Pedagogical Approaches and Technical Subject Teaching through Internet Media

Olubodun Olufemi
Dental School University of Lagos, Nigeria
ojolubodun@yahoo.com

Abstract: This is a comparison of Instructivist and constructivist pedagogical approaches and their applications in different situations, which make clear the comparative advantages of both approaches. Instructivist learning, places the teacher in authority while the constructivist shifted authority to no one in particular but shared responsibilities between learner and teacher in such a manner that the teacher no longer assumes the responsibilities of the passage of information/knowledge to the learner but only guides him to discover the 'objective truth' out there and in the attainment of learning objectives. Teaching and Learning process was redefined in the light of 'new' understanding in teaching and learning and practical applications of these pedagogical approaches were considered. I presented a study guide (Appendix 1) as an example of socio-constructivist pedagogy where emphasis in on learning rather than on teaching.

Keywords: Study guide, e-learning, pedagogy, socio-constructivism, test, evaluation, LMS, virtual classroom, asynchronous, instructivism, construction technique.

1. Introduction

Educators around the world today have leaning towards different theories of learning and as such some believe they (theories) do not have to dictate how they teach or have to influence the way learner learn. Earlier theorists in education are evenly divided on varying conceptions on teaching and learning but notable among the theories and practices on pedagogy today which still hinge on the works of earlier philosophy on teaching and learning are:

- Instructivism
- Constructivism
- Socio-constructivism

The language technology is speaking in the twenty-first (21st) century is having its impact on these theories and on every facet of human endeavour. The results of this impact are in creating new dimensions in the ways we live, do things and relate with one another. Does this necessarily make easy the way we do things? That of course is subject to debate but in my opinion I believe technology only makes possible a 'new' way of doing things not necessarily a better way of doing things. The impact of technology on the above theories and practices cannot be over emphasized and will subsequently be discussed. For instance a young man developed a yam-pounding machine and after trial of the said machine by many people the popular opinion was that pounded yam from the said machine was not as palatable as the one made by the use of mortar and pestle. Of course the machine make pounding less stressful but the local people believe it withdraws the taste from it. What an irony? While a student may feel alienated behind a computer screen others believe it is helpful in combining studies with work.

2. Background and themes

The above listed pedagogical practices will be discussed and subsequently related with a view to presenting readers with a framework to form opinions on the option that may be preferred for teaching and learning practical oriented subject where it will be demanded of a learner that he develops manual dexterity in accomplishing specific task on a course while interacting with resources from world wide web, receiving tutor guidance, benefiting from peer contributions and other resources he may be led into in the course of various learning activities in a virtual classroom. Appendix I, is a format of a study guide based on socio-constructivist pedagogical approach for e-learning courses using a Learning Management System (LMS) called Classfronter (www.fronter.com) where focus is on learning rather than on teaching. Classfronter is a product of fronter whose website is stated above.

The guide consists of three (3) modules and each module is divided into smaller learning units (task) and further subdivided into smaller learnable units (activities). Each of these smaller units will be necessary to accomplish the overall objectives of the course modules. In the course of activities in the classroom, e-tutor could still make adjustments or make available resources he feels may be useful for learners' activities. This is to achieve flexibility that online learning seeks to accomplish.

Module I of the study guide exposes course participants to the LMS environment while module 2 & 3 are the actual course components that provided the opportunities for the learners to acquire the skills of producing survey of dental models which is a decision making process for dental laboratory technologist, dentist and undergraduate dental students etc in the manufacture of removable dental restorations for patients who suffered loss of teeth and hence setback in their oral functions and well-being.

The e-tutor (socio-constructivist) prepares this study guide to be deliverable at Classfront so as to achieve the course objectives and in a manner that allows enough flexibility so that learner can search beyond the resources provided and learn more in a learning community. The LMS consists of folders which could serve as forum for discussion or archiving of materials depending on whether they are located in the 'Resources' section or 'Forum' section

The learners will be expected to discuss in the forum, which could either be opened by any of the learner, tutor or module moderator. Forum is usually opened separately for each task and activities for exhaustive discussion within a notional European Credit Transfer System (ECTS) hours. ECTS is an initiative of the European countries for a unified credit system to enhance staff and student mobility, e-quality assurance across borders among other reasons. During discussion additional resources are expected to become available from course participants during their private studies and from searches on the web to enrich learning activities and liveliness of discussion (peer tutoring).

