

**The Design of Technology-Supported  
Learner-Centered Learning Environments:  
The La Salle Greenhills Grade School Experience**

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*The Nature of Learner-Centered Education: A Snapshot*

Current discourses in pedagogy characterize the goal of traditional classroom teaching as the delivery of information about a particular topic. In this context, the student is expected to receive the content, demonstrate the understanding of the content, and recall the content in a given test. For his or her part, the teacher is expected to transmit the content as efficiently and effectively as possible, ask leading questions which enable the student to find the correct answer, drill or practice the student's demonstration of his or her understanding, and grade his or her performance. The teacher is the "sage on the stage" who possesses the key to information. Since instruction is highly dependent on the teacher's expertise and manner of presentation, the traditional classroom is teacher or content-centered. The teacher functions in this role because of an assumption that students are blank slates or sponges that are ready to absorb new information. Along with this view is the thinking that students have differing rates of absorptions which are classified as either slow or fast or special or gifted. The teacher is then tasked to ensure that students will acquire the content regardless of its value and meaning to the students. Most of the time, the content is taught for the sake of meeting school expectations in terms of covering a set curriculum instead of equipping the student with life skills.

Contemporary educational research has questioned this practice and has sought a redefinition of the teaching-learning process. The term learner-centered education has been used to denote a shift in context. As defined by Dr. Barbara McCombs, one of the most active leaders in this field, learner-centered education is "...the perspective that couples a focus on individual learners... with a focus on learning. This dual focus then informs and drives educational decision-making". This perspective is further described in fourteen principles which may be found in the following Website (see <http://www.apa.org/ed/lcp2/lcp14.html>). These principles ask the teacher to consider the following aspects of student learning when designing instructional activities for students: the students' cognitive and metacognitive factors, motivational and affective factors, developmental and social factors, and individual differences factors.

The overarching goal of these principles of learner-centered education is to help students learn how to learn. Instead of memorizing content, students develop an active interest in studying and learning. They gain skills related to the examination of their thinking about a particular issue or problem and to the search for the knowledge that

answers their concerns. In particular, students in learner-centered education take a second look at the superficial ideas, partially correct concepts or misconceptions and values they have and find ways to understand concepts and values in a deep and meaningful way. Research on children's thinking has shown that students who reflect on their prior knowledge or engage in similar metacognitive processes achieve significant and lasting cognitive gains. Thus, learning should not focus on transmission of content but on the transformation of a student's prior knowledge and values into new knowledge and values.

### *The LCLE System in LSGH Grade School*

For nearly five years now, the Grade School Department of La Salle Greenhills has implemented an instructional system based on the principles of learner-centered education. The system is called the learner-centered learning environment or LCLE for short. LCLE as done in La Salle Greenhills Grade School also incorporates key findings from research on constructivist instructional designs where students work with tools like technology to build new knowledge. Although many classes are still done in the traditional way, the faculty and students of La Salle Greenhills Grade School are slowly shifting from the traditional classroom and consciously adopting the principles of learner-centered education.

In the LSGH GS LCLE, the system of instruction consists of four stages namely, 1) identification and reflection of prior knowledge, 2) experience of engaging interactions, 3) coaching for transformation of prior knowledge, and 4) evaluation and verification of self-assessment. These four stages interact with each other and form the core of the LSGH GS LCLE process. In the first stage, teachers try to determine how students think about a particular topic. Teachers tap into the students' prior knowledge and values. Students are given a situation and asked their ideas on how they would think about or act in the scenario. Students are encouraged to share their ideas and teachers listen to how students perceive concepts and process information. Teachers try to create an atmosphere where students will not feel threatened with discussing their answers. Teachers want students to feel that any answer they give is acceptable because that is what they think. In effect, teachers learn from the students and recognize their individual learning style and capacity for reflection. In the second stage, students are given varied resources and opportunities for interaction which will enable them to transform their prior understanding into new knowledge. These resources respond to the students' varied learning styles and multiple intelligences. Hence, resources range from audiovisual and computer-based resources to collaboration with classmates, consultation with the teacher or performance of hands-on activities. Students explore these resources to gain basic information about the topic. In the third stage, students are coached to develop mastery of the target concept or skill. Coaching is done in three phases involving the teacher's modeling, guided practice and independent work. As part of the independent work, students evaluate their outputs with the help of a rubric or checklist and write brief reflection notes about how they have progressed in the understanding of the concept or value and performance of the skill.

### *The Teacher's Role*

In all the stages, the teacher maintains a facilitative role acting as the “guide on the side”. The teacher has to learn how to identify the prior knowledge and values, provide engaging interactions and resources in the classroom and labs, coach the students how to examine their thinking and verify the students’ self-evaluation. The teacher’s conduct of these actions is anchored on the view that since students have different ways of processing knowledge, students must have at their disposal a variety of learning resources ranging from peer collaboration to technology and authentic activities. Students must see that their learning is not separate from the real world and that the skills they acquire in particular topics are meant to empower them for daily life.

