

Adhere Model

Makeisha R. Bahadur

Jabel E. Bercasio

Kamar K. Maxwell

Troy Nestor

Marvin D. Thompson

University of the West Indies, Open Campus

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Abstract

This paper outlines the development and proposed use of a new instructional model borne from the merger of four different workplace environments. The merged environment - Synapses Academy satisfies the educational needs for children ages 4 to 21. Synapses Academy has three sections -a primary school (ages 4-11), high school (12-18) and university / training centre (18 - 21). The ADHERE model is an instructional model developed because of its flexibility and applicability across the education system. ADHERE is a guide that can be used by educators for planning and implementation of instruction across all levels of the education system. The main focus of the ADHERE model is the effective use of technology to enhance teaching and learning. ADHERE is an acronym that explains the six steps of the model. They are as follows: A-Analyze learner D-Determine objectives H- Help through the use of technology E-Engage through meaningful and relevant activities R-Require learner participation E-Evaluate the effectiveness of the lesson. The ADHERE model is customizable for each stage this allows for the inclusion of various instructional strategies. At every stage of learning different strategies are utilized to ensure learning takes place.

Adhere Model

Educators as design instructors (facilitators of learning) as well as the gate-keepers of education must realize that plausibly, the best way to transfer knowledge to their students is by creating the enabling environment where Information and Communication Technologies play a pivotal role in their learning. As such, educators must be cognizant of the era of technology savvy learners who absorb knowledge and perform skills once the information presented is integrated with some form of technology. The instruction must be motivating and must arouse students' critical thinking skills. Educators are encouraged to make their instructional design interactive and above all relevant to the learners' needs. Gagné's Nine Events Model, the Assure Model and Keller's ARCS Model have all contributed in some way or another to the development of good instructional design; having lessons structures that are motivational and that which activates learner's prior knowledge. Also interaction and feedback must be given due attention because feedback allows the learner to be active participants during instruction. Also learners should be part and parcel of their learning, since all students do not have the same learning pattern. Lastly, new age instruction must incorporate ICTs which is a very effective means of knowledge transfer and these features must be considered very carefully. Having realized the importance of instructional design in knowledge shift, 'Team Synapses Academy's' instructors designed a model that was robust, flexible and applicable across different spheres of learning; primary (ages 4 – 11), secondary (high school) (ages 12 – 18) and tertiary / training centre (18 plus). The ADHERE model is an instructional model designed to effectively work across various levels in education which makes effective use of the integration of technology in the learning pedagogy.

Summaries of Workplace Environments

Cedarbridge Academy is one of only two public senior schools on the island of Bermuda. The school is a co-educational institution that has a population of approximately 600 students of various races and nationalities but predominantly black bermudian students. The students are mainly from middle income households with most parents only possessing a high school education.



The students are afforded the opportunity to take courses in arts, sciences, modern languages and vocational studies due to the wide educational offerings there are

multiple specialised classroom- science labs, dance room, black box theatre, auto mechanic centre, music room, indoor and outdoor courts.

There are 85 members of staff including teachers, paraprofessionals and learning support team. All teachers in the school system must possess at least a Bachelor's degree however most of the paraprofessionals are holders of high school diplomas with few having an associate or bachelor's degree.

I teach chemistry and biology to approximately 85 students distributed across five sessions that are each 42 minutes; there are also sessions for advisory, common planning with department members and a non-contact period. I teach all the grade levels from freshman to senior with the students ranging in ages from 14 -18 years old.

Instructional Model most suited for Cedarbridge Academy

- **Gagne Nine Events of Instruction**

According to a report by common sense media teens spend at least 9 hours a day online. With this mind blowing number the onus is educators to ensure that learning reflects the enjoyment and engagement that media provides.

Gagne nine events highlights the importance of capturing the learner through visual and chunking of information which is essential when course content is voluminous. Gagne also emphasizes the importance of feedback in learning and designing objectives

- **ASSURE model**

This model provides an easy framework for teachers to follow as they plan their lessons. ASSURE entails a comprehensive understanding of the learner's background and demands learner participation and provides feedback. This model just like Gagne's nine events ensures that the objectives written are measurable.

Workplace Environment: The Royal St. Christopher & Nevis Police Training School -Marvin Thompson



The Royal St Christopher and Nevis Police Force Training School is the Federation's main police training facility; used mostly for recruit and other police training. However, a number of other trainings, are carried on by different agencies at different times. Lecture is the major mode of instruction. There are 6 instructors including myself and 30 recruits on the current course. Additionally, because it is a police training, there is a high degree of skills training; as recruits are expected to reach a certain level in weapons training, drills, and self-defense.

