

Personal Reflection on Practice as a Basic and Senior High School Teacher Using Gibbs Reflective Model: Universal Design for Learning (UDL) in Focus

This reflective paper discusses my personal experiences in teaching and how I have unconsciously applied the principles of the Universal Design for Learning (UDL) at the basic school and Senior High school levels in Ghana. I offer a window into my professional practice and justify why I support the overarching purpose of the UDL framework that advocates the multimodality of learning environments fueled by multiple forms of representation, processing, and motivation. Gibbs' reflective cycle was adopted in giving structure to the paper and its flow of discussion. Qualitative data was generated using an unstructured interview schedule with thirty-one (31) students selected via convenience and snowball sampling procedures. The qualitative data garnered were analyzed thematically under the three key principles in UDL. The study opens a dialogue on how the principles of UDL could be actualized in the classroom setting using personal teaching experiences. Also, I share relevant points from the UDL workshop that I attended. I contend that the diversity of student learning and thinking styles calls for plurality in the representation of content, engagement as well as action and expression of learned content to maximize students' learning outcomes and general development.

Keywords: Gibb's reflective model; universal design for learning; inclusive education; learning styles; teaching; learning; Ghana

DICKSON ADOM is a senior member and researcher in the Department of Educational Innovations in Science and Technology at the Kwame Nkrumah University of Science and Technology, Ghana.

Corresponding author: dickson.adom@knust.edu.gh/ adomdick2@gmail.com
ORCID: 0000-0002-0559-4173

INTRODUCTION

Over the years, I have been using different approaches for co-constructing knowledge as a teacher with my students with the sole aim of assisting all students to understand and excel in the subjects I teach. Upon learning about the Universal Design for Learning (UDL) framework¹, I noticed that I had unconsciously applied its principles over the years as a basic and as a Senior High school² teacher.

In this paper, I present a reflection of my professional experiences as a teacher over my fourteen years professional teaching career and how they align with the principles of the UDL framework. I commence this paper with a brief description of the UDL framework and the principles that underpin it. This is followed by insights on the benefits of the professional use of the UDL framework in reported studies. I then present the international and national policy frameworks on the UDL framework in educational institutions before sharing the reflections on my practice as a teacher that aligns with the UDL framework using Gibb's reflective model.

LITERATURE REVIEW

Universal Design for Learning (UDL) is an educational framework that calls for equity in teaching and learning for all students. The term 'Universal Design' is credited to Ron Mace, an architect and disability rights advocate who coined the term in 1988 (Courey, Tappe, Siker & LePage, 2012) to make products and environments user-friendly for all persons irrespective of their varying features without giving room for users' customizations (Center for Universal Design, 2015). However, the Universal Design for Learning (UDL) framework was developed by the Center for Applied Special Technology (CAST) based on the Universal Design principles (Rao et al., 2014). The UDL framework is a scientifically valid framework (Higher Education Opportunity Act of 2008; Boothe, Lohmann, Donnell, & Hall, 2018) for guiding educational practice that provides flexibility in the ways information is presented, in the ways students respond to or demonstrate knowledge and skills, and in the ways, students are engaged; and reduces barriers in instruction, provides appropriate accommodations, supports, and challenges,

¹ I was enlightened about the Universal Design for Learning framework from September 27th to September 30th, 2021 at a four-day workshop organized by the National Teaching Council (NTC) in conjunction with the United Nations Children's Fund (UNICEF).

² A basic school is the same as a primary school or national school in the Irish context. Senior High School is the same as High School or Secondary School in the Irish context.

and maintains high achievement expectations for all students, including students with disabilities and students who are limited in English proficiency (Higher Education Opportunity Act of 2008). It calls for the deployment of a flexible approach to delivering the requirements of the teaching curricula (Hunt, 2017) to aid in offering equal learning opportunities for all students irrespective of their learning styles and differing abilities (Meyer et al., 2014). It is the responsibility of the instructor to ensure that all students are given equal access to the delivery of the teaching and learning activities (Snow, 2018) addressing the limitations of the traditional ‘one size fits all’ curriculum (CAST, 2018).