Admittedly, the teachers’ shift from the traditional style to LCLE is long and difficult. In particular, teachers who were trained to efficiently transmit curriculum content have to come to grips with their own thinking of learning and recognize the diverse ways students process information. Teachers have to know how to respond to students’ processing strategies and be flexible enough to engage with them in their learning style. Teachers have to reposition themselves as co-learners with the students and not as someone who is completely above or superior to him or her. As one educator has remarked, in a new paradigm like LCLE, “it is best to learn as we go and not go as we have learned” (Leslie Jeanne Sahler).

### *The LCLE Module and Technology*

Teachers conduct the LCLE class in the form of a module which may be accomplished in a week or two. Teachers design task sheets which embody the four stages previously mentioned. The task sheets are given to the students and the teacher goes over them with the students. At certain times, some of the activities are done individually by the students. At other times, the activities are done in groups. The teacher establishes these individual and collaborative points. During the individual activities, the teacher checks how the students answer the questions. The teacher identifies who in the class needs need more individualized discussions. During the collaborative activities, the students do role playing, share reflections in dyads, or talk about their contributions to the group project. Every now and then, the teacher actively processes with the students on an individual and class basis the ideas they are developing and writing on their task sheets.

As much as possible, teachers provide in these task sheets and for every stage of the LCLE system a rich variety of technology resources to support the students’ understanding. For example, in one Science task sheet about Force and Motion, during the stage of identifying prior knowledge, students watch a video about car racing and based on the scenes they see are asked to explain what they think causes the car to run at high speeds. For the phase of engaging interactions where students examine basic concepts related to motion, students play with bey blades and model cars. For the coaching stage, students click on interactive Websites with flash animations that show in slow motion the properties of force and motion. Students also simulate in these Websites different conditions where the force or motion is varied and view the results. As part of their mastery, students complete a concept map which represents the generalizations they make about force and motion. For evaluation, students make a group Powerpoint

presentation about other situations in daily life which show the application of the generalizations they made in the concept map. Students evaluate their presentation by referring to the rubric in the task sheet

The integration of technology learning resources provides the students with cognitive tools which students use to answer the questions given in the task sheets. Consequently, technology acts as the teacher's partner in the students' learning. Technology supports the teacher's instructional design. It does not become the main driver of the teaching-learning process.

The framework that guides the teacher's choice of the learning and technological resources positions technology and pedagogy at the base of a triangle with cognition at its apex. In this framework, technology and pedagogy work hand in hand to support the learner's cognitive processes. Thus, in the design of the LCLE module, the teachers first identify the cognitive gain that students are expected to experience. This also involves determining the level of critical and creative thinking skills that students need to demonstrate. Next the teachers think of the corresponding pedagogy to help the students undertake the cognitive tasks. Teachers also discuss in consultation with a Technology Partner (who usually works in the computer lab) the appropriate multimedia learning resources that students can use. In particular, teachers look for CD-ROMs and Websites or develop Powerpoint presentations which provide the following: animations or moving image clips to illustrate concepts or processes, simulations of real time events or conditions, practice quizzes or exercises.

These technology resources have the advantage of giving immediate and individualized form of feedback to the students. With technology, students can quickly see the consequences of their actions such as the transformation of a particular event in a simulation or comments about the decisions they make. In the normal face-to-face classroom interaction, customized feedback like this is difficult to provide because of large class sizes and the enormous task of responding to each student. Moreover, students cannot replay their actions and review the consequences of their decisions. With technologies, students have a record of their actions. By looking at the record, students can revise their decisions and improve their output. Furthermore, students today want to interact with information. Technology provides them with this opportunity unlike the face-to-face set-up where students have to wait their turns in discussing their ideas with the teacher.

Technology resources which merely display information without any interactive feature are not often used in a LCLE module. These resources do not add any learning value because they act like electronic books and students merely turn the page or scroll down the window. If a book can adequately show and explain the information, then there is no need to use an online resource if it does the same thing as the book. The technology resources then should be chosen for the unique properties they have as an electronic and interactive medium.

It must be clarified at this point that LCLE modules are not always done in the computer lab. Teachers conduct the modules in both offline and online settings. The offline phase is usually done in the classroom where the teacher does activities which do not require the use of computers. However, in LSGH GS, teachers have access to an Internet-connected computer in the classroom . The teachers can quickly go online and use a Website or show a Powerpoint presentation or any other program as an audiovisual aid. On the other hand, the online part is always done in the computer lab. Students work in pairs and help each other with the parts of the task sheet that involve the use of interactive Websites.

### *Summary and Conclusion*

The LCLE system of LSGH GS was established to respond to the contemporary pedagogical challenge of enabling students to learn how to learn. In the LCLE system, students' thinking and information processing strategies are looked upon as starting points for learning and set the direction for the final goal of transforming prior knowledge into new knowledge and values. Computer-based learning resources are integrated into the process as one of the important tools students use to search for information, find answers to important questions, gain feedback for their ideas and actions, and produce an artifact of their understanding.