We have a standard time period of 6 months to have all this done. There is a considerable amount of verbatim memorization required in the lessons; mainly for definitions and legal/latin terms. Of the 6 instructors 4 of us have at least a first degree. The other 2 have almost 50 years experience between them, some with regional agencies. The recruits are made up of different nationalities but it might

just be about 5 of the 32.

Instructional Model

I. Assure Model

A — Analyze learners; S — State standards & objectives; S — Select strategies, technology, media & materials; U — Utilize technology, media & materials; R — Require learner participation; E — Evaluate and Revise.

When a new batch of recruits are taken in there is always periods where we conduct initial assessments. The initial assessment is usually within the first couple of weeks. Standards are clearly stated, particular strategies are chosen along with media, and materials. Technologies is utilized wherever practicable and or possible. Learners are required to participate as a matter of duty. Major assessment is conducted about every 12 weeks. Programs is tweaks based on assessments result.

Workplace Environment: Convent Preparatory - Jabel Erica Bercasio

I am a second grade teacher. There are twenty -four children in my class. This is a vast improvement to last school year's crowded classes of about forty students each. During the beginning of school year 2015-2016, Convent Prep, a semi-private Catholic School in Dominica, has managed to upgrade itself to two classes per grade level and is



now housed in two school buildings. This is partly to address the growing enrollment numbers.

Convent Prep does not provide teaching assistants. Therefore, each primary school teacher serves as the children's instructor, nanny, nurse, and a whole lot of other roles. There are two sections per grade level. There are eight grade levels in all: Pre-K, K, and then Grades 1 to 6. The two teachers per grade level have to make sure they are teaching the same thing every day. This sounds easy enough, but with the afternoon tutorials, clubs, and other meetings, it is actually tough.

This is the first school year that two teachers are teaching one grade level. So, we are still trying to pace ourselves.

Most of the teachers are graduates of the Clifton Dupigny Community College, with some trained in the Teacher's College afterwards. A few have university Bachelor's degrees, and two or three (including me) are pursuing postgraduate degrees. A few years ago, people started demanding that their primary school teachers be trained or educated, although some Sixth Form graduates have proved themselves skillful, especially with years of experience under their belts.

Instructional Model Best Suited to My Work Environment

The primary school years are the foundation years. Therefore, there is a need to be able to access all aspects of a child's intellect. That is why I believe that Gagne's Cognitive Model is the best option. Below, you will see the targeted learning outcomes under the model and how they work in the primary school environment.

Verbal Information: The children must be able to interconnect their facts and provide verbal responses, whether oral or written. They are studying not only different subjects, but are also being drilled in terms of Phonics, Grammar, and Reading. These Language Arts subjects are given individualized focus in primary school.

Intellectual Skills: It is also in the primary school level that intellectual and study skills must be established. This is where children learn concepts, rules, classifications, and other means of organizing knowledge.

Cognitive Strategies: It is good to have children start choosing strategies from a very young age. From primary school, they will realise what works for them.

Attitudes: Primary schools also help develop attitudes towards schoolwork and the different aspects of life, and reinforce good manners, not just in subjects such as Religion or Health and Family Living but also in the day to day interactions with the teacher and other students.

Motor Skills: Primary school students are required to take Physical Education to ensure their holistic education as well as to support a healthy lifestyle.

As demonstrated above, the Cognitive Model by Gagne is perfect for primary school students.

Workplace Environment: The University of T&T - Makeisha Bahadur

The role of The University of Trinidad and Tobago is to meet the needs of Trinidad and Tobago for a highly trained and qualified technological manpower base. As technology



changed over the years to suit the evolving global environment, so too has the human resource needs of the country. In reviewing these needs, several distinct engineering functions are identified with each function requiring its own set of specialised competencies and by extension, education, training and qualification.

MY UNIT - KNOWLEDGE TT - National Knowledge Gateway of Trinidad and Tobago

- Funded by a European Development Grant this e-learning platform currently hosts thousands of courses and videos annually and has four global partners - Coursera, Khan Academy, FutureLearn and edX
- The project seeks to sensitize students and staff, and the wider community about the far reaching benefits of e-learning
- Team currently consists of a team leader (coordinator - Makeisha Bahadur), three full time staff members, project advisors and stakeholder supporters
- The team is dispersed and we do not work in the same location all of the time. Our partners all reside in various countries worldwide and different time zones.
- The core team of 4 work in the same physical location

The staff complement of the UTT is on average 1400-1500 persons at any given time and consists of two main divisions - the Academic and Corporate divisions. The current student population is approximately 10,000 students.

