certain specific topics over the course of your placement. These are designed to instill in you the essential practice of being a reflective teacher. As you complete them with honesty and sincerity and discuss them with your supervisor,

you will become committed to the value of personal reflection as a teacher.

In addition, it is recommended that the TP supervisor keeps a written record of the students' misinterpretation of content, how the supervisor responded to various challenges, the decisions made and their effects, among other notable incidents.

Engage Positively with Parents. Parents play a crucial role in their children's lives, and they should be engaged in the activities of their children while learning at school. Parents are the child's first teachers and they continue to be their strongest advocates because they know their child the best. They should contribute to the learning of their children beyond meeting the cost of their education, feeding and taking care of them. The parents could be invited to hear the progress of their children and how they could help with school work when children are at home. The most important part a parent plays, besides physically getting a child to school, is their overall support and belief in the value of education. If you can encourage that, then their children can go far.

You may have opportunities to meet the parents or talk with them. You can encourage their support by always starting with the positive when you have a conversation with a parent about their child's performance. Comment on the strengths of the child in specific examples you have observed. In these cases, it is helpful to even have anecdotal notes that you refer to which describe what goes on in your class each day. If you can see a note about how you noticed Julia's group working so well together in cleaning the compound last week under her leadership, mention this to the parents with pride. They will take the clue from your tone and emphasis. If you have a note about when Kimani went out of his way to help another student, mention that to his parents with pride. After an initial warm greeting and mention of a positive note, then you can share your concern. Be sure to return to the positive and your hope and vision for the child's growth at the end of your conversation.

Do not misunderstand a parent's absence from teacher-parent conferences as disinterest. Some parents are hesitant or intimidated by the school itself and may not come to a meeting. Assume that parents want the best for their children, because they do. Model and encourage respect for parents and elders among the youth that you teach. This is crucial to the social fabric of a culture, and your role in this is impactful.

Finding Help: Where can you go to look for help when you are stuck? Your co-operating teacher, other teachers and administrators, as well as your supervisor, are all members of your team who can, and should, help you. Do not underestimate the value of collaborating with your colleagues to help you in these times. Additionally, you can ask students. Students can inform you which methods are helping them to learn. Sometimes they will learn best from the things they most enjoy, and other times, challenges and hard work may be less enjoyable, though still valuable.

Roles and Responsibilities of the Co-operating Teacher

Who is the Co-operating Teacher?

Co-operating teachers are experienced school teachers assigned to the student teachers who are reporting to that school. Unfortunately, in some countries in Africa, there is no co-operating teacher. In those cases, the student teacher should wisely identify an experienced teacher and try to become friends and get help from them to learn as much as possible. As the student teacher becomes licensed and gains years of experience, they can then offer themselves as CTs to mentor new young student teachers entering the field for Teaching Practice and change the situation gradually.

Co-operating teachers will walk with the student teacher through the Teaching Practice journey, playing the role of advisor, mentor and colleague. The co-operating teacher should be a qualified, carefully chosen teacher who teaches the subjects the student teacher is specialising in. The role of the co-operating teacher is vital to the development of new effective teachers by serving as mentors to the student teachers through the most challenging and rewarding part of their

training. In some countries, TP is very serious, and the co-operating teachers are chosen for their expertise and given further training and opportunities for advancement (*National Academies of Sciences, Engineering, and Medicine, 2018; Soininen & Merisuo-Storm, 2015*).

What are the Responsibilities of the Cooperating Teacher?

Orient the Student Teacher. One of the cooperating teacher's first significant responsibilities is to induct the student teacher to the school routine and to facilitate the student teacher to participate in school activities throughout the period of Teaching Practice. The co-operating teacher will need to prepare their school students to accept and co-operate with the student teacher, and accept the student teacher as a co-teacher in the classroom with full authority and responsibility. The welcoming, generous tone and acceptance of the co-operating teacher will set the students at ease, and be a model for them in accepting the authority of this newcomer guest, the student teacher.

Working in Close Relationship with the Student Teacher. The co-operating teachers (CT) will need to understand professional learning needs of the student teachers, supporting them in many areas during their time in the Teaching Practice school. The CT will facilitate a transition to full teaching responsibilities by helping student teacher to plan for gradually taking over the teaching of partial lessons, then full. Therefore, it is imperative for the co-operating teacher to be experienced and competent in their content knowledge as well as their pedagogical skills. It is from the co-operating teacher that the Teaching Practice student teacher can gain practical hands-on experience of solving the day-to-day problems that arise in the teaching process which could not have been covered in campus theory classes. No amount of university class theory can surpass the advantage of having a practical placement to try out the pedagogical skills learnt in theory.

The relationship between the student teacher and the co-operating teacher is crucial to the success of the whole Teaching Practice placement, and ultimately to the student teacher's progress and career. The key objective of the co-operating teacher should be to facilitate and support the student teacher in their pursuit of becoming the best teacher they could be. If the co-operating teacher works closely with the student teacher, they will develop mutual trust. The co-operating teacher might also benefit from exposure to the latest best practices which the student teacher is bringing from their university and college training. In this way, both the co-operating teacher and the student teacher benefit. The co-operating teacher will also get new teaching ideas from the student teacher. Both could conduct team teaching sessions and classroom observation. The co-operating teacher could model the best teaching practices they have found successful in their own experience. Co-operating teachers (CT) should take their roles in supporting the student teacher with the teaching process very seriously.

Co-teaching and Modelling. During Teaching Practice, the co-operating teacher should be modelling to the student teacher the best teaching practices and guiding the student teacher on all the aspects of teaching and learning of the subject of specialisation. They could co-teach where both of them are in the same classroom, passing the responsibility for the lead teaching back and forth. The co-operating teacher could model best teaching methods and strategies which the student teacher picks up. The student teacher is capable of copying the methods and teaching of one lesson into another, and thereby learning on-the-job how to put all the pieces of the art of teaching together skillfully.

The advantage of co-teaching is the ability to debrief and converse about how the teaching went afterwards. Perhaps the CT would share the moments of decision-making, or the ways they would alter the lesson next time. Together the CT and student teacher could analyse the lesson taught and learn from the reflective practice (*Ross, 2002*). If the CT is willing to be transparent, they could model reflective teaching, by sharing their self-assessment and processing about the lesson. Once the student teacher has taken on the teaching in at least one subject, the co-operating teacher could observe the student teacher teaching in class, then be available after the lesson to reflect with the student teacher on improvement, focusing on how well the school students learned. Even small

issues such as right responses to interruptions, corrections of students, and handling of disruptive incidents are all food for discussion between the CT and student teacher, as that provides the benefit of learning on-the-job from a mentor teacher.

Helping as Needed. The co-operating teacher could assist in setting up the learning environment, helping some students catch up, and facilitating the student teacher to also help the struggling learners and fast learners, generally facilitate the student teacher to cope with complex classroom teaching dynamics. As the student teacher quickly becomes accustomed to the ways of the school, the school students should definitely be learning. The co-operating teacher is the official teacher of these classes, and thereby, should feel some responsibility to ensure that the students will not suffer for having a novice teacher. If some are not catching, the co-operating teacher could help them and provide a model for the student teacher to help them. This could include simplifying content for them, giving them alternative methods to learn the content in a smaller group or individual setting, helping to correct misunderstandings and misconceptions to catch them up with the others. If some handful of students have done very poorly on a test, they could work with the student teacher in a small study group to identify why they missed so many and correct them.