The course tutor creates folders for different course activities from the beginning of the course. For examples we have the following:

1. **Learning resources folder**: Here all the course resources will be made available for the participants to access. Among other things, the mini-lecture, streaming video of demonstration of survey procedures. articles, web resources, study calendar, Rubric etc.
2. **Folders for discussions** will include all forums for discussions for each module.
3. **Group folder** is for submission of group works.

Folders created in the ‘Resources’ section are for archiving of documents while those in the forum section are for carrying out course tasks and discussions. Rubric and reflection are provided for metacognition which are instruments meant to evaluate course participants’ performance as formative evaluation tools.

In the fields of education, technology is creating a paradigm shift, which has created ‘new’ ways of teaching, and learning but that it created a better way is debatable. There are varying opinions and results of achievements well represented in the literatures which can be proudly referred to as successes in their own right on methods for online course delivery and as myriad as they are non of them has yet been regarded as panacea to online learning.

The Instructivist approach to learning is otherwise referred to as objectivist, institutionalist etc where emphasis is on the passage of information and knowledge encapsulating activities and other learning events for learning to take place thereby resulting in a change of behaviour, attitude, belief etc Instructivist helps learner to reproduce a series of facts, knowledge, attitude, belief and behaviour as against constructivist teacher who provides tools such as problem solving and enquiry-based learning activities with which student formulate and test their ideas, draw conclusions and inferences, and pool and convey their knowledge in a collaborative environment (Bjørke, S.A. 2003).

The said transmission is under the arrangement where authority resides in the teacher; the authority of assessment, evaluation, of control of learning events, of scheduling of learning activities and events etc.
The learner is ‘sidelined’ in all activities except those determined and dictated by the teacher in the course curriculum and schedules. In his work, Bjørke (2003) posited that: ‘The current dominating psychological view on learning is that it is seen as a dynamic process where people construct their own knowledge of the world in continuous interaction with the surroundings rather than acquiring knowledge from an “objective” source. Focus is therefore on learning rather than on teaching'. Learning is said to be enhanced in the view of socio-constructivism when learner interact in groups and carryout joint activities.

2.1 What is social constructivism?

> *“Social constructivism argues that the optimal learning environment is one where a dynamic interaction between instructors, learners and tasks provides an opportunity for learners to create their own truth due to the interaction with others. Social constructivism thus emphasizes the importance of*

language, culture and context in understanding what is happening in society and the world and constructing knowledge based on this understanding (Derry 1999; McMahon 1997 in wikipedia)".

The assumption of socio constructivist among others is that learner learns better in a social environment where interaction with other learners increases his cognition rather than decrease it. Kim. B (2001) posited that the factors of culture and context in understanding what happens in learning environment help in construction of knowledge based on this understanding.
He explains further thus 'some social constructivists discuss two aspects of social contexts that largely affect the nature and extent of the learning …

- Historical developments inherited by the learner as a member of a particular culture.
- The nature of the learner's social interaction with knowledgeable members of the society…'

The social aspect of constructivist pedagogy is the opportunities to have learners collaborate in joint learning activities in order to achieve the course objectives while interacting in a social learning environment, which is placed well in the www.wikipedia.org an online dictionary thus:

'Social constructivism argues that the most optimal learning environment is one where a dynamic interaction between instructors, learners and tasks provides an opportunity for learners to create their own truth due to the interaction with others. Social constructivism thus emphasizes the importance of culture and context in understanding what is happening in society and constructing knowledge based on this understanding (Derry 1999; McMahon 1997).

2.2 When is an Instructivist approach the better choice?

I reason that the word 'better' is relative and can mean different thing in several perspectives. It connotes in my understanding and in this context an educational arrangement or learning and teaching approach under which it can be said that educational goals will be realised efficiently with minimal percentage of failures when the teacher is the central person passing knowledge to the learner as compared with constructivist approach that do not place authority entirely in anyone.