INSTRUCTIONAL MODEL USED AT UTT:

The ADDIE instructional design process (i.e., Analysis, Design, Development, Implementation, and Evaluation) is the most common approach widely used in the University's development of instructional courses and training programs for staff. This approach provides the University with useful, clearly defined stages for the effective implementation of instruction. Staff training is determined by an employee Performance Management and Appraisal System that is done for every employee. From this instrument, learning needs are determined and analysed and programmes designed, developed, implemented and evaluated.

Student instruction is pre-determined based on a syllabus set by the Academic Council, however, Grade Point Average (GPA), Caribbean Advanced Proficiency Examinations results and continuous assessment, all shape the design of instructional strategies used in and out of the classroom.

INSTRUCTIONAL MODEL BEST SUITED FOR UTT STAFF: (academic and corporate)

Based on the following factors, I believe that the best suited strategies are simulation based, online learning instruction for corporate staff and experiential for academic staff:

- Large staff of varied academic backgrounds
- Culturally diverse
- Geographically dispersed staff
- Time and cost effective
- Different requirements for learning outcomes
- Different skills to be developed in corporate vs academic staff

Kemp's Instructional Design Model

The Jerold Kemp instructional design method and model defines nine different components of an instructional design while time adopting continuous implementation/evaluation throughout each phase. Kemp adopts a wide view: the design and development process is a continuous cycle that requires constant planning, design, development and assessment to insure effective instruction. The model is systemic and nonlinear and seems to encourage designers to work in all areas as appropriate and this is one of the reasons why I believe that it is most appropriate for my work environment.

The model is particularly useful for developing instructional programs that blend technology, pedagogy and content to deliver effective, inclusive (reliable) and efficient learning.

Kemp identifies nine key elements:

1. Identify instructional problems, and specify goals for designing an instructional program.
2. Examine learner characteristics that should receive attention during planning.
3. Identify subject content, and analyze task components related to stated goals and purposes.
4. State instructional objectives for the learner.
5. Sequence content within each instructional unit for logical learning.
6. Design instructional strategies so that each learner can master the objectives.
7. Plan the instructional message and delivery.
8. Develop evaluation instruments to assess objectives.
9. Select resources to support instruction and learning activities.

Retrieved from:

http://www.instructionaldesigncentral.com/htm/IDC_instructionaldesignmodels.htm

INSTRUCTIONAL MODEL BEST SUITED FOR TEACHING STUDENTS:

Students are assessed prior to entry and must meet specific minimum requirements to gain access to a course of study. The model above, **Kemp's Instructional Design Model** also applies to developing instructional material for students. The process should be based on data collected about learner characteristics and guided as such. According to Missouri State University, Faculty Center for Learning and Teaching, best practices for teaching and learning include:

- Engaging students by providing an environment of inquiry and challenge
 - Structured reflection and challenging of old beliefs
 - Linking old information to newly acquired knowledge
 - Use of multiple teaching methods - auditory, visual, kinesthetic
 - Encourage taking responsibility for learning outcomes
 - Mentor and facilitate more; use direct instruction less
 - Promote cooperative learning with peers
 - Integrate technology and scaffolding approaches
- ("Best Practices for Teaching and Learning", 2016)

Workplace Environment : Monchy Primary School- Troy Nestor



I'm a qualified St. Lucian primary school teacher (educator) who has for about two decades been a teacher of Math and Science to Grade Five and Grade Six students. The school comprises approximately 250 students annually with 18 teaching staff members housed in 8 individual classrooms and a shared hall with blackboard separation to accommodate 5 more

classroom spaces. Students have access to one computer lab as well as a mobile laptop unit enough for a class-set where teachers use freely in their workspaces over the wireless system. I'm also the Teacher-in-Charge (vice principal) responsible for management for the upper primary level Grades 4 – 6 at the school.

Description of learners

Age Range: 9 – 13 years old

Background (Socio-economic): The students enter elementary (infant) from age 5 years and exit the school after 7 years. About one third of the school's intake attended preschool. The school is part of a small diverse rural farming community; most of whom are from low income household, a few from the middle class. Many student come to school with little to eat, thus we were forced into introducing a free breakfast and a \$1 a lunch feeding program. This has increased student attendance, participation and success at school. As a result of the diversity and exposure to early childhood education, instruction has to be varied, creative and differentiated in nature.

Student Interest in School-life: Students generally enter the school with low self esteem, and highly dependent on extrinsic motivation to feel or be successful. Some students feel obliged

to come to school due to the diverse non-academic programs offered such as theatre art and music.