By handling some of the administrative responsibilities at first, the co-operating teacher can ease the student teacher into the world of teaching with all of its many overlapping complexities slowly so as not to overwhelm. Otherwise, it can become too demanding as a novice to accomplish the expectations of administration, teaching, meeting individual needs, students with certain disabilities, making future lessons and managing behaviour in the classroom.

The relationship between the co-operating teacher and the student teacher should always be officially cordial. It should be a friendly teacher – student–colleague relationship. The co-operating teacher should not exploit the poor student teacher in any way, including leaving the class entirely to the student teacher for long as the co-operating teacher engages in personal private activities. The co-operating teacher could be helpful in showing the student teacher how to settle down in the community; this could include guidance on how to secure safe accommodation and shop in cheaper markets, if possible. The student teacher should also show initiative and be a fast learner who is quickly weaned and take advantage to learn as much as possible from the co-operating teacher. The co-operating teacher should then play an advisory role.

Co-ordinate with Teaching Practice Supervisor. The co-operating teacher has also to work very closely with the Teaching Practice Supervisor as the three share the same goal: to facilitate the student teacher to learn and practice teaching skill in school. They should have shared objectives of the student teachers' learning. They will also need to be exchanging ideas in the course of facilitating the student teacher to learn as the school students also learn. Whenever the TP supervisor visits the student teacher, there should be a meeting between the three to share ideas on the student teacher's progress and further assistance that might be needed. The co-operating teacher does not grade the student teacher performance; that is the job of the Teaching Practice Supervisor. However, there is much formative assessment in the form of informal, oral and written feedback which should be guiding the growing expertise of the student teacher as the co-operating teacher observes interactions with students, teaching episodes, marking times, and general adherence to school policies and expectations. The co-operating teacher will need to use a checklist of student teacher performance target to guide in following up the progress and to guide discussion with the TP supervisor as part of the formative assessment process, but not for official grading.

Roles and Responsibilities of the Teaching Practice (TP) Supervisor

Who is the Teaching Practice supervisor?

The teacher educator, from the college or university or other teacher preparation institution, supervises student teachers in the capacity of Teaching Practice Supervisor. This is the campus teacher educator who goes out into the field during the TP semester to the Teaching Practice schools

to support the student teachers as they practise teaching. Specifically, they objectively observe and assess student teachers with a view to facilitating them to improve and at the same time grade their teaching quality using a predetermined criterion.

Multiple Roles. These are the same teacher educators in university and college who have taught and trained the student teachers to become future teachers and enter the teaching profession. They are the ones who prepare and supervise student teachers during micro-teaching and Teaching Practice. Some of them teach the theory content in the teacher education course, others teach student teachers pedagogical skills and others teach them the subjects which will be taught in schools. The teacher educator, serving as the Teaching Practice university or college supervisor, then goes to the field to supervise student teachers.

University or college TP supervisors are in the teaching profession and work closely with the students, the Teaching Practice school, and the co-operating teacher to ensure that the student teachers get the best teaching experience they could ever get. They assess students' work and provide guidance and assistance to the student teacher. All teacher educators have a critical role in preparing the student teacher for Teaching Practice. Rather than considering oneself as a teacher of a particular class or course area, all educators need to embrace their joint goal of preparing their students for this important phase of their learning as future teachers.

Requirements of the Supervisor. In order to perform the student supervision duty effectively, a TP supervisor should have a firm grip of the subject content and teaching skill, an ability to use a variety of teaching strategies, strengthened by use of appropriate teaching and learning resources. They should work diligently to cultivate mutual respect between the student teacher and themselves in order to have a trusting relationship which is the most supportive to receive difficult feedback if necessary. The TP supervisor should have knowledge of how adults and children learn, endowed with effective communication skills, problem solving and active learning skills. The TP supervisor should be able to develop good relationships with the Teaching Practice school administrators, the co-operating teacher and other teachers. TP Supervisors ought to be professional teachers who have teaching experience at the level where student teachers will teach. They carry out student supervision duties with a high degree of professionalism.

What are the Responsibilities of the TP Supervisor?

The Teaching Practice Supervisor's responsibilities are multiplied by the number of student teachers and schools they have been assigned. As the TP supervisor, your university or college will send you out to visit your schools where the students will be teaching. You will be given a list of students whom you will be facilitating to develop teaching skills, provide mentorship and spend some time counseling, one-on-one. As a mentor and facilitator, there will be need to provide all necessary advice, ensure the student teacher is attached to the appropriate school, which will continue throughout the practising period, and that the student teacher has the professional documents ready either before reporting to school or in the first two weeks after reporting for TP. The Supervisor's main responsibility is observing the student teacher teaching. The Supervisor should pay special attention to find out whether the student teacher keenly listens to the school students, encourages the students to ask questions, facilitates their development of competency by applying varied teaching and learning strategies, and facilitates school students to work collaboratively. Ensure the student teacher is approaching the competencies of beginning teachers.

Facilitate Active Learning. The student teachers should be required to use at least some active learning methods which are encouraged by our commitment to best practice, as well as the National education agenda (*MoE & MoHEST, 2012*). And, as Stutchbury (2019) reported, teacher educators from all over Africa agreed that "student teachers [need] to receive more support in 'active teaching'" (p. 146). School students, together with their teacher, should construct new knowledge. For example, all students could be called upon to work in groups to research and freely share ideas and develop solutions to a real-world problem related to the curriculum and their life

experience. The teacher asks a group representative to present ideas from the group and not from individuals, and that way the shy and weak ones feel less threatened. Finally, the class, facilitated by the teacher, decides on the best ways to solve the problem and the class discusses their learning process. The teacher uses the students' ideas which make them feel valued and appreciated. They gain confidence that they could offer something valuable. This is an example of the learner-centred approach and active learning, both of which are encouraged by scholars, policy-makers and administrators in the field. Indeed, Teacher Educators can help change the whole system of education one teacher at a time. In her study on the current beliefs and practices of Teacher Educators in Sub-Saharan African countries, Stutchbury (2019) found broad support for the idea that Teaching Practice can be a "lever for change."

Quality Control. As the TP supervisor, facilitate student teachers to develop qualities of an effective teacher. A particularly helpful set of materials is available free for downloading from TESSA on their website (<http://www.tessafrica.net/>). We strongly suggest you peruse these materials called "School Experience Toolkit: Supporting School Experience Supervisors." Be an example of an effective, learner-centred teacher. A TP supervisor has to model those good attributes and commend the student teacher when the characteristics are displayed in their work and manner. Praise the student teacher for good behaviour and good teaching and name specifically what they have done well. An effective teacher educator is a role model, has respect for student ideas, knowledge, skills and values and does not behave as the holder of all knowledge, but instead respects students' ideas. A good teacher articulates ideas clearly and is a good communicator. That, too, is what a TP supervisor ought to be.