2.3 What learning and teaching objectives say.

It is no longer news that teaching and learning process certainly can be carried out with successes in a face-to-face arrangement as well as in online web based environment. The face-to-face learning otherwise known as traditional or on-campus learning has grown through different phases of development. Learning has also been developed such that learning content can be delivered through distance learning methods and media. Distance learning has over the years been severally been redefined and as opposed to on-campus learning does not always require the presence of the learner in a physical structure e.g. in a building in order to participate in learning activities and events with other learners at the same time. Distance learning metamorphosised into what we all know as online learning after according to Nipper, S (1987) quoted by Bjorke, (2003) has passed through three generations of development and of major transformation. The phase one is the traditional correspondence where textual materials are used extensively and are sent by post from course tutor to the students. These materials are specially prepared to suit certain modular objectives. The second rely on the use of multimedia and broadcast media to transmit knowledge but lacked interactive possibilities among learners. The third phase is still changing and is about the use of technology with its rich media interfaces for learners to interact with one another and tutor through the use of computer online and offline. The opportunities for community of practice and socio-cultural exchanges make Internet technology the major focus in distance learning today.

In the aforementioned pedagogical approaches the better arrangement in my opinion where institutionalist that is instructivist will thrive is mostly in on-campus arrangement. It is pertinent to mention also that the objectives of a course are set according to the pedagogical approach intended. In other words the objectives proposed by course designer dictate the best option in course delivery. For example where course content delivery are structured with much responsibilities shifted to the teacher and the learner a mere recipient of information; where the emphasise is that the teacher gives direction and where assessment and evaluation become the major responsibility of the teacher (instructor) then the objectives are clear on what best pedagogical approach will be preferred- instructivist.

2.4 Concrete ideas on instructivist approach

i. Technical skills producing tangible outcomes where the learner is unfamiliar with the concepts in question.

Instructivist approach can be used most effectively in support of learners undertaking courses that have technical components in the course requirement as a precondition to producing tangible changes and results.

For example in a pipeline welding course as it is in Stord/Haugesund University College, Norway (www.hsh.no) which is a technical/vocational course the learner is required to be familiar with the use of materials and machines which requires the teacher to actually demonstrate 'how to do' through web pages or in a formal on-campus arrangement. In a laboratory based teaching, techniques are taught by the use of the equipments and materials. It is not a do-it-yourself thing without at least an initial guidance on how to begin from an instructor. So where technical skills acquisition becomes the major focus of the course schedules and the learning objectives then instructivist approach becomes a better choice.

ii. The enhancement of visual literacy is equally important to instructivist in the use of video tools to present practical concepts. The online tutor must structure activities as sufficient support that will enhance the visual competence of the learner on the use of video tools in presenting practical concepts/techniques helpful to the understanding of a technique.

2.5 When is a constructivist approach the better choice?

Constructivist approaches in teaching and learning process have also been successful regardless of the medium of instruction. Constructivist classroom is not an authority filled environment where the learner is passive and 'ignorant' until he is made wise. It suggests that the learner constructs knowledge from an existing mental model. The learner creates knowledge from existing framework in order to 'fit it into their existing framework of understanding' Beetham, H (2007). The learner enjoys certain extent of 'freedom' in all that pertains to teaching and learning thereby making him an individual of respected sense of responsibility, developing self-managing competences, which is an important attribute in today's competitive world.

> *"It is important to note that constructivism itself does not suggest one particular pedagogy. In fact, constructivism describes how learning should happen, regardless of whether learners are using their experiences to understand a lecture or attempting to design a model airplane. In both cases, the theory of constructivism suggests that learners construct knowledge. Constructivism as a description of human cognition is often associated with pedagogic approaches that promote active learning learning by doing." (Constructivism-Leaning theory, www.wikipedia.org, 2007)*

Will the course objectives and design dictate if constructivist approach is a better choice or not? As mentioned earlier the word 'better' is relative and as such what holds way is the alignment of the course objectives with what the outcomes purposed to be.

The following highlights may therefore dictate the course objectives to suggest the constructivist pedagogy a better choice.

- The roles of the teacher will not be that of transferring knowledge or 'pouring' in some facts to the learner but in acting as a facilitator who encourages learner by giving tasking activities, organize and set probing questions and experiments while the learner is left to interact with available resources to find meaning of the 'real' world.
- When course contents are arranged and structured to encourage learner to be left most times alone to have deep understanding of concepts with little and intermittent input from the tutor as demanded of the course goals.
- In the case where the centre focus of learning emphasises the roles of the learner in evaluation and assessment; undertaking tasks, searching knowledge in the sea of information on the net and when sieving information and ideas in order to come up with fresh insight remains the focus of learning activities.