Instructional Model(s) Used in My Workplace Environment

The use of the ASSURE instructional model best describes or is best associated with the body of work conducted by me in my work environment. I found myself using much of this model because of student background (limited access to Information and Communication Technologies – ICTs). Students are generally more active and interested in learning when the lesson is based on ICT integration. This model (to help ASSURE learning) takes into consideration Gagné’s nine events of instruction with the focus on designing effective student friendly learning environments. The ASSURE six step model primarily is based on the basic responsibilities of a teacher which starts with proper planning:

1st – Analyse Learners, 2nd State Standards & Objectives, 3rd Select Strategies, Technology, Media & Materials, 4th Utilize Technology, Media, and Materials, 5th Require Learner Participation, 6th Evaluate and Revise.

Through this model the teacher gets to carry out a diagnosis, design objectives based on findings, select materials necessary for effective acquisition of knowledge, try out activities through student engagement and assess the learning.

Table 1-Instructional Strategies used in the various workplaces

	Convent Pre (Jabal el)	UTT (Mak eisha)	Police Academy (Marvin)	Monchy Primary (Troy)	Cedar bridgeAcademy (Kamar)
STRATEGIES					
Direct Instruction	✓	✓	✓	✓	✓
Guided Discovery	✓		✓	✓	✓

Free Discovery	✓			✓	✓
Rote learning (Drill & Practice)	✓		✓	✓	✓
Socratic Method			✓		✓
Hands on learning	✓		✓	✓	✓
Experiential		✓	✓	✓	
Cooperative Grouping			✓	✓	✓
Discussion		✓	✓	✓	✓
Simulation based learning		✓	✓	✓	

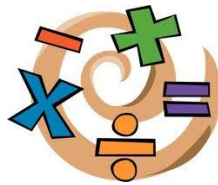
Examples of how each strategy is used in the various workplaces:



- Primary School**
 Direct instruction is used to introduce concepts to primary school students, but must not last more than ten minutes due to the children's shorter attention span.
- University of Trinidad & Tobago (UTT)**
 Direct Instruction is used for new employees to get the oriented to the policies and rules of the organization and is also used for many types of core skills training at various campuses.
- High School**
 The teacher gives a lecture or provides an explanation of a concept. The students are given guided practice based on those concepts then independent exercises.

- ***Police academy***

Police training school aims to prepare recruits police officers for the world of work as police officers. Police is a paramilitary organization and consequently the military might be the only organization has more regulation than the police. Orientation (or some might say disorientation is a more appropriate word) of new recruits begin from day one. Recruits are made aware of police regulations, standing orders, and the police Act which govern police behavior. Additionally, there is the police academy regulation direct instruction is highly utilized to bring awareness to the recruits.



Drill & Practice (Rote Learning)

- ***Primary School***

In Mathematics, Grammar, Phonics, and Reading, drill and practice is important to ensure that the skills are absorbed, improved, and retained. It would especially be beneficial for students to practice Math concepts to hammer down rules that will otherwise be difficult to memorise.

- ***Police Training Academy***

Drill (rifle and unarmed) are a staple of the training intended to bill teamwork among recruits. This is five days a week. Physical training is also five days a week. Self Defense is less frequent. In class there are weekly definitions most of which have to be learned verbatim.

- ***High School***

Students are required to learn formulae, definitions and recite laboratory procedure



Discovery-based learning

- ***Primary School***

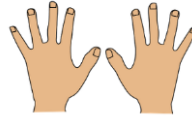
For subjects such as Science, it would be best to bring along props and learning materials that will help children understand a concept. For example, a simple hanger, strings, and weights can teach mass and non-standard weights.

- ***Police academy***

One of the feature of the academy is the use of force simulator called the FATS machine. FATS stands for Firearm training simulator. This machine allows officers to train in the levels of force from verbal to lethal (firearm). A scenario is presented where the officer must react to a video enactment and take appropriate action. The officer has to carefully “read” the situation to be able to know what level of force is applicable.

- **High School**

As a science teacher lab exercises can be designed to have students arrive at theories/ concepts through observations.



Hands-on learning

- **Primary School**

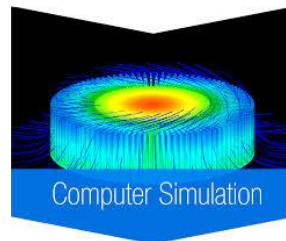
Actively using their hands would help primary school students better. Such a strategy will keep them participating. So, they are not just in one corner trying to avoid the gaze of their teacher. They are learning and applying their lessons at the same time.

- **Police Academy**

Hands on learning takes different forms recruits at varying time must perform actual police duties outside of police academy . Also for 2 weeks of the six months they are sent to the different stations and districts for work experience.