Giving Feedback. The way that you present feedback is critical to making positive change. Always begin your critiques with encouraging specific affirmations. Then, if there is something student teachers do not do well, point it out, and suggest what they could do to improve. Or, better, lead them to realise the shortcoming themselves and suggest alternatives. It is not fault-finding but support for the student teacher. For example, you realise a student teacher is not engaging all students, suggest they use group work. Encourage students that they are capable of doing better in class and give them suggestions of next things they could try. Create hope in them. You could give them examples of what you have seen other student teachers doing in a way that encourages without comparing them.

Reflection as a Teacher Educator or TP Supervisor

Model Reflection Skills. As you are debriefing with the student on their performance of their lesson, you are modelling reflection skills. Teacher Educators need to model their thinking by making it "transparent" and talking through their reflective patterns of thinking (Russell, 2005; Stutchbury, 2019). The research on student teachers suggests that reflection is crucial, but that they need more training in how and when to use reflection in their Teaching Practice (Meierdirk, 2016; van Manen, 1995). The key point would be to get the student teachers to adopt this habit as a healthy practice for continued growth as teachers. Reflection can be "caught" rather than taught. This is thinking about their work critically. How would students behave in class? Why is the lesson going the way it is going? What could I do better? After lesson reflect, what went on well, what did not go on so well? What could I do better and when?

Model this by sharing with the student teacher about how you reflect after teaching your courses at the college or university, how you adapt your course after your reflection, how you re-read your reflections annually in trying to improve your own practice. This shifts the focus from the "mistake" or point of weakness to the act of reflection as a positive way to move forward. Reflection on your actions is always a thoughtful component and fundamental for continued development and fostering self-knowledge (Ulrich, 2009; van Manen, 1995).

Tools for Reflection: Electronic or Traditional Journals. Since reflective practice is an essential component to effective teaching, it would make sense to try to integrate it more fully into

the TP experience than occasional visits by the Supervisor would allow. Should reflection be limited to those times when physical proximity allows the Supervisor and student teacher to be in the same location? Perhaps not. One method to instill greater self-reflection in student teachers is to require weekly reflections which might be brief, but would instill a habit of reflection on practice. For example, you might ask them via a text message to reflect and write on one example from the past week which illustrates the best use of teaching and learning resources and tell me about how the resource deepened your students' learning or not, and why. These answers can then be texted back to you, or written in a journal which gets checked when you visit, but which would have twice weekly or so entries. If texted, or using other social media platform such as WhatsApp, you could even respond to create a dialogue to give feedback. As we have seen, the brain thrives on getting feedback (*Wolfe, 2010*). In modeling the reflective process, you are reinforcing the criteria which mark a lesson as "good" or effective.

Reflection in Teaching Practice. As we have seen in the previous chapter, reflection is a critical skill in teaching. It can be used by any teacher at any time they are teaching, including TP, micro-teaching and college teaching. The reflective educator has a running dialogue with themselves while planning, teaching and closing the day. The teacher reflects while planning the lesson, putting into place the measures to take in case of any eventuality. The teacher reflects while teaching on how the class is well-focused or seemingly bored or confused, and also reflects after the lesson on what went well and what did not, and why.

Teaching Practice Observation and Assessment

Preparing for a Visit. Be prepared to visit the students for assessment for learning. Let the students be aware that you will be visiting them in their school a day or two before you go. This will help them plan for teaching. The planning includes preparation of the teaching documents, schemes of work, lesson plan and students' progress records. The students will also be able to talk to their co-operating teacher and necessary school administrators and inform them of your visit so that they too could prepare themselves to meet you. You could send a text message to the students informing them of your intended visit. In your message to them be friendly and assure them that though you will grade their work, your main concern will be their improvement in teaching.

They should be aware of the assessment criteria even before leaving the university to go for TP; better still, it should have been given to them during micro-teaching. The criteria varies from institution to institution, but attributes of a good lesson remain constant.

Qualities of a Good Lesson. Many attributes fit together to make a good lesson observable by the Teaching Practice Supervisor and the co-operating teacher, but they can be grouped into four main categories. These are the categories to be observed by the supervisor during Teaching Practice assessment: well-prepared with **plans** (official documents required); confident and friendly **teacher manner** (positive relationship with students); skillful **teaching of content** (including engaging the students to make meaning of the content); appropriate **pedagogical choices** (including active learning methods).

Be certain that the lesson arouses learners' interest and stimulates them to want to learn more. Eager learners are a teacher's delight! The lesson must be appropriate for the class, which means in level of complexity and challenge, matching the interests and needs of the students, and appropriate in light of their context, culture and prior knowledge. Flexible lesson plans are important to provide the opportunity for active learning which is always more fluid and spontaneous than a planned lecture allowing for plenty of classroom talk among students in a learner-centred, thinking classroom. Check to see that there is ample use of question and answers for learning, which should include higher-order thinking questions to stimulate deep learning. Also, look for the ways to encourage the hesitant speakers to also participate in the thinking, for example, think-pair-share, drawing your answer, Yes/No cards, and other means. The classroom should include many

teaching and learning resources bringing the lessons to living colour and enhancing the teaching with visuals, including realia and real-world materials. Appropriate instructional methods might include those introduced in the earlier chapters of this book, such as the experiential learning methods. Learners need to be able to make meaning from the content, apply it to their lives, and see a connection between it and prior learning. Effective assessment for learning is key. Appropriate classroom management and friendly learning control are essential for maintaining a positive learning climate in the classroom. In the end, the student teacher will emerge an enthusiastic and confident new teacher, well-groomed to fit the rules of the country and school, committed to creating learner-centred lessons and a self-reflective life-long learner.

The following table presents attributes of a good lesson observed and demonstrated in class as the teacher presents a lesson. It could be used by different teacher education institutions to draw their micro-teaching and Teaching Practice assessment criteria.

REQUIREMENTS	POTENTIAL DESCRIPTORS OR ATTRIBUTES
Official documents	<p>Schemes of work drawn from syllabus or curriculum design, lesson plan drawn from the syllabus: all should show the different subsections and should be related.</p> <p>School student progress record; indicating how students are progressing. The marks column should be more than one. It could indicate progress from one to another.</p> <p>SMART learning outcome</p>
Teacher's manner	<p>Well groomed to fit rules of country and institution; presentable teacher, happy and friendly to all learners; stimulates learners; has good audible and well regulated voice, creative and innovative; classroom management and control skills, enthusiastic, lively. Varies teaching skills, sensitive to learners' needs, has sense of humour, engages learners, pays attention to individual learners, good communicator, innovative, creates lively lessons, creates conducive learning environment, flexible, innovative, values learners and their ideas, listens to them and provides learners opportunity to express their views freely in class. Knows learners and calls them by name, keeps eye contact, assesses learning and uses communicating gestures appropriately, has excellent communication skill.</p>