2.6 Concrete ideas on constructivist approach

In studies that deal with human behaviours, society and living, that is, area of discipline called humanities where technical and tangible results are not priority constructivist approach will be preferred. Here learning contents are theoretical. The learner is left to find meanings of the world and fits them into his framework of understanding the concepts of things around him-which he 'discovered'.

For example in carrying out a study on: The attitude of University lecturers/teachers to online teaching', learner can investigate without being guided in the same manner that requires practical demonstration of

learning events as we have with acquisition of technical skills which requires that an instructor must 'show how to do'.

2.7 Implementation of the examples in the two categories (Instructivist and Constructivist) above in e-learning situation

The implementation of the above pedagogical approaches is possible in e-learning. The use of video to record motion pictures, of demonstration of learning events etc gives direction and strength to the transference of technical skills to learners. Learner may have better understanding of a practical concept in a situation where the use of video recording of learning activities enriches the learning resources. On the other hand the design of course curriculum such that the learner will gain understanding of a concept without the teacher instructing in a web based environment task the tutor in scheduling learning activities such that the process of learning shift responsibilities to the learner without 'threat' to course objectives. In that case practical skills may be supported by the use of video demonstration of learning components that may transfer practical/technique skills without the physical presence of the learner at the time of video recording.

The use of stream video as support to learning places e-learner at an advantage in a web based situation because of the opportunities of viewing a recorded case over and over again. Courses run online through instructivist approach could provide similar opportunities for students learning aids as we have in face-to-face approach where the tutor has to instruct as a support to the learning events and practical activities. It is still possible to combine instructivist and constructivist approaches to have a 'mixed mode' (Bjorke, S. A, 2003) in order to achieve course objectives for those that are yet to be fully comfortable with entirely online course delivery.

The use of stream video as support to learning places e-learner at an advantage in a web based situation because of the opportunities of viewing a recorded case over and over again. Instructivist courses run online do almost provided similar opportunities for students learning aids as we have in face-to-face approach where the tutor has to instruct as a support to the learning events and practical activities.

3. From instructivist to constructivist pedagogy

Talking of acquiring practical skills through the Internet media, my colleagues in the dental laboratory often query the possibilities of this idea. My question in one of our discussions is how did we learn practical procedures in traditional Instructivist classroom?

Of course we learn practical skills by watching our instructors carryout a procedure. There is no time they held our hands to get us perform a task. A student watches his teacher performs a task and subsequently get supervised to gradually perform the same task until he masters it. Practical skill is what a surgeon requires to undertake a surgical operation just as we have with laboratory and engineering procedures. A look at this website (www.elu.sgul.ac.uk/cso/poll/vote.php?) reveals lots of video learning materials in medical, paramedical fields for use by any interested professional. This clearly demonstrates the level of development in using and acquiring practical skills through Internet media without any need for learner to be physically present in a physical classroom.

So regardless of the profession under consideration, with the use of ICT tools like web camera, streaming video etc a student may learn a skill successfully and be supervised and evaluated without any compromise on standard. If a learner could be watched carry out a practical assignment on the web cast, the doubts about who performed a task is reduced if not eliminated and if a practical learning event is recorded, the learner could watch it over and over again gaining advantage over those who watched such an event live and once without a second chance- a common occurrence in face-to-face learning.

Constructivist provided tools for learner to maneuver and manipulate until understanding is fully established on a given task. Where a course is presented adopting constructivist pedagogy, learner interest in acquiring practical skills could be supported by the tutor by the provision of tools like streaming video of recorded learning events where the learner is left to search, study and discover on his own more facts about what is to be learnt. A high order thinking (HOT) may be generated from such challenging learning event which will afford the learner opportunities to say 'I have learnt' rather than 'I was taught' (Bjoerke, S.A, 2003)

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4. Acknowledgement

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Appendix I

Techniques and concept of dental model surveying (An e-course in dental model survey)

Study guide

Course Structure: This course will run completely online with socio-constructivist pedagogical approach. Participants will meet in a virtual classroom to carry out course work, and collaborate in several activities. The course is tutor supported with many to many communication and peer tutoring. Course participants on completion of course will earn a certificate on Technique of Dental Model Surveying with two (2) credits on European Credit Transfer System (ECTS) scale.

Course objectives:
Leaner will gain understanding in:

1. Model survey principles
2. Model survey technique procedures and types
3. Different model surveyors and accessories and their uses
4. Production of survey steps of own sample model.