- **High School**

Students are actively involved in making models, posters, planning and designing experiments.



- **University of Trinidad and Tobago**

Simulation based learning is optional in the form of online courses.

- **University of Trinidad and Tobago**

Experiential Learning is used for academic staff starting new classes for the first time.

Similarities and differences between workplace environments.

Similarities	Differences
Instructional Strategies Used	Age group of learners
Educational or Instructional Institutions	Focus of instruction (job market versus another level of education)
Use of Information and Communication Technologies at the Institutions	Workplace specific instruction/pure academics

New workplace environment.

The Synapses Academy is an institution that educates a child from primary school until tertiary. There are three different sections under the synapses education umbrella- primary school (ages 7-10), high school (ages 11-18) and tertiary (ages 18-21).

New Instructional Model: ADHERE

A-Analyse learners (age, gender, learning style, socioeconomic background, pre-test, anticipation guide)

D- Determine objectives

H- Help through technology

E- Engage(Gagne)

R-Require learner participation

E- Evaluation (provide feedback, re-assess, reteach)

How the ADHERE model fits into work environments

Four of five work environments are schools - primary, secondary and police training facility. Regardless of the level of education, the teacher must know their students in order to create an environment that fosters trust and learning. The learners are an integral part of the learning process, where they are found engaged at that starting and ending; assessing and reassessing their knowledge. Determining objectives are ubiquitous in everyday life but as teachers we need to write objectives so we can measure the performance. Technology is incorporated to facilitate various learning styles, engage and ensure student participation. Lastly feedback informs future instruction and informs all stakeholders of their performance.



ANALYZE is the first step of this instructional design process.

The key areas to consider in this first analysis step are:

General characteristics of your learners (for example, age, grade level, academic abilities, gender, ethnicity, socioeconomic status, attitudes & interests) (behavioural, cognitive, social, motivation, affective); psychosocial stages (Erickson), motivation to learning needs (Maslow) or learner's cognitive level (Bruner), and knowing what is the sociometric status (whether like or disliked) of an individuals in a class.

Entry competencies (for example, prior knowledge) Part of this analysis in to trigger knowledge; pre, current and future. One can use a variety of strategies to achieve this activation i.e. the Anticipation Guide, KWL, Concept Maps, etc.

Learning styles (for example, auditory, visual, tactile/kinesthetic) **Auditory** learners learn by talking or listening, **Visual** Learners learn by seeing video or images, **Kinesthetic/Tactile** Learners learn by doing in practical. If it is difficult to ascertain students' learning styles, make sure to include activities that incorporate each aspect.

DETERMINE learning objectives

The teacher will use information gathered after the analysis of the learners to write objectives based on Bloom's Taxonomy that increases in difficulty from recall to evaluation.

Coupled with Bloom's Taxonomy, the ABCD method of writing objectives will be used. For example- Audience(Grade 11 male students..) Behaviour (... will design a website...) Condition (using html...) Degree (website must include navigational links and embedded video).

HELP through media, technology and other materials

The use of media, technology and other materials is no longer limited to computer courses. Even primary schools are making use of computers, to the point that there are schools in some countries that introduce computer education as early as in first grade. Technology teachers, however, are required to know the latest developments in their field. They have to constantly update their knowledge of software, each of which continues to spawn new versions (Baran, 2010). While it is now accepted that all teachers who use technology in teaching should proceed with caution, there are some studies that support the use of technology. According to said studies, technology represents various experiences that the students will otherwise not have, limited they may be by space and time as humans (Siemens, 2016). Learning through media and technology also supports the evolution of man and education. It provides interactivity, which engages the attention of students from all sorts of age groups. It helps the student acquire "new mental schemata, knowledge, abilities, skills" (Siemens, 2016) and makes learning a "doing" process.

ENGAGE - *learners in learning process*. "Engagement is the key to learning". Southern Region Education Board (April 2013)

Utilizing presentational, tools, advance organizers highlight important information, allowing learners to activate the relevant schemata. Make effective use of media and technology.

Use technology to enhance lesson content, to enable collaboration, To empower students and to exchange feedback.

<http://www.teacherkit.net/wp-content/uploads/2015/02/4-strategies-to-engage-students-using-technology.png>

NB: engaging is not a one time or static event it takes place early and continuously over all other segments.

REQUIRE LEARNER PARTICIPATION - "The connections between prior knowledge and new ideas slowly form concepts." According to Johann Herbart in the early 20th century, the best pedagogy allows students to discover relationships among their experiences and the teacher provides opportunities for the *student to demonstrate their understanding*. Many instructional models, even today, support the view that for learning to be effective, students must actively participate in their own learning, in order to connect their current knowledge with new information, which then forms new concepts and establish that learning has taken place.

