

Redefining Classroom Culture through Instructional Design

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Key words: Instructional Design, Learning methodology, teaching methodology

INTRODUCTION

Developing an interactive instructional design is a complicated task. It requires hard work and exceptional skill. (Xun et al., 2005) describe instructional design as “*higher-order thinking skills*”. Instruction also entails careful blending of planning, task analysis, experience, intended audience and technical consideration (Smith, 1997). Instructors must realize that a good instructional design can bestow a new life to our conventional classroom instruction. Instructional designers must also comprehend that technology assisted instructional design arouses our young to learn meaningfully, elastically and imaginably. As such, our classroom culture which has ruled our learners for many decades needs to be redefined in order to create an environment where students are contented and enjoy their learning in a momentous manner (Rosman Ahmad, 2006).

The Key Apparatus of an Excellent Instructional Design

The prime purpose of instructional design is to help people learn better. It provides a set of procedure for an effective learning. It also offers explicit direction for learners on how to achieve excellence in their studies. According to Reigeluth (1999), to help people learn better an ideal instructional design should deliberate the following: The content of the instruction must be clear. The goals, audience needs, objectives and expected performance must be measurable. The instruction must provide a thoughtful opportunity for the learner to be engaged meaningfully. Furthermore, a good instruction must be able to create an opportunity for the learners to give their feedback and must be able to assess learners’ performance. The instruction must motivate students to continue learning. Apart from the above components of an ideal instruction, Charles continues to highlight that there are two more major components of any ideal instructional design namely, *instructional conditions* and *instructional outcomes*.

According to him instructional conditions suggest the realistic nature of learning such as perception is different from acquiring skills; disposition of the learner such as motivation and prior knowledge; instructional design constraints such as planning and developing. An instruction outcome according to Reigeluth refers to the usefulness of the instruction itself. Is the learner happy and enjoying the instruction? Did the instruction benefit the learner in terms of knowledge transfer? Qureshi (2004) emphasizes that the basic fundamentals of useful learning must be embedded in the instruction. This will assist designers to transfer skills to the 798 1st International Malaysian Educational Technology Convention students efficiently. A good and reliable instructional design must address learners' immense need for knowledge. An effective instructional design must keep learners engaged and assist him/her to continue learning. Bruner a prominent constructivist thinker and philosopher stressed that learners learn based on their engagement and the instructors have to provide that element in the instruction

(Qureshi, 2004). Jerome Bruner one of the renowned philosophers of constructivist paradigm developed a *Task-Focused* model which was designed to engage learners in every step of the model. His model represents three important elements of a good instruction:

1. Enactive: Students learn through action by using their past knowledge.
2. Iconic : Students learn through visual assistance such as icons, images and symbols.
3. Symbolic: Students learn through reason and critical thinking.

According to Bruner the hierarchies of the above elements are not fixed. It can be changed according to the learner's pattern of learning. Bruner always stressed that instructional design should be relevant to learner's experience and perspective. This will motivate learners to learn more. He emphasized that instruction must be easy and specific so that the learner can grasp it easily. Study (House & Daniel 2006) claims that an instructor who provides a *selfbelief* environment for learners in fact motivates them. The study further professes that students with positive attitude towards instruction scored higher compared to students who did not. According to Wilson (1995) instructional design should not be created in isolation. It requires team work that includes students and teachers. It should be a participatory and contributory project. The instructor should not be swept away by many instructional models that set key principles for designing their situated instructions. Although it is a good idea to inspect those principles but the design team should decide the key principles which suit them best.

In addition to key principles outlined by the instructor, he/she should look for authentic and quality materials to represent instructional content. This can be in the form of sounds, audios, video, high resolution graphics and interesting animations.

Wilson's instructional design strategies:

1. Instructional goals and learners goals must be clearly outlined.

2. Provide choices for different users. One instructional goal will not be identical for all users.
3. Create multi dimensional contents. It will help learners with different backgrounds.
4. Make sure to provide guidance for users; do not presume that students are already experts.
5. Create a situation to seduce learners. Use metaphors to assist student's understanding.
6. Create tools and navigations for learners and make it easy to use. Those little icons should not be meant for teachers but for learners.
7. Media selection must be done in the early stages of instruction. Do not offend users. Different media can have different meaning. Culturally sensitive media must be avoided.
8. Assess students and incorporate the findings into the design.
9. Look at your instructions critically. (performance, content, goals, objectives).
10. Do not forget to evaluate your instruction.
11. Observe your students; make eye contact; read body language; read facial expressions; then make adjustment accordingly. Hymel (1993) argues that a good instructional design specifies a kind of environmental situation which helps to change learners' behavior in order to learn better. He suggests that a good instructional design has three vital phases:
 1. Preparatory stage: In this phase the instructor has to determine the objectives, goals, prerequisites and organization of topics.
 2. Implementation stage: The instructor has to choose a viable method of delivering the preparatory stage such as selection of media, activities and implementation of objectives.
 3. Evaluation stage: In this stage the instructor has to critically evaluate the final product based on the prerequisites. This stage is a diagnostic process of making sure that everything is in place.