Teaching skill	<p>Displays excellent mastery of content and teaching skills. Paces the lesson into three distinct sections: Lesson introduction about 5 mins: arouses learners' interest by using curiosity raising, attention-calling creative strategies, engages learners.</p> <p>Lesson presentation about 30 mins: Presents the lesson guided by the learning outcomes or objectives, engages learners, uses humour, addresses the different senses, uses varied teaching methods and strategies such as activities, discussion, song, think-pair-share, and others. Students are involved in pairs, groups and whole class throughout the class time. Link learning to learners' experience, use varied teaching and learning resources especially from the environment, make learning friendly to all. Use stimulus variation to sustain learners' attention. Involve all learners as much as possible. Uses ample question and answers for learning, especially reaching to higher levels of thinking rather than solely recall and understanding.</p> <p>Lesson conclusion 5 min.: The lesson is purposely concluded, involve learners to come up with lesson main points, conduct an activity that summarises the lesson, with class sing a song, perform a dramatic act, recite a poem, mime lesson summary and give a word regarding expectation of the next lesson. Uses modern technology appropriately to support learning.</p>
Other key skills	<p>Make the classroom climate conducive for learning. Provides opportunity for active learning such as allows for classroom talk such as student to teacher talk and student to student talk.</p> <p>Students use critical thinking to solve problems, create improvements, and collaborate with peers. Classroom expectations are clear, leading to a positive classroom climate where diversity of ideas is expected and respected. Controversial topics are handled well, and lessons are well-grounded in links to students' lives and current events, pointing to making meaning from the lessons.</p> <p>There is plenty of visual stimulation in the classroom from teaching and learning resources.</p> <p>Teacher listens to students, caters for individual differences, varies the methods used: visual audio, kinesthetic, learner involved in meaningful interactions. Appropriate classroom management and friendly learning control. Effective assessment for learning and assessment of learning.</p>
Conclusion	<p>The lesson well concluded involving students and leaving them yearning for more.</p>

TP Observation: Arrive in Teaching Practice school before the lesson you are to assess starts. On arrival you may be a stranger in the compound. If convenient, the student teacher could be waiting for you as you arrive. If there is time, meet the school principal, deputy or the subject head. Sometimes it may not be possible with the schedule, but try your best to meet one of the school administrators and sign the visitors' book if given to you. Listen to what they may say about the student teacher, other students and the university or college. Take the chance also to popularise your university or college, hopefully leading to more placements for Teaching Practice in the school.

Since you are meeting the student before the lesson, take some moments to set them at ease and release tension. Assure them that they are alright, have confidence in them and there is no need to panic. Assess class from introduction to conclusion. You should not disrupt the lesson at all. Sit

at the back of the class as the student teacher shows you. You do not have to take time from the instruction at all except when the school students stand and greet you. Respond warmly to the greetings and ask the students to sit down and let the lesson start. Be friendly and relaxed. You might discourage the student teacher from introducing you, as it will waste class time. The student teacher should have advised school students how to behave beforehand.

Listen to the student teaching keenly and, against the given criteria, award marks. You could make some short notes to guide you in making a very fair judgment, to award marks as fairly as possible. Take notes of strong and weak areas for discussion after class. Respect the student teacher to facilitate confidence-building. Pay attention to the lesson without showing emotions. Stay in class till the end of the lesson.

You could record the student teacher during teaching for use in improving teaching and appreciating one's performance after the lesson, as long as everyone is aware and agrees. Stay in class until the end of the lesson so that afterwards, you can hold a meeting with the student. The student could watch the clip and you could pose the following questions:

Which aspects of your teaching did you find strong? why?

Which aspects of your teaching did you find weak?

How could you improve them?

A Case Study of a Teacher Educator and TP Supervisor

I am Dr. Martin Jino. Though I look more like a teenager, I am in my late 40s. I teach Methods of Teaching in Mayani University in Munjor County. I teach from first years to fourth years. I hold a Ph.D in Education, Teaching Methods, Master of Education and Bachelor of Education, specialised to teach high school students English Language and Literature. I taught high school for several years, then worked in our Curriculum Development Centre as the English Language Curriculum Specialist before I joined Mayani University to teach Methods of Teaching.

I currently teach Bachelor of Education students, preparing them to become future teachers. I am the Teaching Practice supervisor in Kasima zone. I have great professional attachment to all students I have ever worked with. They say I am caring and dedicated to see them succeed. They also tell me they highly value my mentorship both in academics and in life, though sometimes they complain that I set very high standards for them. But I believe in them, and they generally respond by attaining those high standards. I eagerly work with the TP schools where my students are placed, as I find that it enhances my own teaching to be in the real school, and aware of what teachers are facing these days. I believe the schools I work with also value my participation, as I have a good rapport with most of the co-operating teachers in the schools. There are a few teachers who are not responsive when I call, and do not welcome me, but I try to make the best of it. If they are open to new ideas, I also mentor them to enhance mentorship of our students in the schools. Whatever new knowledge and teaching ideas I am able to give them will in turn benefit my students when they are placed there.

I facilitate student teachers to conduct proper classroom management and control, as well as to plan for teaching. I observe them teaching and assessing the quality of their teaching, after which we hold an honest discussion where they criticise their own teaching and plan for improvement. I try to always involve the co-operating teacher in those meetings, as I value their input. The major challenge they face is facilitating learner-centred learning environments and use of resources for teaching and learning. This is my challenge, too, to see that they overcome it, and to facilitate them to engage learners in their learning in various active ways.

I try to keep myself updated on approaches, methods and strategies of teaching as best as I am able. I research, write articles and publish, to be accessed by my students and larger public. In order to get more updated in my teaching skills, I attend conferences and online courses such as the Teacher Education in Sub Saharan Africa (TESSA) and other courses on FutureLearn platform. TESSA resources make my job easier, because they help to make learners engaged in learning and give practical experiences of teaching through use of case studies. I find the Internet very helpful to search latest teaching strategies and issues. I get amazed when I go to supervise students and find them imitating the way I teach them. That is the greatest feeling that

keeps me coming to work every morning!

Pause to Review and Reflect:

What do you see as the qualities of an effective Teaching Practice supervisor?

How is Dr. Jino exemplifying these qualities?

In summary, as the TP supervisor, your responsibilities will include observing students on Teaching Practice and assigning them a grade; helping student teachers to develop and prepare schemes of work and lesson plans, and keeping school students' progress records. You will assess student teachers' performance based on the set criteria. Like Dr. Jino, you will be interacting with student teachers to offer mentorship and counselling as required. You could demonstrate a good teaching lesson to support student teachers to improve their own teaching. After you observe their lessons, you must discuss with the student teachers their performance and model reflection while giving guidance. Finally, assign a grade to the student teacher's performance.

Partnership between the University and the School System

University or College Benefits

The School of Education at the university, or the college, benefits as well from this triad partnership of Teaching Practice. If Schools of Education are astute to the benefits, they will make certain that all of their professors and lecturers take part in the practical component in the field. This opens them to the reality in the field, and prevents the "ivory tower" concern that the university is out of touch with "reality" or, in this case, real teachers in real primary and secondary schools. The teacher educator, who is also in the schools for Teaching Practice as a supervisor, is well equipped to bring examples and observations into their teaching from the field. This is a positive outcome, as it makes the earlier campus-bound coursework more directly reflective of current situations in the schools. It keeps the teacher educator well informed on areas of needed growth and also new trends and policies affecting the school system.

School System Benefits

Strong partnerships with the school system will not only benefit the institution of higher learning, but also the school itself. This affords a platform for in-service that can give the teachers at the schools a link to the university and a chance to hear about the latest research and best practice. This improves the schoolwide teaching, which gives the student teachers a better experience, builds stronger teachers, and has many other benefits. With a partnership, the university may design other experiences for the student teachers even earlier in their educational programs. For example, the student teachers may offer tutoring after school or during lunch at a nearby school. These activities can become service learning opportunities from the colleges as part of community service by the undergraduates. It builds leadership and communication skills, competency in the subject areas of teaching, and socio-emotional well-being that comes from volunteering and working with children and youth.