The principles that underpin the UDL framework are evidence-based and rooted in the fields of neuroscience and educational psychology. The UDL framework is divided into two layers, which are the conceptual layer and the implementation layer (Center for Universal Design, 2015). The conceptual layer is built on three networks of the brain which are the recognition, strategic, and affective networks. The recognition network represents the ‘what’ of learning and highlights the different learning ways of understanding and constructing meanings from the content learned. The strategic network represents the ‘how’ of learning which is concerned with the different ways thoughts and ideas are organized. Finally, the affective network focuses on the ‘why’ of learning. It highlights the motivations and engagements for students to sustain their interest in learning a particular content (Snow, 2018).

On the other hand, the implementation layer consists of three key principles that correspond to the three brain networks. These three key principles are designed to reflect the nine guidelines and 31 checkpoints of the UDL framework (Rose & Meyer, 2002). Figure 1 shows the three key areas in the implementation layer of the UDL framework and their overarching purposes. First, multiple means of engagement refer to the diverse ways of sustaining the interest and motivating students to learn. This implies the use of varied teaching approaches from lecture, discussion, project work, peer-tutoring, and many others. Secondly, multiple means of representation require the use of diverse approaches in presenting the content to students. This includes the use of videos, audio, text, graphs, maps, diagrams and other varied means in presenting the content to students. This diversity in the way content is presented accommodates the variety in the learning styles of the students such that learning is not skewed for the benefit of the few but all students. Lastly, multiple means of action or expression require the use of diverse ways of soliciting the understanding and knowledge of students regarding the learned content. Instead of the straight jacket sit-down written exams, the teacher has to introduce and/or allow students to use other means in expressing evidence

of knowledge. This may include the use of interviews, written scientific papers, written and oral quizzes, and the use of videos, audio and graphics in assessing the understanding of students of the learned content.

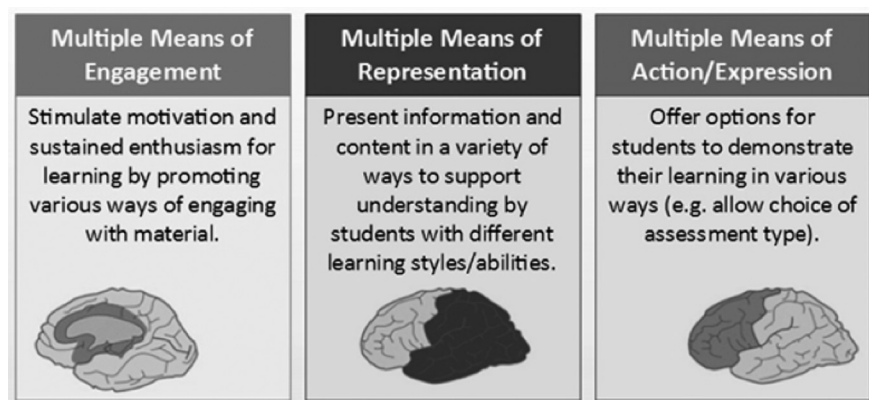


Figure 1: The Universal Design for Learning Framework Source: Hancock (2019)

UDL implementation in educational institutions has been reported to benefit students, teachers and educational institutions in the effective deployment of the teaching and learning activities (Snow, 2018). The multiple means of engagement, representation, and action or expression have been reported to build confidence in all students (Kumar & Wideman, 2014), positively translating into an increase in their learning outcomes (Hall et al., 2015; Al-Azawei et al., 2016; Landin & Schirmer, 2020). Though the UDL framework offers additional support to all students, students with intellectual disabilities have been reported to benefit from it. For instance, in a reading course, Coyne et al. (2017) reported a large increase in the reading comprehension skills of students with intellectual abilities in their class. Snow (2018) noted that when he adopted the UDL principle of multiple means of action or expression in assessing the understanding and knowledge of learned content for his art history students, this aided in reducing their anxiety and ensured that constant feedback and communication ensues between the teacher and the students. Similarly, Kuh (2008) reported that the implementation of the UDL principles in the teaching and learning activities built a close relationship between the teacher and the students. Teachers have also been beneficiaries of