Additional skills:
Learner will be able to:

1. carry out survey techniques on selected models
2. use different surveyors and their accessories
3. determine path of insertion and removal of a dental appliance
4. decide the kind of support an appliance will require for retention and stability on insertion in the mouth etc.

Mode of course delivery: Learner will meet in a virtual classroom that is using a Learning Management System (LMS) like 'Webct' or 'firstclass', but Classfronter is chosen for this course. Main communication tools shall be asynchronous, threaded, online discussion with group and individual assignment, hand-in and cut off dates.

Teaching Method: Learner-centered with tutor support, 100% online activities, minilecture, Study guide, group work, individual work, socio-constructivist pedagogical approach. There shall be course set books and web resources. Learner will be requested to explore the rich resources of the World Wide Web (www).

Assessment of participants: Portfolio assessment, hand-in, online examination, material submitted during course activities.

Infrastructure required: Course participants shall have access to the selected Learning Management System (LMS). The selected LMS is Classfronter and module 1 shall expose learner to its understanding. A high-speed Internet connectivity for access to virtual classroom will be expected.

Learning resources: The richness and quality of resources contribute to learning In this case video demonstration of surveying procedure could be provided to enrich the course resources base. Recommended set books, minilecture, study guide, illustrations etc are the resources provided.

Course Target group: The course is designed to expose undergraduate dental students, dental technology students, denturist, on new practices and principles in model surveying, and for credit to count towards continuous professional development (CPD).

Course fee: Suggested fee of One hundred Pounds Sterling (100).

Study guide

Module 1

Getting started in the virtual classroom (Classfronter)

Objective: Learner will understand the Learning Management System (LMS) Classfronter. Learn how to navigate the classroom, know the features and other course participants.
Content: LMS, Navigation, Classfronter, Virtual classroom, folders, files etc.

Detailed description of tasks and activities

Task 1 Learn about Classfronter (LMS)
Activity 1: Read and discuss minilecture 1 and see minilecture 1 in the Module 1 documents' folder in the archive. Try and understand the Classfronter and other LMS. Read the GVU guide and try some of the instructions provided. The course participants will agree among themselves who shall be module moderator.
www.edutools.info/item_list.jsp?pj=8
Activity 2: You should have been provided username and password in order to access the course at the University homepage and hence your virtual office and other course participants.
Activity 3: Try to understand the entire menu by the left of the screen on entering the course. Navigate and see full details and the functions of these menus.
Activity 4: At the center of the screen is a drop down. This allows you to access the course with this code **TCDMS (1)**.
Learn how to upload files, create folders and understand the importance of menu by the left of the screen on entering the course you registered for.

Task 2: Play around in your virtual office.
Activity 1 Visit other rooms, know other participants and upload your picture, edit your profile and write a personal introductory doc on yourself. A small picture of yours will be an important inclusion. Try the features at the top right of the screen and use them.
Activity 2 Create folders, room, forum. See Archive, upload files, and open discussions with other course participants.

Overview

Tasks	Activities	Resources	Estimated 'ECTS hours'
Task 1 Learn about Classfronter (LMS)	Activity 1. Read *minilecture* 1 and discuss. Suggest module leader. Activity 2. Log in with the username and password provided. Activity 3. Try to understand the entire menu by the left of the home page of the University, navigate and see full details and functions. Activity 4 Enter the classroom (TCDMS 1) at the dropdown menu at the center of the homepage.	WWW *Minilecture* Username Password The 'GVU Fronter Guide'	(5) (2) (5) (2)
Task 2 Play around in your virtual office	Activity 1 Understand your office and other rooms and try the features in the virtual classroom. Activity 2 Create folders, room, forum. See Archive, upload files, open discussions. Activity 3. Try to understand features in your office and other rooms. Reflection		(6) (6) (4) (1)
			31

Note: The notional student work hours (ECTS hours) in parenthesis are estimates.

Reflection

Have a look at the objectives for this module. Did you learn what you were supposed to learn?
Was it easier or more difficult than you thought?
What was easy, what was difficult?
Was the time estimate correct?
What did you find the most useful/enjoy the most, if any, in the module? Why?
What did you find the least useful/least enjoyable, if any, in the module? Why?
Do you have any proposals for improvements of the module?
Can you think of any way you can improve your own ways of learning?