Summary

At the end of Teaching Practice, everyone involved should emerge having learned valuable lessons in the content area and the art of pedagogy. Teaching Practice teachers are enriched with desired knowledge, skills, attitudes and dispositions of effective teaching. You will interact with school administration, other teachers in school, workers and regular teachers. Teaching Practice helps in putting theory into practice. Practical teaching helps a student teacher develop a variety of skills for teaching, while immersed in the real world of working in real schools, in a real classroom environment. It allows observation of strong and weak ways of teaching. It displays beliefs about teaching, attitudes and values, in addition to knowledge and skills. In some cases student teachers secure jobs in the Teaching Practice schools or others due to exposure. And that is precisely what our next chapter is about: teacher induction and professional development once the student teacher

now becomes a professional teacher. This is the next step and the ultimate goal in the development of teachers.

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CHAPTER 16: New Teacher Entry and Continuing Teacher Professional Development

Getting Your First Job as a Teacher

Now imagine, you, the student teacher, has passed university or college examinations, graduated and secured a teaching job in a school you think is suitable. You will find yourself in a new environment where you will need to fit in, acclimatise, and continue growing in order to enjoy your career and prosper. You will realise what matters now is the way you work and relate with others at the school, rather than your certificate. The school students will not be impressed by your certificate, but by the way you teach, interact with them and perform in your subject. The school administration, too, will only be concerned by the way your students perform, the way you relate with the students, colleagues and staff and follow the school routine. The community around you will be observing how you fit in and relate with them. You will learn to keep your moods and any life frustrations to yourself and concentrate on your work to become the best teacher you can become.

Being the Newcomer. Understand that sometimes schools may have a culture difficult to penetrate; it may take time and patience to build trust, but it is worth the effort (*Msila, 2013*). The reactions to you as a new teacher from the students and colleagues may vary. Some students may resist change; other students may embrace change. Some students may be ready for anything from you, because, to them, you are a young lady or young man who has arrived. Some other teachers may belittle you if they feel jealous, suspicious or threatened, and backbite you; while others may be very glad that you have joined them and receive you well. Some staffrooms might have formed cliques with different alignments. The best thing is to be very observant, wise, careful, broad-minded and decisive, and be committed to your work and your school. It is never wise to take sides with those who hold an attitude of negativity toward their jobs or the school administration.

In some schools, there may never have been a teacher in your subject area, and you may be the first to set structures and teach; yet at the same time, you are new and feel as if you are somewhat insecure. Find out what others do and design it to fit your institution. It may feel overwhelming to consider how you will need to plan lessons, teach large classes of school students who appear unwilling to learn, assess their progress, and give them feedback; but you *are* able to do it. This is the culmination of all of your years of training. Take courage in knowing others have succeeded in worse ripples and many have sailed these waters before you.

Earning Trust: As you enter a new school, you are the newcomer and thereby need to earn trust. While the Teachers Service Commission has hired you for your expertise in teaching, others have not seen your skills or recommendation. You must gradually earn the trust and acceptance from your new colleagues. Some teachers may feel that the new teacher might outshine them, especially as you come from the university or college with new ideas and recent training. Be sensitive to this and demonstrate respect for the others ideas, even as you hold fast to the beliefs you have learnt in your training. Do not abandon your commitment to active learning even if you do not observe others in the school with the same commitment. You may even face derision or confusion from those who have not benefitted from the recent pedagogical education which you have. Frequently, beginning teachers fall back into the ways they were taught as school students, or the climate of those around them, and neglect their new learner-centred approach (*Darling-Hammond & Bransford, 2005*). Be aware of this danger and align yourself with others you find for support with more progressive ideas. Create a network of your peers from your training classes or the university and support each other through phone calls, visits and social media connections.

Life Outside of School. Meanwhile, outside your new job, you are also trying to settle down in a new community and get a house in a secure place, but you do not have enough money, and do not want to bother your parents or guardians further or they may be needy. You desire to be independent, and perhaps further your education and start your own family. These are many

challenges facing new teachers. You are not the first, nor the only one. Many teachers leave teaching in the first five years, complaining about lack of support from the school administration, colleagues, students and parents, or that the job is too demanding (*Ingersoll, 2001*). However, if you endure these temporary hardships, you will find that things become easier once you have established your confidence, a positive reputation and a level of trust. You will be settled and gradually make friends among your colleagues. You will know the community and come to care for the students as your own children or relatives. Teaching is a challenging career, but none can be more rewarding than raising up the next generation of empowered young people who have the desirable skills and knowledge, the moral compass and the virtues to make a positive difference in the world (*Ingersoll, 2001*).

Teacher Induction

What is teacher induction? Teacher induction is the welcoming and orientation of a new teacher into a new school and providing support and guidance. Having seen the difficulties of penetrating a school as a new teacher, you understand induction is of great benefit. The main purpose of induction is to give the new teacher a good start in a pleasant, collegial working environment which benefits all teachers. Ideally, effective induction practices will make teachers feel they are well received, and confident that they will work in a friendly place with a safe, free, conducive atmosphere. Induction is necessary for all teachers joining the teaching profession as beginning teachers, or those on transfer from another school; but, unfortunately, in practice, it is rarely provided beyond being introduced as a new teacher during a school assembly. Somehow, after that, you are expected to teach and conduct school chores as one of the experienced teachers. This is one way that schools and administration can improve: by creating an orientation program for their new teachers. There is no one perfect method of induction for all settings, but different schools could design a program which is relevant for their own situations.

Teacher induction serves to facilitate a smooth transition for a pre-service teacher who has just come from their teacher education institution or an experienced practising teacher who has come from another school to join a new school. Researchers report that teachers who feel appreciated, valued and respected are most likely to stay long in the school and the teaching profession (*Darling-Hammond, et al., 2017; Opfer & Pedder, 2010*). If they are supported and provided training opportunities, they are even more likely to remain in the teaching profession (*Kaufman, 2007*).

The school administrator could organise an orientation day for new teachers even if it is only one new teacher. The time could be after school, over tea break or over lunch hour, as teachers take tea or their lunch or during a staff meeting time. The principal could introduce the new teacher and the other teachers introduce themselves. The new teacher could then talk about the previous place and expectations in the new school. Another experienced teacher could talk about the new school routine and expectations of the incoming teacher. This will help to clear any misconceptions and put expectations into realistic perspective of the school. The activity may not be comprehensive, of course, so the new teacher should be assigned an experienced mentor who has the knowledge, skills, willingness, and especially the sense of hospitality and grace to offer quality mentorship to a beginning teacher or a new teacher from a new school joining in. The teachers then should work in collaboration with their peers, constantly mentoring and tutoring each other. All the while, the principal acts as the pedagogical leader and provides the foundation for all staff of trust, support and steering.

Continuing Teacher Professional Development

Purpose. Teaching is a learning profession and teachers will need to keep refreshing, updating and upgrading their teaching knowledge, skills, beliefs and attitudes. You, as a young teacher, may find that you need to link your theoretical knowledge with classroom practice where

you integrate knowledge and skills with teaching methods and resources in class. Teacher professional development is, therefore, a necessity for all teachers – those who are young in the profession, as well as the experienced ones.