Retrieved from

[http://www.bscs.org/sites/default/files/ legacy/BSCS 5E Instructional Model-](http://www.bscs.org/sites/default/files/legacy/BSCS_5E_Instructional_Model-Executive_Summary_0.pdf)

[Executive Summary 0.pdf](http://www.bscs.org/sites/default/files/legacy/BSCS_5E_Instructional_Model-Executive_Summary_0.pdf)

For Gagné, in his 9 events of instruction, it is essential to first identify the goal (a learning outcome) and then construct the learning hierarchy or in other words perform a task analysis of skills needed to *perform a measurable activity that demonstrates a learning goal*.

Retrieved from <http://www.my-ecoach.com/idtimeline/theory/gagne.html>

According to Merrill's First Principles of Instruction many current instructional design models suggest that the most effective learning environments are those that are problem-based and **involve the student** in four distinct phases of learning: **(1) activation of prior experience, (2) demonstration of skills, (3) application of skills, and (4) integration or these skills into real world activities.** Retrieved from

<http://mdavidmerrill.com/Papers/firstprinciplesbymerrill.pdf>

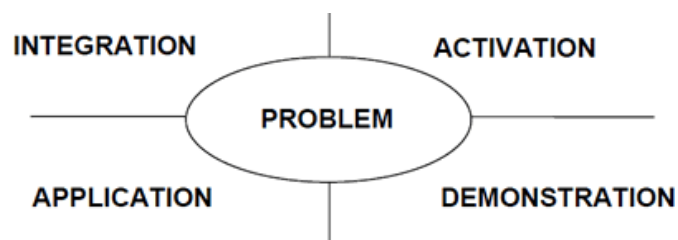


Figure 1 First Principles of Instruction Diagram

The Dick and Carey Systems Approach Model originally published in 1978 by Walter Dick and Lou Carey in their book entitled *The Systematic Design of Instruction* has made a significant contribution to the instructional design field by championing a systems view of

instruction instead of viewing instruction as a sum of isolated parts. This approach highlights are ten steps which also focus on learner participation as being essential. Other significant models that also emphasize the importance of learner participation are Bloom's taxonomy of learning and Kemp's instructional design model. Retrieved from

http://www.instructionaldesigncentral.com/htm/IDC_instructionaldesignmodels.htm

EVALUATION

After the learner participates in the assigned task; they will do self assessment as they revisit their activation tool (anticipation guide) to examine their understanding of what was done. The teacher will conduct some checks for understanding which may include tests, presentations.

Feedback is an essential part of effective learning. It helps students understand the subject being studied and gives them clear guidance on how to improve their learning (University of Reading, n.d). This feedback will be used to inform her next step - reteach concepts that are misunderstood or move onto the next topic.

Instructional Strategies supported by ADHERE

1. Cooperative Grouping
2. Discussion
3. Simulation
4. Problem Based Learning
5. Direct Instruction
6. Hand ons Learning
7. Guided & Independent Practice
8. Problem Based Learning

These strategies can be divided into two kinds:

- 1) Interaction-Oriented strategies include cooperative grouping, discussion, direct instruction, and guided & independent practice.
- 2) Problem-based or experience-based strategies include simulation, PBL, and hands-on learning.

Application of ADHERE in various environment

1. PRIMARY SCHOOL

To demonstrate how ADHERE can be applied to the primary school set-up, teaching fractions can be used as an example.

Analyse the learners: For second-graders, there will be some children who still remember their grade one fractions while there are those who have completely forgotten how they work. Students who have skipped first grade should also be considered.

Determine objectives: Based on the type of learners, the objectives can be set. Objectives should include reviewing the children about what fractions are through some warm-up questions. The length of warm-up will depend on the types of learners.

Help through Technology: Many Maths and Science textbooks include CDs. The children should be encourage to make use of them to learn at home. The teacher can also include teaching fractions through the use of a laptop and a projector, so that the children will see Maths as fun and not focus on their perceived difficulty of the subject.

Engage - Through technology, fun worksheets, and the use of counting toys, the children can be engaged in the learning process.

Require participation - Each child should be required to participate, voluntarily or involuntarily. The teacher must take care to notice if each child is focused on his or her work and must make sure to call most, if not all of the children during each session.

Evaluation - The teacher can evaluate the students through worksheets, recitation, quizzes, and tests. After each result, the teaching should be assessed in terms of effectiveness. The student cooperation and learning capacity should also be evaluated and re-analysed for future lessons.