Module 1

Minilecture

Getting started in the Virtual classroom (Classfronter)

Classfronter is a Learning Management System (LMS) and like many that we have in the ICT software market there are characteristic features (Tools) that enhance learning, which are basic to all. These tools enable learner to perform learning activities in virtual office, interact with peer in discussions, and participate in research etc in a planned virtual environment so that set objectives will be realized.

With the help of hypertext it is possible in Classfronter to organize both threaded and unthreaded asynchronous and synchronous discussions, create folders, forum, etc. The exchanges of information/ knowledge in Classfronter are text based among course participants and it also allows learners to collaborate in learning activities, share ideas, information and knowledge..

On receipt of password and username the student log in into the website address provided. The first page (Home page) on log in is the University home page. There are list of menu on the left of the screen:

- Today
- Contacts
- My Resources
- My Portfolio

These menus are just like those in your mobile phones, each has subtitles, which give further details on what the learners can do with them.

At the center of the home page is a drop down menu, which enable you to choose a course. Select course (TCDMS 1) you be led into the room with the following menus on the left of the screen:

- Room
- Participants
- Forum
- Chat
- Resources
- Portfolio.

On the top right of the screen is 'FRONTER 71', navigate and get familiar with tools in Classfronter. Take a guided tour.

The archive menus consist of folders where documents are kept. These documents are either course documents or students'. You are expected to create folders and keep your document in orderly arrangement depicting good organizational abilities. Students or tutor creates forum, which are otherwise referred to as rooms for discussions only and are expected to be well arranged so that learners and their tutor can follow discussions orderly.

In the forum threaded discussions are arranged in manner that details like time of discussion, who made it, reply to it and how many has accessed it are available. You can also arrange a chat with classmates on any learning issues. It is possible to be online with someone without a schedule but it could be an opportunity to share thoughts. Chatting is live, textual and it is referred to as synchronous discussion between two or more people. In the participants segments, you will have access to detailed information about other participants like addresses, phone numbers, places of work and country of residences etc,

Portfolios section provides details of activities of the individuals on the course

When you clicked directly on 'Forum' or 'Archive' in the menu section on the left of the screen after you have entered the course it will open and two vertically arranged icons appeared in two boxes arranged side by side on the screen. The contents (the icons) of the first box are yellow in colour and arranged vertically in threaded format while the contents of the second box beside it is also arranged vertically. Each icon within the second box has two square boxes behind it. The first of these squares is empty while the second has an arrow that faces downward within it. The first square could be checked to enable you 'work' on the icon while the second when clicked displays list of its contents: Open, Properties, Copy, and Copy to final assessment. These contents also enable you to open, find out about the properties etc of the icons. Another list of items down within the second box in horizontal row when clicked enables you to 'work' on the icon whose empty square is checked.

Top right within the second large box is listed horizontally the following icons with these titles: Folder (yellow), Upload file, Create, Link, and Forum. Click on them and see many learning opportunities they could provide. It is possible to create folders within folder and open several forum within a folder. For this reason Classfronter provides a large space to work, interact, collaborate and perform lots of activities e.g. Research. You are therefore advised to visit all folders and forum whenever you log in to view new contributions.

Module moderator

A module moderator supports the e-tutor in facilitating discussions. His roles can be likened but not the same in all cases to class 'captain' or 'leader' in the face-to-face learning who among other things ensures lectures are held on schedule in agreement with the lecturers, pass instructions from the lecturers to classmates, etc. He could be likened also to group leader in online environment who sees that a given task on which he 'presides' is successfully carried out.

The following among others could be listed as some of his roles:

1. Supports the e-tutor (group leader when necessary) in ensuring tasks and activities are carried out by opening a discussion forum on scheduled activities thereby encouraging development of leadership qualities, self-managing competences, and independence of mind.
2. 'Prompt' discussion- sometimes some course participants may not be available in the classroom for whatever reason. He could send an email or post a comment to encourage participation from the said member(s). This is to ensure a 'timely' completion of modules.

3. Suggests roles like weaver or group leader to course participants to assume. Overall, he ensures all schedules are well organised.
4. He could liaise with the tutor by email on any issue concerning the course when necessary.
5. Course participants at the beginning of each module suggest him.