Teacher professional development is **both formal, organised programs as well as personal efforts by practising teachers to continue learning in order to improve their teaching practice knowledge, skills and attitudes for the ultimate goal of improving students' learning outcomes.** These outcomes include the 21st Century skills and competencies acted in local and global contexts. As we elaborated earlier in this book, the 21st Century skills include critical thinking, creativity, communication and collaboration, problem solving and innovativeness. As COVID-19 ravages the world currently, awareness and response to global crises has become a critical skill for all learners. The dynamic needs have led to teachers having to innovate and teach in new ways which they were not taught in school or teacher-training institutions, such as migrating to an online or virtual teaching platform. Students should be taught in a manner that would prepare them to navigate in whatever circumstances they find themselves in. The dynamic needs also leads to curriculum reviews by many countries which teachers have to implement in new ways; they were not taught in school or in teacher training institutions. Teachers as a matter of urgency have to unlearn teacher-centred skills which they had learnt and learn active learning methods of teaching. This learning could be through variety of means such as taking online courses which include Massive Open Online Courses (MOOCs) or through organised school-based teacher professional development endeavours and personal private reading.

The Need for Continued Teacher Professional Development

Teacher professional development is referred to as in-service for teachers who are already in the teaching service and it is different from pre-service training in teacher education institutions for beginning student teachers. Teacher professional development should be a continuous process because, as we have said, teaching serves a dynamic society and the needs keep changing, so the teaching skills must also change to meet those new needs. As a professional, you will realise the need to keep improving your teaching skills, especially as more research evolves and new ideas of best practice emerge. Self-improvement is an ongoing pursuit. Current studies, even in African countries like Nigeria, Kenya and South Africa, have found the need for refreshment of skills of existing teachers to keep pace with the changing expectations in society, the recent research on pedagogy and the new standards of education (*Ajani & Govender, 2018; Zide & Mokhele, 2018*). Research in teacher education has established that teacher preparation and professional development are key building blocks in developing effective teachers, which directly affects students' learning achievement (*Anamuah-Mensah & Cullen, 2013; Darling-Hammond, 2017*). This shows that teachers should strive to always be the best teachers they could become by constantly improving their teaching.

In the traditional theory, teaching was simply transmission, but now we know there is emphasis on active learning in a learner-centred environment. Technology has come to the classroom, and brings with it both solutions and problems. Access to knowledge has exponentially increased, and now there is greater need for an ethical framework for decision-making in how to apply and evaluate that knowledge. All learners of the 21st Century need less “spoon-feeding” and more training on how to find and identify good “nutrition” and search for knowledge. We need to prepare them to become independent thinkers, knowledge creators and innovators. As teachers, we have to adapt to change, focusing on the present and the future. This calls for us to also learn dynamic teaching strategies and drop the old ones.

Building Teachers' Effectiveness. You are already a trained teacher, but you will need to continually develop professionally to become an even more effective teacher. Effective teaching is measured by students' performance on learning outcomes, meaning you will be called an effective teacher if your students' learning achievement can be directly attributed to your teaching. For

example, you will be considered successful if it is demonstrated that, since you started teaching a specific class of Form Three English, their writing skills have improved. Perhaps, their written work is now generally clear of grammatical errors which were numerous before you started teaching the class. It is also good if it can be said that your students are always punctual in class, submit their work in good time and have stopped idling and bullying the lower classes. Then, your teaching has clearly and visibly impacted the students' knowledge, skills, and even their attitudes which can be seen in their work and their behaviour. Student academic progress and behaviour is the yardstick by which teacher quality should be assessed (Coe *et al.*, 2014).

While achievement is important, teaching involves so much more than academic knowledge. This is a lofty goal which not all teachers are ready to attain. How, then, do we empower teachers to be able to improve their teaching performance? The key is continuing professional development.

Qualities of Effective Continuing Teacher Professional Development

To be effective, professional development for teachers should be collegial in nature, involve the teachers in setting their own goals, be taught in an interactive, learner-centred method and include application to the learning setting.

Chosen by Teachers. Current trends in teacher professional development prioritise teachers' needs and involve the teachers themselves in designing the training objectives to meet their own teaching needs (Opfer & Pedder, 2010). This is a persistent finding in the emerging research in European, US, as well as in African contexts: the need to involve the teachers in designing their own professional development and identifying the growth areas they want to work on (Ayodele, 2018; Zide & Mokhele, 2018).

Successful teacher professional development should be measured by improved teaching in class, learners' achievement of learning outcomes, greater teacher content knowledge, better pedagogical skills, and increased self-confidence, professionalism and commitment to professional growth. The best teacher professional development should also be aligned to a country's national school curriculum. It should reflect actual classroom application, supporting the teachers' classroom needs in support of student learning outcomes (Darling-Hammond, 2017). The presentation style of the training should be active learner-centred, modelling the way teachers are expected to teach in class. Therefore, it should equip teachers with deeper understanding of their subject area and pedagogical strategies, as well as deepen their understanding of how students learn, reflecting current brain research. Professional development of greatest effect should provide teachers opportunity to implement what they learn immediately which promotes school-based teacher professional development where teacher learn at school and practise what they learn immediately. The teacher should prepare teaching and learning resources as a part of the training class, demonstrate their use, and then be able to use them in teaching their own students using active learning, learner-centred strategies, thus making their own learning applicable and relevant.

A case study is included here as an example, illustrating how active teaching methods could be used in professional development to help teachers conceptualise how to engage learners in learner-centred experiences. Activities such as this could be used in a continuing teacher professional development session and teachers could then use them in class. In this example, the leader of the professional development seminar, Jama, created an activity using sequencing skills and analysing flow of language when teaching 'Reading' in an English Language lesson. She invited the teachers in the session to try out the activity before they took it back to their own students.

Case Study for Professional Development

The presenter, Jama, showed the group of teachers of English language how one could make learners active in a reading lesson for Form One or Grade Nine. She divided the teachers into five groups of five members each, and provided each individual in the group a paragraph drawn from a continuous story, jumbled up. She then asked the teachers to study the paragraphs to make the story flow. The room was quiet for a moment as each teacher was silently reading their paragraph. Then discussions followed where teachers

exchanged the paragraphs and tried to figure out the flow, until they agreed on the flow of the five paragraphs put together as one piece. When all groups were ready, a member of each group was given a chance to read their agreed piece to the other groups. The others commented on the flow. All the five groups read their pieces and agreed on the final flow of all of them, which made a complete story. They then organised a play where each group acted their part in front of the whole larger group in a short drama. The teachers were delighted to participate in the session actively, rather than passively occupy a chair for a lecture-based presentation.

In the conclusion, Jama asked the groups to discuss how they could use that experience to teach students in their class. They excitedly offered varied ideas such as teaching literature texts, poems, composition, writing essays and reading comprehension. They then wrote details of how they would teach as take-home pieces.

Address Attitude toward Change. Professional development must also address teachers' openness to accept change and new ideas, such as the eagerness of the teachers in the above case study, as well as their basic beliefs and attitudes about students and student learning. The belief that learners with poor entry behaviour will continue to perform poorly in school must be challenged with new information about the plasticity of the brain which continues to grow and develop, especially in a safe and emotionally supportive environment (Dubinsky et al, 2019). The teachers should practise findings from current research that all learners can learn if taught addressing their specific individualised learning needs (Doubet & Hockett, 2015). We should include all learners always.