Salvin (2006) was of the view that for effective instruction the following important elements must be present:

1. Quality: The content must be presented in a unique manner to make learning easy for the students. Its lesson plan and activities must be presented in an interesting way so as to catch the students' attention.
2. Appropriate: The lesson plan must be relevant to the prior knowledge and skills of the students. The lesson should be prepared in a manner which is neither easy nor difficult.
3. Incentive: The instruction must arouse the students' motivation to learn and continue learning.
4. Time: Students must be given ample time and repetition to master the lessons. In every instruction the time is of essence. Robert emphasizes that in order to have an effective instruction all the four elements must be presented adequately. He called his model QAIT.

In 1963 John B. Carroll a prominent American Psychologist marked the essential elements of a good instructional design. He was of the view that students learn differently. There is a slow learner as well as a fast learner. He argued that instructional designers should give attention to the amount of time they allocate for students to learn the same material. As such he invented a formula called Learning Rate (LR). $LR = f$

(time spent learning/time needed to learn). In other words, the learner needs his/her own timing to master a lesson. So the time determines what a learner learns in a particular situation. As such he identified two vital characteristics of an effective learning: determination and opportunity. Determination and willing to learn is controlled by the learner while opportunity is controlled by the instructor. The ability to design a workable, predictable and practical instruction requires professional and skillful instructors. Instructors must study the learners' background before developing an instruction.

This study requires deep realization of how learners acquire knowledge, process and retain it. Instructors must also study the cognitive structure of the learners and must prepare contents which can be integrated with learners' cognitive limitations. As such, the workability of an instructional design is based on how the information is presented to the end users.

Bates (1999) delineates that the instructors in designing a good instruction should bridge their instruction contents with that of the users previous schema or mental map. A good instructional design stimulates those schemas in order to help students learn. Bates later outlines among others the following vital elements of an effective instructional design:

1. Instructional design must be thoughtfully planned well in advance.
2. Evaluate the learners and their current knowledge.
3. Arouse learners' motivation and interest.
4. Careful selection of unbiased and relevant media.
5. Feedback, revision and validation.

Norjihhan Abdul Ghani (2006) points out that in order for the learners to learn effectively two learning conditions must be met. Firstly, the instructor must provide the needed time for the students to learn. This can be accomplished in the form of repetition. Secondly, the concept of scaffolding must come into play in case the students are unable to master a particular instruction. Instructional designers ought to use the Mastery Learning Methodology in order to achieve results. This can be achieved through allocation of adequate time to master a particular unit. According to Sorden (2005) a good instructional designer must make a task analysis to find out targeted audiences' prior skills and knowledge. For his/her instruction to be effective learners must have some past experience of the instruction content in order to 800 1st International Malaysian Educational Technology Convention link that experience with the present instructional activities. Instructional activities must be directly related to the mental map of the learners and must not be too excessive and difficult resulting in a memory overload. Instructional designers in developing their program must realize that there are three types of memory load.

Firstly, intrinsic cognitive load happens when a learner first encounters with the given activities. In this stage the learning depends on the expertise and skills of the learner. Secondly, extraneous cognitive load memory occurs when the content is presented in an excessive manner; it is about presentation method and

the activities which are irrelevant which require more memory to learn. As such, the designer should minimize activities which segregate the learner's concentration. Thirdly, germane cognitive load happens at the last stage of learning. Germane cognitive can enhance learners to acquire and retain knowledge as a mental map for more concrete utilization. Learning will not happen when there are many redundant activities at this stage. These three prerequisite of a good instruction undoubtedly assist designers in developing more meaningful instructions. According to Tempelman-Kluit (2006), too much redundant activities and content in the instruction, it will overload the capacity of the learners' temporary memory limits. When the learners are presented information for the first time they use their short or working memory to store the information; just like a computer memory. As such instructors should minimize unnecessary information to avoid memory overload.