the UDL framework. Some studies have reported on how the application of the principles in the UDL framework has assisted teachers and educational institutions in enhancing the accessibility of their teaching curricula, making their teaching styles more accommodating, flexible and student-friendly (Courey et al., 2012; McGhie-Richmond & Sung, 2012; Smith & Harvey, 2014; Mavrou & Symeonidou, 2014). It makes teachers adopt student-centred teaching approaches that engage the students, making them take full responsibility for discovering knowledge (Adom et al., 2016).

International Policies and National Policies that reflect on the Universal Design for Learning (UDL) Framework

The United Nations Convention on the Right of the Child of 1989 proposes equal rights for every child, including education without any form of discrimination (United Nations, 1989). In 1990, the nations of the world signed up to the World Declaration on Education for All in Jomtien, Thailand which emphasized the right to education for all and in 1994, 92 governments reiterated their commitment to promote inclusive education, especially for students with special education needs in the Salamanca statement and framework for action on special needs education. The United Nations Convention on the Rights of Persons with Disabilities of 2006 posits that all persons with all forms of disabilities must fully partake in all forms of human rights, including the provision of inclusive and equitable education. Recently, the 2030 Agenda for Sustainable Development's SDG 4 (United Nations, 2020) aims at ensuring inclusive and equitable quality education while promoting lifelong opportunities for all.

Ghana is a signatory to these international policies that encourage inclusive and equitable education for all persons. Interestingly, the national policy instruments in Ghana reflect these international conventions to which the country has been a signatory and the constitution of the Republic of Ghana has shown its full commitment to ensuring equity and inclusivity in education. Article 25(1) of the constitution of Ghana states that all persons, irrespective of their diversities in physical, intellectual, emotional, and intellectual abilities, have the right to equal educational opportunities and facilities. In 2008, the Education Act, Act 778 was enacted affirming the need for educational institutions at all levels in the country to ensure equitable access to teaching and learning, promoting the full participation of all students regardless of their varying educational needs. Now, there is a national inclusive education policy (2015-2019) which takes cognizance of the variance in the learning needs of students and encourages all educational institutions to address these diverse learning needs using the principles in the Universal Design for Learning framework. The policy's

objective two is specifically directed to the conscious deployment of the UDL framework in the deployment of teaching and learning in all Ghanaian schools at all levels (Inclusive Education Policy Implementation Plan, 2019). It calls for the promotion of a Universal Design for Learning (UDL)/student-friendly school environment for enhancing the quality of education for all students. Among the strategies to realize this objective include the revision and review of the national curricula content to make it more responsive and representative of diversity, adequately equipping teachers to accommodate the diversities in their students in their teaching and learning activities while ensuring that provisions are made for educational institutions to get access to assistive resources and personnel to deploy equal and quality education for all students.

Despite years of implementing the policy, many educational institutions and teachers in Ghana are not familiar with the policy and its demands. Asamoah et al. (2022) in their recent study investigated some of the hindrances to the implementation of the policy and how they could be addressed from the perspective of social workers and policymakers. Like the national inclusive education policy, it is not surprising that the Universal Design for Learning framework has not been popularized enough at the various educational institutions in the country. Commendably, there have been steady efforts by the National Teaching Council with the support from UNICEF in organizing trainer of trainees' workshop on UDL for teachers in the various educational institutions to popularize the framework and encourage its full implementation in all the educational institutions in Ghana. Fortunately, I have been a beneficiary of such training and I now share my knowledge on it via scholarship, hence this study.

METHODOLOGY

This study presents personal reflections on my professional teaching at the basic school and senior high school levels and how I unconsciously utilized the principles in UDL. The study meticulously followed Gibb's reflective model-Figure 2 (Gibbs, 1988).