New Ideas. Universal Design for Learning is a framework for approaching education that ensures all learners can access and engage with high quality, meaningful learning in the classroom. It involves flexible structures to meet diverse needs among students. It specifically states that all learners benefit from "multiple means of representation, multiple means for engagement and multiple means for action and expression" (Brand et al., 2012, p. 134). Therefore, using many varied methods to teach the content and skills, giving several ways to make meaning from the content and interact with it, and then assessing in both formative and summative ways has the potential for enabling the most learners' achievement of the expected learning outcomes. Professional development, for example, could introduce the ideas of Universal Design for Learning, give teachers an opportunity to discuss in small groups and debate the relevance, add their own observations, then reconvene for planning time to guide the next steps. The learning community could then regather after a month when every teacher has had the opportunity to try implementing it in their planning and instruction several times in their classes. They will then report back the results, problem-solve, contextualise the theory, and rededicate themselves to further action research and reflection. This is the model of "communities of practice" which is popular in many countries (Vandeyar, 2013). It has the potential to provide mentoring for novice teachers, support to share ideas and practical insight, context for collegial observations and feedback, shared resource-making and organic leadership as it arises from among the teachers in the small learning community. This is essentially the Clusters system in Nigeria where Ajani and Govander (2018) found such success in grouping together colleagues in the nearby region for subject-specific training, collaboration and discussion. This is a proven model for professional development that shows promise to be effective through replication with contextually appropriate modifications.

Avoiding Ineffective Continuing Professional Development. We have already seen in this book the ineffective nature of lecture alone as a means of teaching. This is also true for teaching teachers how to improve their practice. So, lecture-based professional development is ironically hypocritical and ineffective (Ajani & Governder, 2018). It is repeating the same bad teaching over again. This CPD is especially ineffective when it is provided with no follow up, one time off, conducted far from school and detached from classroom practice. Traditional school-based teacher professional development took this form of lecture, and only a few teachers were involved (Opfer & Pedder, 2010). For example, in the 1990s, such teachers attended professional development courses in training centres to become trainers of others, leaving their classes unattended. However, in most

cases the ground did not get wet; many teachers were never trained, others in this cascade model. Some might have implemented it, but many went back to their schools and continued teaching in their old, comfortable accustomed way and never trained others.

Furthermore, Zide and Mokhele (2018) surveyed the literature and found that teachers believe most professional development is sporadic rather than sustainable, and poorly designed or irrelevant, and thus has no lasting effect. In a national study, 72.3 per cent of teachers surveyed said the challenges of large class size were not addressed in their professional development, even though 88 per cent stated they had overcrowded classrooms (*Ndethiu et al., 2017*). In fact, most of the literature about professional development of teachers reveals a strong negative attitude on the part of teachers toward what has been a painfully ineffective experience for them (*Opfer & Pedder, 2010; Zide & Mokhele, 2018*).

In contrast to the ineffective methods, we know that teachers benefit most by being taught in the manner they will be expected to teach, trained in an appropriate context with professionalism and respect for their experience and practical insight and knowledge. Successful PD can occur in online settings, or in several models developed both globally as well as locally within Kenya. What follows are brief introductions to the models in each of those areas which show great potential to impact the future of education at home and abroad.

Massive Open Online Courses (MOOCs). There are also many helpful teacher professional development courses offered online in the form of Massive Online Courses, such as those offered by Teacher Education in Sub Saharan Africa (TESSA). Teachers can manage to get many new ideas on teaching which they could practise in class; however, there are still challenges such as connectivity, that accompany distance learning. And, the teacher would have to figure out how to apply the new skills and knowledge in their own class. TESSA offers online courses which provide resources and models of classroom application in form of case studies. This makes them easier to adapt and apply to your class. Some of these are also contained in their Teaching Practice Supervisors' Toolkit. It is advisable to visit the TESSA website for more teaching and learning resources and fresh ideas from recent research on teaching and learning. As a teacher who wants to improve and grow in the teaching profession, engagement in effective teacher professional development activities should be considered part of continuous education, and not just a single, isolated event. If a school does not offer these opportunities, a teacher should seek online teacher professional development courses, read well-researched work and even enroll and attend the online courses as you teach.

International Perspective. In the best performing countries in education such as Finland and Singapore, professional development is a high priority, with subject specific training spanning the entire career of a teacher. All teachers, including pre-service and in-service, are equipped with research skills to enable them conduct school-based research projects as a basis for teaching (*Bautista et al., 2015*).

A more formal approach to critiquing peers and encouraging self-reflection and accountability is called the Lesson Study Approach made popular first in Japan. Teachers themselves organise their own communities of inquiry to help each other grow in their skills of instruction and classroom management. This is a highly decentralised and grassroots effort which could be undertaken by teachers in any school who commit a level of trust and accountability to each other, determined to grow and learn from one another (*Doig & Groves, 2011*).

As we have said professional development of greatest effect should provide teachers opportunity to implement what they learn immediately within the context of their own school, and with the input of their colleagues. This leads to promotion of school-based teacher-led peer groups known as Professional Learning Communities (PLCs) in the United States, United Kingdom and several other countries (*Stoll et al., 2006*). According to a major study of the effect of PLCs in UK, Stoll (2006) claims they have irrefutable positive impact and are beginning to spread widely in the international context. After careful review of the literature on PLCs, she finds the common elements

to include, “a group of people sharing and critically interrogating their practice in an ongoing, reflective, collaborative, inclusive, learning-oriented, growth-promoting way” (Stoll, 2006, pp. 222-223). The authors here agree that the impact of PLCs merits greater application with a cultural sensitivity within Sub-Saharan African contexts.

Models of Effective Professional Development in Kenya. The Ministry of Education in Kenya has offered some of its own models for professional development of teachers which show promise and incorporate many of these new perspectives. Subject Panel Groups (SPGs) give teachers the opportunity to try their teaching and receive feedback on it, share ideas amongst themselves and work collaboratively to improve their practice (Ndethiu et al., 2017). This has also been implemented at the school level in order for teachers to join together in professional groups akin to the Professional Learning Communities described above, proven so effective in the UK and US. The difficulty appears in the few occasions these have occurred and the very minimal number of teachers who have been able to benefit from them.

Since CPD targets adult learners, it should recognise the ample teaching experience and the knowledge and skills which they have already acquired and developed. This should be used as resource for new learning, so that they move from the known to the unknown, incorporating the new learning into their current practice. Teachers, as adults, should be provided an opportunity to express their learning needs and choose the learning they feel is most useful to them. For example, teachers may express their area of difficulty in teaching and the learning be focused around solutions.

Reflection. Reflection and inquiry should be at the core of professional development of teachers as discussed earlier in this book and repeated here for emphasis. Teachers should be facilitated how to practise reflection and change their practice by allowing them opportunity to reflect. For example, as you are teaching, think about why things are taking the course they are taking and what to do; question yourself, “What am I doing right? What am I doing wrong? How could I improve?” Reflecting on your teaching with a critical friend helps one to make changes to one’s teaching. Research demonstrates that one of the most effective means of professional development is to encourage growth collaboratively, as we have seen in the Professional Learning Community (PLC) model. Yet, even without a formal PLC organised, the discussions among teachers in a school can help revise thinking, challenge misconceptions and provide feedback in a non-judgmental process (Zide & Mokhele, 2018).