His don'ts

1. He does not assume the roles of the e-tutor or usurp his responsibilities
2. He opens a discussion forum only when the tutor did not do that after due date.
3. He does not initiate new topics aside from those on the study guide.
4. He must avoid being an instructor especially when the study guide is of socio-constructivist pedagogy.
5. He does not encroach on the roles of group leader whenever one is in place.

Study guide

Module 2

Principles of dental model surveying

Objective: Learner will understand model survey techniques, the underlining concepts, and types and characteristics of surveyor
Content: Surveyors, accessories, model.

Overview

Task	Activities	Resources	Estimated 'ECTS Hours'
Task 1: Learner will understand basics of Model Surveying.	Activity 1: Read minilecture and discuss. Suggest module leader. Activity 2: Learn about the concept of surveying. Find meanings of surveying Activity 3: Find and discuss associated concepts on model surveying.	www Minilecture Set books www www	(5) (5) (8)
Task 2: Learn about model surveyor.	Activity 1: Learn about model surveyor, types and characteristics features. Activity 2: Discuss surveyor accessories and uses. Activity 3: Produce a summary of discussion. Reflection	www www www	(8) (3) (2) (1)
			32

Note: The notional student work hours (ECTS hours) in parenthesis are estimates.

Detailed description of tasks and activities

Task 1: learner will understand basics of model surveying.
Activity 1: Discuss the minilecture and produce a critique of it. The module moderator has to be agreed upon by the course participants.
Activity 2: Learn about the various definitions from different sources of the concepts of surveying. Compare, analyse and place in the folder the various definitions you could find.
Activity 3: Learn about concepts like undercut, surveyline, principles of tilting etc. Discuss surveying using cast obtained from live patient and that obtained from prefabricated moulds. Summarise and produce a hand in.

Task 2: Learn about model surveyor.
Activity 1: Discuss various types and characteristics features of model surveyor. Compare and analyse selected types and place in personal folder your chosen surveyor
Activity 2: Group discussion on accessories of surveyor and their uses in carrying out survey technique. Summarise discussion, place in group folder.

Activity 3: Individual work: Produce a general appraisal of document of the entire discussion for Task 1 & 2 and place in your personal folder.

Study guide

Module 3

Model surveying

Objective: Learner will understand principles of survey techniques, be able to carry out survey technique and also perform some sample techniques.
Content: Surveying, Model preparation.

Overview

Task	Activities	Resources	Estimated 'ECTS Hours'
Task 1: Learn about model preparation for surveying.	Activity 1: Learn about model and instrument preparation. Activity 2: Discuss steps in surveying procedures Activity 3: Individual work: Produce clips of work on surveying. Reflection	Set books www www	(5) (3) (3) (1)
			17

Note: The notional student work hours (ECTS hours) in parenthesis are estimates.

Detailed description of tasks and activities

Task 1: Learn about surveying procedure.
Activity 1: Discuss model and instrument preparation prior to surveying.
Group discussion summary should be placed in group folder.
Activity 2: Discuss steps in surveying procedures. Analyse each step and criticise any possible approach in the choice of survey line, instrument used etc.
Summarise discussion.
Activity 3: Individual work: Make video clips of a survey work done by you and place in personal folder.

Reflection

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?
Was it easier or more difficult than you thought?
What was easy, what was difficult?
Was the time estimate correct?
What did you find the most useful/enjoy the most, if any, in the module? Why?
What did you find the least useful/least enjoyable, if any, in the module? Why?
Do you have any proposals for improvements of the module?
Can you think of any way you can improve your own ways of learning?
Place your comments in the Reflection folder in the archive.

Techniques and concept of dental model surveying

Minilecture

Surveying in dentistry entails the model, which was obtained from the impression/measurement of the oral cavity. The material used varies and are dictated by the case and restoration in view. The mostly used material is the alginate impression material.

A dental model represents the oral landmarks, which vary from one mouth to another. The oral features are very interesting to the clinician or the dental operator who wants to produce prosthesis from a model, which must show the positive likeness of the mouth.

Important terms

The Model: The dental model is obtained from the impression by pouring the impression in dental stone material. This material undergoes an exothermic chemical reaction, which hardens it. A model is divided into two parts namely anatomical (tissue) areas and non-anatomical (non-tissue) areas. Both areas are important but of interest is the tissue bearing areas, which shows the relevant parts of the stomatognatic system namely: The teeth, periodontium, muscles, and the Temporo Mandibular Joint (TMJ).