The reflective cycle begins with a detailed description of how the experience happened and its outcome followed by a succinct discussion of my feelings about the experience and an evaluation of the experience with its successes and weaknesses. Following an analysis of the experience in light of theories and scholarship in the literature, tentative conclusions from the personal experience analyzed are drawn with general and specific lessons highlighted and action plans



Figure 2: Gibb's Reflective Model: Source Gibb (1988)

summarize what needs to be done to improve the experience in the future.

Twelve (12) basic school students and nineteen (19) Senior High School students were sampled using convenience and snowballing sampling techniques. The Senior High School students were selected conveniently because they were still in the Senior High School where I taught. The other basic school students were traced using the snowballing technique because they had graduated and many of them were now in different Senior High Schools. All the students selected voluntarily agreed to share their reflections on the instructional approaches that I used while they were in my class. An unstructured interview schedule on the perceptions of the students on the instructional approaches concerning the three principles in the UDL framework was designed. It was pilot-tested on a section of the sample to validate it before it was finally used for gathering the data for the study. Qualitative face-to-face and telephone personal interviews with the students were carried out to solicit their views. Quotes from some of their views expressed during the

qualitative interviews were included in the reflections. Students' views were audio-recorded and carefully transcribed and the transcribed document was read out to some of the study participants in a data verification exercise I carried out. The data garnered were analyzed thematically using the thematic data analytical procedure with the themes grouped under the three key principles in UDL.

To ensure ethical research, letters to embark on this reflective study were sent to the heads of the Basic School and Senior High School where I taught. I explained the study's purpose, its objectives, its voluntary nature and participants' rights to stop the research at any time, and procedures to protect the confidentiality of participants' identities and views (Bailey, 1996) were thoroughly explained to all the study participants. Their consents were sought, some in written form while others in the verbal form before their views, pictures of themselves and their project works were used. All the study participants were assured of anonymity of their identities and views which were used solely for purposes of research.

FINDINGS AND DISCUSSION

In this section, I share personal reflections on the professional teaching experiences I had first at the basic school level teaching Information and Communication Technology (ICT) course for students at the basic school level and then when I taught General Knowledge in Art (GKA) at the Senior High School level. In the discussion presented here, I used the three key principles in the UDL framework while occasionally highlighting some of the UDL framework's guidelines checklist that I unconsciously applied. Using Gibb's reflection model as a guide, I discuss how I applied the philosophy of the UDL framework from the introduction of the lesson through to assessment of students.

Teaching an Information and Communication Technology (ICT) Course for Students at the Basic School Level

Principle One: Multiple Means of Representation

In teaching Information and Communication Technology (ICT) at the basic school level, I varied the way I presented the content to the students. I carefully selected pictures that narrated the steps in undertaking simple tasks on the computer such as creating and naming folders. I first showed a video of a child, following meticulously the steps for each activity after which I presented a PowerPoint presentation of each of the steps with text and pictures. Then I demonstrated the steps on the large screen one after the other and to help them grasp the skill, the students followed along and practiced each step on the computers. I then

went round to check on the progress of each student. I had two cards for each student. One had the inscription 'I need help' and the other 'Repeat the processes' which I had explained to the children, when and how to use when I am teaching. I responded quickly when a student raised any of the cards. For some of the lessons on procedural steps in undertaking some activities on the computer, I used still pictures that showed the processes with cartoon characters. This made it exciting for the students to follow along and grasp the skill. I played audio versions of the steps in both English and Asante Twi, the local language spoken by the students in my class. I felt excited to notice how the students were eager to learn and follow the steps for each activity on the computer. I was delighted I spent time preparing the plural content for the students because I was able to meet the diversity in the learning styles of all the students.