2. HIGH SCHOOL

Subject - Biology Topic- The components of blood
Analysis of learner- identify gender, skills, prior knowledge.

Determine Objectives- Use the ABCD model. The behaviour and condition will vary based on skills and gender.

Eg. Grade 10 students (audience) will present a model, of the components of blood (behaviour) making use of non-biodegradable substances (condition) where plasma, blood cells and platelets are clearly identifiable.

Help through technology- The students will watch a video on the components of blood. They will then answer questions online based on information in the video.

Engage- The students will then conduct an online search on non -biodegradable materials. They will walk around the school and start collecting.

Require Learner Participation-The students will then present designer notes and ideas on a poster. This poster will include all non- biodegradable materials they are planning to use and any challenges they found. They will then construct their model.

Evaluation & Feedback - They will present their designer notes using a visual presentation. The students will be graded by their peers using the given rubric. They will also present their models in for viewing. Lastly, a mini quiz on the components of the heart.

3 . TERTIARY

Analyse learners: Prior to entry into the school, students are primarily assessed on competence, ability and demonstration of skills. These transcripts are analysed as they vary by subject area and are considered for more holistic development rather than simply assessing IQ. Continuous assessment also forms a major part of analysing learners, as lesson plans or instructional approaches can be modified depending on each learner's pace.

Determine objectives: Although broad objectives are pre-set in the tertiary environment, there are smaller goals that feed into the accomplishment of the ultimate goal; which is to graduate from the institution. Chunking goals into smaller compartmentalised bits, helps to ensure that faculty stay on track with their teaching methods and meet all the objectives set out.

Help through Technology: Tertiary level students today and being prepared to experience a smooth transition into the work environment. This environment is shrouded by technology from web conferencing, online training, social media networking and day to day word processing and use of office equipment. This requires regular hands on training and practice. Through the use of mobile apps, online modules, computer based testing and simulations, students can overcome any resistance to technology and become more work ready as a result of this exposure.

Engage learners - Students are engaged at the tertiary level through a multitude of experiences. Visual, auditory, kinesthetic tools are used to appeal to all learning styles. Engagement refers to the ability to hold one's attention and by using technology, discussion, experiential, simulation and problem based learning, we find that learners stay engaged. Creating the linkage to the "outside" world or real world is the next step to engaging learners who will soon be required to apply their knowledge to a work environment.

Require participation - Participation is mandatory and counts toward one's grades. As a result, participation in most cases is high and this strategy works as a powerful motivator. Because the university is preparing job ready individuals, they are also willing to participate in new activities that will help them to gain employment faster than their peers in other institutions.

Evaluation - All students are assessed on a continuous basis and at the end of every semester, using participation assessments and final examinations. Student surveys are distributed throughout the semester to ensure that teachers are meeting objectives and provide feedback on

any issues that may be hindering achievement of goals. The learning strategies and approaches are therefore also evaluated and tweaked for changing needs.

Police Training School

A-Analyse learners (Would have taken place prior to lesson or if first lesson within the first 10 minutes) Show students a video of the skill to be performed on the large screen of LMS (actual engagement beginning).

D- Determine objectives

- **As stated above. (the prior assessment would impact on the objectives)**

Objectives would be taken from the Training school's Curriculum Training Standard (CTS)

Blooms is the model that is routinely used

H- Help through technology, etc.

The LMS is integrated into lessons, using internet in conjunction with LMS to Access information from the World wide web. Students have electronic devices and computers information is sometimes sent to them in advance via email. Internet affords differing vantage points of the same skill

E- Engage(Gagne principles 1,3)

Instructor will demonstrate the skill shown on video to students, indicating points to note. Guided practice will be conducted after which self-directed practice will be allowed.

NB: engaging of the students would have begun prior to this dedicated segment and is a continuous event.

R-Require learner participation

Allow Practice (guided and self-directed)

Instructor should put students in pairs allow them to practice skill under supervision (correcting and advising where required)

E- Evaluation (provide feedback, re-assess, reteach)

Formative/Summative Assessment.

Task: Students will be required to correctly demonstrate the skill they just learned.

Lesson would be re-taught at a later date with consideration given to results of the evaluation. Feedback will be given to students to aid in their improvement.

Similarities and Differences of ADHERE to Previous Instructional Models

SIMILARITIES	DIFFERENCES
Learning through experience	New model has strong emphasis on technology, even for primary or high school
Emphasis on multiple intelligences	New model supports evolving, updated education
Results-oriented, values feedback	ADHERE model emphasizes engagement and learner participation
Both ADDIE and ADHERE begin with analysis of learners	ADHERE is more flexible than ADDIE and takes into consideration different learning pace
Both ADDIE and ADHERE focus on design with learning objectives as a priority	ADHERE emphasizes activating prior knowledge (before instruction), build curiosity and allows for student self-assessment (after instruction)

Conclusions

The ADHERE model is an instructional model designed to effectively work across various levels in education which makes effective use of the integration of technology in the learning pedagogy.