Model Survey: A dental model surveyor is a mechanical device that helps in achieving surveying procedures in order to guide in the fabrication of a removable appliance, which could be partial or full restoration and could be made in metal or acrylic based materials in order to establish a path of insertion and removal. Surveying procedure is undertaken to determine the path of insertion and removal of an appliance. It is the study of '' the relative parallelism or lack of parallelism of the teeth and associated structures so as to select a path of placement for a restoration that will provide adequate and balanced retention'' (Rudd, K.D, Morrow, R. M, Eissmann, H.P 1981)

A simple **model surveyor** comprise of these features: One movable arm; a flat base that is connected to the base by a vertical iron rod and detachable accessories. Where this course will be implemented the tutor will provide photo of a model surveyor as one of the resources. Accessories include: analysis rod-used in locating undercut areas on a model. Carbon (graphite) marker-used in scribing marks of the model showing the survey lines which could be many on a tooth or tissue depending on the number of tilting option adopted; undercut gauges-used in measuring undercut areas (010' 020, 030) and chisel otherwise referred to as carving instrument-used in carving the blocked out areas for desired path of insertion and removal to be established.

Survey Technique: Survey procedure entails the placement of the model in different orientations in order to establish a favorable path insertion and removal without attempt at compromising retention and stability of the appliance eventually produced. Orientation of a model is otherwise known as tilting options: zero or horizontal tilt; anterior tilt (anterior teeth bend downward), posterior tilt (posterior teeth bend downward); right lateral tilt (right position of model bend downward); left lateral tilt (left position of model bend downward)
Where it could not be established that sufficient or satisfactory undercut could be obtained on a model the dental operator could create guide plane in which case crown of a teeth or teeth could be carved to create bulbous area that will allow desired undercut areas.
Undercut is an area below a survey line
Survey line is a line scribed on a tooth or a tissue area that is placed on the bulbous area on the crown of a tooth.

Undercut could be favourable or unfavourable. Favourable if it could be utilised and if not useful it is unfavourable.

Ruberic

General appraisal on participation (self assessment)

Criteria	0	2	3	4
Cooperation	Did not pay attention to others did not value the opinion of others	Paid attention to, but did not value the opinion of others.	Actively paid attention to, but it was not evident that opinion of others was valued	Actively paid attention to and valued the opinions of others
Contribution	Did not contribute to the completion of the tasks	Contributed, but the work was inferior or inadequate	Contributed to the completion of the tasks with adequate work	Contributed to the completion of the tasks and submitted high-quality work
Participation	Did not participate in the group	Occasionally participated in the group	Often participated in the group	Consistently participated in the group

(Conrad&Donaldson, 2004)

Library of resources

http://en.wikipedia.org/wiki/Constructivism_%28learning_theory%29#Constructivist_theory
http://europa.eu.int/comm/education/programmes/socrates/ects_en.html#2
http://europa.eu.int/comm/education/programmes/socrates/ects_en.html
http://europa.eu.int/comm/education/policies/educ/bologna/bologna.pdf
www.elu.sgul.ac.uk/cso/poll/vote.php?

Conclusion

The learner remains the central focus in training and in the perpetuation of information and knowledge from generation to generation which is one major goal of education. The roles of teachers in continuing to refine and change the faces of knowledge are equally important in this goal. The materials and the medium of knowledge passage are also very important to the education enterprise. Having said that the position of these teachers whether they are constructivist or not will determine the course objectives and vice versa.
But it must be noted that as important as both approaches considered above are, no one is inferior to the other but a mixed mode as suggested by some authorities will be helpful in the realization of set objectives not forgetting that each of them have their own comparative advantages.
I am therefore in favour of a choice of approach to be dictated by:

1. Course objectives
2. Facilities that are available and can be utilized
3. Course designer concept of the learning goals etc.
4. Available funds.

Study calendar

Date	Activity
Jan 2008.	
4	**Start up Module 1**
9	Post task 2 Activity 1
10	**Start up Module 2**
14	Post Task 1 Activity 1
17	Post Task 1 Activity 2
21	Post Task 1 Activity 3
24	Post reflection
28	**Start up Module 3**
30	Post Task 1 Activity 1
February	
4	Post Task 1 Activity 2
6	Post Task 1 Activity 3
9	Post reflection
12	Post TMA
14	Online Exam
15	End of course