The above approaches enhanced the understanding of the pupils of the content taught. I observed the satisfaction expressed by the students in their facial expressions and words of appreciation of the plurality of representation of the content. One student told me during one of the interview sessions:

Sir, we loved your class because it was exciting. It was not just talking and talking as other teachers do, we watched videos, discussed pictures, we listened to and recited rhymes on what we are learning. Though I didn't have a personal computer at home at that time, what I learn in your class was enough for me to be a computer guru (BSL-4, Focus Group Discussion 02).

Another said: '*I was active and so were my classmates in your class because the participatory activities kept us busy; they kept us exploring and discovering knowledge in I.C.T.*' (BSL-3, Personal Interview on Telephone).

However, I noted that because the audio formats of the content I prepared were fast-paced, many of the students complained they didn't hear. I had to play them more than twice, pausing in-between to help them assimilate the content.

Using text, videos, pictures and audio in presenting the content in each class, I was able to help the diversity of students in grasping the content. My experience is consistent with the findings of Kennedy et al. (2013) and Snow (2018) who observed increased learning outcomes after applying the UDL principle to multiple representations of content. Generally, I contend that multiplicity in the representation of content for students yields more learning outcomes, and increases and sustains students' involvement in the teaching and learning processes. More so, the content and the mode of their representation must be age-appropriate. Children in the early childhood stage are fascinated with cartoon drawings and

pictures as well as the use of bright colours (Kocak & Goktas, 2021). This must be considered when preparing the contents in videos and graphics format. Also, when the audio format of the content will be prepared for early childhood stage students, the tone of the language must be slow and very audible for the students to be able to grasp it. Later realizing the children loved rhymes, I used rhymes or songs as proposed by Pramling and Carlsson (2008). The lesson is that instructors must carefully prepare the content in different formats with the age, interests, and abilities of all the students in mind. Customized content for each class yields more success in its application during the teaching and learning processes. This agrees with the UDL guidelines checklist on providing options for the perception that proposes the customization of the content displayed. Emphasis is placed on the careful selection and use of colours, volume or rate of speech or sound, the layout of visuals, and the animation type and timing which have to be customized with the students' characteristics in view (CAST, 2018). Prepared content in plural form might look exciting. However, if it is not done well with the students in mind, the time spent will be in vain and the purpose of embracing diversity could be missed.

Principle Two: Multiple Means of Engagement

I employed multiple approaches in engaging students via the use of different instructional strategies. I noted that the students were more active in their listening during the mornings. So, based on a discussion with the students, I taught aspects of the subject that involved sharing important foundational knowledge using the lecture and discussion method. However, in the afternoons, I used other instructional methods such as practical hands-on activities and projects, demonstrations, small group discussions as well as peer-tutoring when their attention on auditory content did not yield many results. When I gave them practical hands-on activities such as using particular application software such as the use of Paint4Kids in teaching the students the art of painting, I demonstrated on the large screen how and when to use each of the tools. Then I divided the students into small manageable groups to discuss the tools using their peers who had demonstrated enhanced understanding as leaders. There were times I gave different tasks to different sets of students. This was helpful for students who needed extra attention. For some of these sets of students, I gave them additional lessons outside the classroom, in the airy spaces under the giant trees in the school. Offering personal assistance to the students and using their peers as coaches helped to optimize their learning motivation as highlighted in the UDL guidelines checklist on providing options for self-regulation. These approaches aided in sustaining students' enthusiasm for learning the content. I felt excited that I was able to achieve equity in the delivery of the teaching and learning activities, not leaving any of the students behind because

of the difficulty they encountered in the learning process. I share the personal belief that everyone is important and as such, education should be the right of every child and not a few privileged ones. However, in using peers as tutors to help students, they must be prepared well to understand their roles and how they needed to perform them to yield positive results. As I was carrying out the supervision of their peer tutoring, I noted that because I failed to provide training for peer tutoring, some of the students assigned as peers used derogatory terms for some of their peers who were not meeting the minimum course requirements and consequently some of the students did not feel comfortable with their peers helping them grasp the content.