Synapses conceptualized ADHERE as an acronym that explains the six steps of the model. They are as follows:

A-Analyze learner

D-Determine objectives

H- Help through the use of technology

E-Engage through meaningful and relevant activities

R-Require learner participation

E-Evaluate the effectiveness of the lesson.

The ADHERE model is customizable for each stage this allows for the inclusion of various instructional strategies. At every stage of learning different strategies are utilized to ensure learning takes place.

ADHERE provides the opportunity to strike a balance between the curriculum and the learners' needs. Student's diversity in the class should be a factor in a successful manipulation of any instructional design.

❑ Reflections

Jabel Erica Bercasio: Working with the Synapses team has been a joy and a great learning experience, as usual. Each member of the group is willing to contribute whatever learning he or she has obtained in the course. Schedules do not jive, but that was expected. The use of Google Docs makes things easier for the group members to add, delete, and revise during their own time. Whats App makes it possible for everyone to be updated as to what has been done and who is working at any given moment.

Working together from one assignment to the next has made us more flexible and more willing to take on various ways of learning and teaching. Synapses is also going through a discovery of what is good for itself, while forming the best possible instructional model to cover all group members' work environments.

Makeisha Bahadur: Working on this assignment has proven to be most challenging and most fulfilling thus far. This group is learning to overcome challenges of communication (different interpretations of text communication), time differences, extremely heavy workloads, family life and personal challenges. Personally, I was not well for two weeks and they rallied around me and supported me through it by providing simple guidelines and assigning roles that were clear.

Our team leader Kamar Maxwell, chose the method of using Google Docs to collaborate so that we can all post our thoughts under headings at our own convenience and others can read and also be guided. This group literally works around the clock, some sleep at work and others barely sleep at all, so meeting at a specific time with all parties present is almost impossible. This collaborative tool with whatsapp messenger has assisted us all to get the work done.

I must commend all members who have contributed their research, ideas, experience to this entire process of inventing a new instructional model and working together to get the work completed.

Marvin Thompson: The journey of creating the models has been an education to say the least. I was ignorant about so many tools available on line specifically in Google. I used Google chat and Google docs and Slides for the first time. Learned about Pecha Kucha presentations, and learned to be thankful that I don't need to know all but that there is a group members in Team Synapses who are there to assist. TEAM SYNAPSES is a team par excellence. Thank God for

them, they have made the difficulties of journey less tedious. Truly this has been a great experience.

Additionally, I was forced to look at my work environment in a more analytical way to see how it could be improved; that is not just good for me but it is good for my work place. Creating instructional material is not as simple as I once thought. I am convinced however that this exercise has created a platform an impetus creates manful change in my work environment.

Troy Nestor: This has been an extraordinary and fulfilling journey thus far. This assignment called for so many skills from a group of individuals who live different lives and finding the balance was the most challenging; family life, professional workload, scheduling the right time to meet and work on tasks. The ease and comfort of communication was great despite living on different islands, this was aided by the 'Whatsapp' platform and the use of Google Docs to share, edit, revise, delete and comment of the actual work task.

This was a learning experience for me as well in being able to use a 'voice note' feature on 'Whatsapp' for the first time although it took me a few minutes to figure out what to do, but did get it done at the end. This collaborative structure assisted me in learning even more, though the diversity of each member and their shared experiences and contributions. We've had a great team; Erica with her creativity, Makeisha with her time on task, Marvin with his flexibility, me with my experience and the leadership by Kamar was impeccable.

Kamar Maxwell: This assignment was a three- week long journey that was daunting in the initial stages but became equal rewarding. As I read the various models of instruction it allowed me to take an introspective look into my own practice zeroing in on how I plan and execute my lessons. My group Synapses has been a pleasure to work with, all members were dedicated to the assignment as we all try to balance work, school & family especially during the Easter holiday. It was also interesting to read their workplace summaries and view pictures as it gave an insight into their lives as we forge a deeper working relationship and eventually friendships. I am extremely grateful for multiple person real time editing features on Google docs because as online learners in various parts of the world and different schedules; this medium is extraordinary. The development of the pecha kucha model allowed me to expand my thinking and utilize creativity. I was extremely proud of my team as they worked tirelessly to complete the project. The pecha kucha presentation is one of my proudest moments as we showed unity, teamwork.

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