Teachers could conceptualise effective teaching better by being provided a model of good teaching such as **case studies**. Modelling helps the teacher to conceptualise and build a vision of how teaching could be performed better. It could be by an expert teacher who is experienced. The model could be practical teaching in class, written case study, lesson demonstration or peer observation. Coaching and scaffolding could also help a teacher to learn the “art of teaching” from an expert “artist.”

The authors further express that today’s school has to educate the 21st Century learner to be active, self-directed, confident and concerned, equipped with 21st Century competencies and skills in addition to learning subject content. Teachers should be equipped with subject knowledge and skills and beliefs that each learner can learn. And every child in their classroom deserves the ultimate gift of respect, care, kindness and genuine interest in their wellbeing. Teachers should cultivate integrity, and a deep commitment to education and social change. These beliefs should be encouraged in professional development, so that the effect of education is a betterment of society (Bautista et al., 2015).

Summary of Effective Teaching

This book has been written to explore this question: *What makes an effective teacher?* It has been addressing how to teach in a learner-centred approach. Research has many answers to this important question, but most researchers agree on these common characteristics which have been

detailed thoroughly in this book. We overview these six qualities of effective teaching here as a means of reviewing our objectives. First, effective teachers are committed to **knowing their students as individuals and teaching them in a learner-centred approach**. This is at the heart of effective teaching, since teaching is really about the learner. Next, learner-centred instruction requires a foundation of **pedagogical content knowledge** (Kisirkoi, 2014). This is mastery of content of the subject you trained to teach and the topic you have planned to teach, along with the pedagogical skills of how to teach it. Because you understand your subject thoroughly, you are able to slice the content, topics and sub-topics into chunks for easy understanding, and you also are able to explain the big ideas that connect the facts (Shulman, 1986; Zakharov et al, 2016). Then, we encourage using **high quality, active-teaching skills**. Your thorough knowledge of your content will not be of much benefit, if you are not able to pass it on to your students. You need effective teaching skills in active learning and student-centred teaching, including motivating learners to learn and sustain their interest, engaging them in their own experiential learning and cognitive development and asking effective questions. A classroom which is learner-centred has a high degree of discourse with students engaged in discussions with each other, as well as the teacher (Mercer, 2008; Hess, 2009).

Another determiner of effective teaching is the teacher's ability to **create a learner friendly, conducive classroom learning environment or climate** which supports and provokes thinking and learning in active ways. Environment is also referred to as 'climate' to mean where learning takes place. An effective teacher creates a learning community that provides safety, motivation, curiosity, and encouragement to engage in thinking and collaborating (Maphalala, 2017). An effective teacher does not only celebrate intelligence but also celebrates effort and good work habits too. As an effective teacher, you also require **effective classroom management skills**. You will need to manage the learning environment for learning by creating and enforcing guiding rules, setting high expectations for respectful interaction, and making the best use of class time to ensure you teach and learners learn (Pretorius, 2013). As an effective teacher you will also need to manage **your own beliefs about students and learning**. Some believe that learners' entry behaviour, or the marks they scored before entry to the school, predetermine learners' ability, which has been proven untrue and unfair. Effective teachers recognise that all learners can learn if taught according to their individual learning needs (Doubet & Hockett, 2016). Effective teachers believe in supporting each learner to make progress, and what matters is each learners' effort put into their work and their progress. You need to inform your own personal beliefs by current educational trends. Finally, as we have seen, effective teachers are committed to their own continuing **professional growth** (Ndethiu et al., 2017). This includes engaging in continual professional development and reflecting on your own practice (Dreyer et al., 2017). They are continuously trying to improve and learn from their observations, often collaborating with colleagues to help each other grow professionally so that the whole school might benefit (Coe et al., 2014; Darling-Hammond & Bransford, 2005; Msila, 2013; Pretorius, 2013). Effective teachers also conduct action research to improve their classroom learning.

Action Research

Action research is deeply studying your own teaching with the goal to improve it for the purpose of student learning. It is a more low-key form of research generally done by practitioners rather than scholars, and is generally initiated to solve a problem that has arisen in your classroom. Hence, it is organic from the context and specifically driven by the desire to improve the situation. The competent, effective teacher, is continuously reflecting upon their own practice, and seeking ways to improve (Dreyer, 2015). When they have progressed to this place of trying to formalise this process, then they have arrived at action research. To facilitate this practice, we include here a brief summary of action research. More detailed information is readily available online, however a general understanding of the approach will aid teacher self-reflection and growth.

Have a Problem: To start an action research project, you must have a question you are seeking to answer related to that problem. For example, you find students are restless with straight content delivery because they are eager to get started on their inquiry project. But, you fear that if

you do not give them the content first, they will flounder in the inquiry without knowing the information they need. You ask yourself, "Which is better?" So, you want to research whether your students perform better with instruction of content first, or with the inquiry process first, which then prompts them to ask for some instruction of content. In other words, which should come first: content instruction or inquiry project?

Set Up the Action Research Project: To research this, you would want to set up two similar units of study, one in each direction. In your first unit, teach the content first and then give the students an inquiry problem to solve using that content. In the next unit, give them the inquiry problem first, then allow them to discover what information they need before you give them the information.

Collecting Data: In the research process, you collect data in order to come to a conclusion, called a finding. As you run the two units, you take some anecdotal notes on what you overhear students saying through the process. For example, perhaps Group Three is really off-task because they have not had the content and are lost, so they are wasting time. Or, perhaps the girl in Group One has asked "Why do we even have to learn this stuff anyway?" frustrated because she knows no application for the information you have just delivered. Another boy in Group Four is having an Ah-ha moment when the information is now clicking and he is energised by that. You may also decide to solicit feedback from the students as to which of the two ways they liked better and why.

Analysing Data and Making a Conclusion: Once you collect your anecdotal notes, student feedback, and the results from the test and the project, you will then systematically compare the results. In the end, you will find that students performed better on one version and liked it better, hopefully. This will help you to know with more assurance and a real set of evidence. Now you can make instructional decisions about whether to present the content before the inquiry, or after, or some hybrid version. This is the purpose of action research. You study your teaching in order to make more informed decisions. You may even write up the results and share them with other teachers at a small conference, or in a publication. Either way, you are a better teacher because you have made a reflective choice based upon evidence. You are truly a lifelong learner, which helps make you an effective teacher.

Pause to Review and Reflect:

How does your experience compare with these mentioned in this chapter?

What do you think should be done by schools to help newly employed teachers?

Which characteristics of effective teaching are you going to work on first? In what ways do you think you could improve your practice in teaching?

Take time to create your own professional development plan; no matter what role you play, there is always room for growth.

The authors of this textbook humbly submit this work to you for your own self-improvement and food for reflection. While it is impossible to include every element of good teaching in one text, we hope those included here have stimulated more questions and self-discovery, as well as a further commitment to spread the movement toward active, learner-centred education meeting the individual, diverse needs of our next generation. Join the cause! And let us know about your adventures along the way.

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