Generally, the approach worked well for the majority of the students who received the mentoring and coaching from their peers as well as the remedial tuition from me. One student who is now excelling at the Senior High School level told me in the interview:

When my colleagues and some teachers thought of us as empty-headed, you had time for us. You constantly motivated us and geared us on. You assured us that we can make it and that we should keep learning. We did and now we are doing well' (BSL-1, Face-to-Face Personal Interview).

Principle Three: Multiple Means of Action and Expression

Students have diverse ways of demonstrating their learning. This diversity must be acknowledged by teachers in their quest to find out from the students whether or not learning has taken place. In the case of students at the basic school level, ensuring flexibility by offering them plural opportunities to demonstrate their learning is crucial as many of them are unable to meaningfully construct textual evidence of their learning. I adopted formative means of action and expression strategies to ascertain evidence of learning for each topic taught to the students. The students were offered the flexibility to present their work in any format of their choice for example written text, pictures, drawings, stage-performed acts, and oral presentations. I received many drawings on the tasks I gave them, though others preferred to give oral presentations in class while some presented textual information on the assigned tasks. However, I encouraged them to try using varied formats in presenting the different tasks or assignments.. I prepared an analytical rubric (Appendix 1) for all the assignments and tasks concerning the learning objectives and learning outcomes for the course, setting out the criteria and what was required for each level of achievement. In doing this I used three major levels of achievement which are the junior apprentice, the chief apprentice and the master as I often motivate my students to always be masters in a suit and not just

junior apprentices in a T-shirt. The clear analytical rubrics I developed for the tasks I gave them and the flexibility to present their assignments in any format of their choice helped me in better ascertaining the understanding levels of all the students, including those who couldn't express themselves well using text.

I felt excited because I respected their differences and appreciated their strengths demonstrated in the format they chose to represent their actions and expressions. In addition, the scores increased for students who were not able to meet the minimum requirements of the course.

The students expressed similar sentiments:

'When you allowed us to use the format we liked to do assignments, I was happy because I could use drawings to present my understanding better than text. Also, it improved my scores. I had more understanding of the content when my classmates presented orally too, something I didn't know how to do it. It was indeed a learning experience for us' (BSL-8, Face-to-Face Personal Interview,).

The UDL framework proposes such flexibility in eliciting the actions and expressions of the students (Rose & Meyer, 2002). Empirical evidence from Johnstone (2003) revealed that when a standardized assessment test was made UDL compliant, allowing greater flexibility for the students to demonstrate their actions and expressions in diverse formats, the scores of traditionally underperforming students increased significantly. This highlights the importance of multiplicity in presenting students' actions and expression of the learned content. That notwithstanding, I noted that though UDL allows for such flexibility, there is the need to consciously help students to develop skills in other areas which are not primarily their domain of choice. This is important to ensure the total development of student's abilities. Thus, in the future, I would like to take detailed records of the mode(s) of students' actions and expressions and help those who often use one mode, such as only text or only audio to try using other formats by offering them assistance in doing so.

Teaching General Knowledge in Art (GKA) at the Senior High School level.

Principle One: Multiple Means of Representation

At the Senior High School level, I was assigned to teach General Knowledge in Art in an all-female Senior High School. I couldn't understand why a greater section of the students performed poorly in the subject. At the departmental meeting, I suggested we adopt a UDL framework to help improve the performance of the students and they unanimously agreed. So, we increased practical and