Designers should purge discarded information which is not directly relevant to the learning task so that students can use both processing channels such as short term and long term memory to grasp the needed information. Once the learner generates meaningful connections between short term memory and the information it will lead him/her to make another connection with a schema or a mental map resulting in enhancing the long term memory. Designers who deliberately arouse learners' both channels of memory by intelligently merging animations and narrations have an assured chance of successful information delivery. Tempelman-Kluit (2006) further argues that instructional designers should use dual-coding theory to enhance their instruction.

According to him dual coding principle can be utilized by the instructors to deliver visual and verbal information resulting in maximization of information recall and recognition. Apart from dual coding principles Tempelman-Kluit (2006) offers another important principle called the contiguity principle which is born out of dual coding theory.

He asserts that when images and text are provided in close proximity with each other a connection is automatically established in the mental model of the learner. He calls this process as a *spatial contiguity principle*. He equally professes that when verbal and visual information are presented in a simultaneous manner a noticeable rate of information transformation occurs. As such, a meaningful mental connection is created resulting in a more effective learning situation. He calls it the *temporal contiguity principle*.

Mayer (2003) a prominent educational psychologist admits that designers are certainly facing a great challenge in learners' cognitive load. To help learners learn efficiently they must be engaged in a meaningful learning situation. Meaningful learning undeniably requires a sizeable amount of cognition dispensation. Instructors must realize that they can easily overload students' cognition disposition. The learners' cognitive processing system has very limited aptitude to process information at any one time. As such, instructors are strongly advised that their information transformation should be accurate and

calculative. Richard Mayer emphasizes that there are three kinds of cognitive demands as long as learning is concerned.

Firstly, *Essential Processing Demand*. This process is naturally required by the human cognition system to process and retain the received information. Secondly, *Incidental Processing Demand*. In this stage the human cognition system is not obligatory to make sense of things but forced to make some concession. A good example would be adding music to the background while a narration is being played. In this case the learner has to compromise some cognitive processing resulting in incidental processing of cognition. Thirdly, *Representational Holding*. This phase indicates that the human cognitive system temporarily holds given information in the working memory for a short period of time. For example, an instructional designer provides an animation in the first page and its narration in the second page. In this case the learner has to hold the animation's representation on the first page in his/her memory while proceeding to the next page to hear the narration resulting in unnecessary disposition of memory. Research has shown that human cognition processing system consists of two distinct functions to represent visual images and auditory verbal words.

In order to construct a feasible instructional design, Mayer (2001) suggests eight characteristics of a good instructional design:

1. **Multimedia Principle:** Students can learn better from words illustrated by pictures rather than mere words alone.
2. **Contiguity Principle:** Students can learn better if the words and pictures are presented concurrently rather than to be presented individually.
3. **Coherence Principle:** Students can learn better if all redundant words, sounds and pictures are excluded from the instruction.
4. **Modality Principle:** Students can learn better if words are supplemented with narration rather than just appear as text on the screen.
5. **Redundancy Principle:** Students can learn better if words are presented as a narration rather than narration and text on the screen.
6. **Interactivity Principle:** Student can learn better if they are allowed to be engaged personally.
7. **Signaling Principles:** Students can learn better if narrated information is divided into small segments for easy comprehension.
8. **Personalization Principle:** Students can learn better if information is presented to them as a conversation.

DISCUSSION

Designing a workable and effective instructional design is a difficult task. It requires specialized knowledge and relevant skills. Instructional designers must use strategies that actually assist learners to learn and continue learning. One such strategy is to use state of the art multimedia to enhance their instruction. This will undeniably motivate learners to learn. Motivation according to (Park & Lim, 2007) helps learners to be stress-free and in the process their cognitive processing system will be unperturbed and accommodating. As

such, instructors must improve their delivery system by providing meaningful and motivating learning situations. This can be achieved by arousing the learners' cognitive processing system. Instructional design content must be able to bridge learners' prior knowledge with that of the instructional message, thus helping students to make meaningful connections. After all, the prime purpose of instructional design is to help people learn better. Diamantes (2007) claims that there are four important elements of effective teaching. According to him instruction should be based on outcomes, clarity, engagement and enthusiasm. These elements motivate learners to learn and continue to learn. To design a good instruction, instructors must be in a constant relationship with the learners and must value learners' point of view. In fact learners help instructors to design better. Good design challenges learners and makes connections with learners' existing knowledge. A designer should not hurry in developing an instructional design. He/she must remember that learning requires time and we can not make learners knowledgeable instantly.

Note:

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