adopted varied instructional materials such as using simple charts for teaching art history content, PowerPoint presentations, videos, oral and audio recordings in presenting the content as suggested by Rose and Meyer (2002). For instance, I screened posted videos on YouTube on Ancient Art history, African Art history, and Global Art history in general during class hours. After watching the videos with the students, I grouped them into small groups for them to discuss the videos and present their reflections in class using PowerPoint presentations. In our PowerPoint presentations, we included pictures in the text and sometimes we incorporated short videos for reflections. Interestingly, the students followed our example whenever they had group presentations. In the practical lessons, I downloaded videos on the procedural steps for still life drawings, figure drawings, landscape drawings as well as on paintings. I watched them with the students and we discussed them together. I demonstrated what we watched in the videos to them and I asked them to practice. I monitored their progress and offered coaching when necessary to help the students in attaining practical knowledge. I invited artists to the school and hosted art talk sessions with them and the students. The practising artists shared their experiences in their art practice, especially their philosophies, material choice, techniques or styles with the students. The students had the chance to ask them questions and interact with them. This positively impacted their interest in the course. There were times I used pictures and replicas of artefacts or regalia in the art history timelines to augment the presentation of content. For instance, key artworks in any art historical timelines or for particular ethnic societies were shown to the class for detailed discussion using the procedural steps in visual and iconographic analyses.

The above approaches enhanced the skills of the students in art appreciation and criticism. Their interest in the subject increased and I noticed this in their general scores for the course at the end of every semester.

The views they expressed also confirmed that they deeply appreciated the multiple means of representation of the content. One of the students told me:

'Our interest in the course has increased greatly. Many of us now love art history, an aspect of the course we didn't like initially. Introducing varied means of representing the content, especially the videos, pictures for discussions and meditations, and others has helped us to develop a love for the course. The practical activities have helped us. In my case, sometimes when I produce works of art and send them home, my parents are amazed that I have been able to produce them. We are much grateful' (SHS-12, Face-to-Face Personal Interview).

The varied means of representing learning content is helpful as every student, irrespective of their learning and thinking style feels represented and as such, fully benefits from the teaching and learning activities in the classroom as my experience affirmed. However, it requires good preparation and extensive lesson preparation to be able to select appropriate multiple contents that would be able to efficiently address the diversity in students' learning in a class.

Principle Two: Multiple Means of Engagement

I offered support to the students to help them understand the contents of the course during practical activities during class hours and after school. Mostly, I offered additional support for the students who needed more time to learn the content. I assigned students who have attained considerable mastery of the practical art activities as peer tutors to assist their colleagues. Also, students on Internship were assigned as teaching assistants to help the students in their practical training. Together with my colleagues, we organized interclass quiz contests and end-of-semester exhibitions to fuel interest in learning the General Knowledge in Art course. We rewarded students who demonstrated consistent performance and not just those with distinctions. We gave them art materials, textbooks, and certificates with their names written in calligraphy.

Shy students who were falling behind and others with special educational needs were encouraged by showcasing their works in the visual art studio. One of the students interviewed told me:

These extra efforts you [teachers in the Visual Art Department] put in are highly commendable. Students in other schools that we speak with don't have these privileges. You give all of us the needed support, and you don't leave anyone behind, even Ellen [Name has been changed], a Special Needs student. You sometimes come during the weekend to help us and we don't pay extra (SHS-7, Face-to-Face Personal Interview).

Al-Azawei et al. (2016) confirm that the UDL framework, with its deliberate strategies to engage students positively impactstheir attitude toward learning, and engagement in class activities generally.

Principle Three: Multiple Means of Action and Expression

Instead of relying solely on the traditional sit-down written examination that was used to find out the level of understanding of students, I initiated using multiple means of action and expression. We allowed students to present practical assignments and oral presentations in addition to the written assignment presentations. Together with colleagues teaching the same course, we designed

analytical rubrics for the various tasks we gave the students assigning equal weight in scores for both the theoretical and practical content of the course. The end of semester exhibition (Figure 3) was added to their final assessment scores. The students were excited because the multiple means of expressing their actions and expressions in the area of practical skills is exactly what is done in their final assessment by the West African Examination Council (WAEC) known as the West African Senior Secondary School Examination (WASSCE). One of them said:

Initially, we did not give much importance to the practical aspect of the course. However, now our skills are honed in practical knowledge of the course. Happily, we can produce works based on the required standards by WA. We are confident we will excel in the final examination of the course (SHS-4, Face-to-Face Personal Interview).



Figure 3: End of Semester Students' Exhibition

A comparison of the grades attained by the second-year batch of students with whom we initiated the new instructional methodologies rooted in the UDL principles in 2020 who sat for the 2021 WASSCE (2021 WASSCE results) with the grades attained by the previous year's cohort (2020 WASSCE results) shows a high increase in the students' academic performance (Table 1).

Table 1: Students’ academic performance at the WASSCE in the General Knowledge in Art subject

Grading System	2020	2021
A1 (Excellent)	19	109
B2 (Very Good)	13	62
B3 (Good)	52	33
C4 (High Credit)	24	4
C5 (Credit)	12	1
C6 (Low Credit)	19	-
D7 (Pass)	3	-
E8 (Pass)	3	-
F9 (Fail)	3	-
Total Number of Students	145	209

Source: WASSCE Results, School Administration, 2021

Many teachers in sister Senior High schools could not believe how we helped these young students in the school to excel in the General Knowledge in Art subject and we are proud to share the strategies with them to assist their students.

CONCLUSION

In this study, I have discussed the personal reflections of my teaching profession at the Basic School and Senior High school levels using Gibb’s reflective model. Also, I have discussed how the approaches I have adopted over the years for the teaching and learning activities align with the key principles in the UDL framework. I must admit that my teaching approaches were not informed by any knowledge of UDL, thus, applying the principles unconsciously. The favourable comments shared by the students who experienced the teaching and learning approaches I used during the interview sessions as well as their academic performance affirms that the UDL principles when applied fully would positively reflect on students’ learning outcomes. I contend that innovatively using multiple approaches in the classroom in all aspects of the teaching and learning processes ensures much inclusivity and equity while improving the learning outcomes of students.

Despite the strengths of this study, some significant limitations must be admitted. The study relied on the reflections of a small and manageable convenient sample

size which may not be a true representation of the entire student population. Also, the study was not based on a conscious deployment of the UDL framework, its principles and checklist. The approaches I adopted in my professional practice were compared to the key principles of the UDL. As such, the findings cannot be said to be attributed to the full and conscious implementation of the UDL framework. However, the scholarly reflections of my professional practice discussed within the UDL framework buttress the relevance of the framework in enhancing the teaching and learning processes while increasing students' learning outcomes evidenced in other UDL empirical studies reported in the literature. Future studies could explore more fully how the UDL framework is consciously applied to a course delivery using large sample sizes in quantitative or mixed methods designs and utilize validated psychometric scales in measuring the learning outcomes of students in the conscious application of the UDL. Now that I have been privileged to receive formal tuition on the UDL framework through the workshop I mentioned at the outset, I am now more determined than ever to improve the application of the UDL principles in the courses I teach now at the university. I am happy to assume the role of a trainer of trainees for the implementation of the UDL framework and support other teachers to apply the principles of UDL more practically in their teaching and learning activities. I recommend that the Ministry of Education in Ghana, the Ghana Education Service, and School administrators should organize workshops on UDL for the teaching staff in all educational institutions in Ghana to orient them on how the UDL framework could be actualized in the classroom settings to increase students' learning outcomes.

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Appendix: Analytical rubric developed by the author for ICT tasks

Criteria	Master (10 Points)	Chief Apprentice (5-7 Points)	Junior Apprentice (0-4 Points)
	 1. All the steps in undertaking the specific task on the computer have been stated correctly and orderly. 2. All the steps for the specific task on the computer have been explained well based on the student's understanding. 3. An excellent demonstration of how the task is performed on a computer.	 1. 60%-90% of the steps in undertaking the specific task on the computer have been stated correctly and orderly. 2. All the steps for the specific task on the computer are above-average explained based on the student's understanding. 3. A good demonstration of how the task is performed on a computer.	 1. 0%-50% of the steps in undertaking the specific task on the computer have been stated correctly and orderly. 2. All the steps for the specific task on the computer are averagely explained based on the student's understanding. 3. An average demonstration of how the task is performed on a computer.