GURO21
Gearing up Responsible and Outstanding Teachers in Southeast Asia for the 21st Century

Required Readings
COURSE 1
Facilitating the Development of 21st Century Skills for Southeast Asian Teachers

Required Readings
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Revisiting the Four Pillars of Learning

By Zhou Nan-Zhao (2006)

(An excerpt from the Four Pillars of Learning for the Reorientation and Reorganization of Curriculum Reflections and Discussions).

Revisiting the Four Pillars of Learning

By Zhou Nan-Zhao

In *Learning: The Treasure Within* (Delors, 1996), a report submitted to UNESCO by the International Commission on Education for the Twenty-first Century, learning throughout life is identified as a key to meet the challenges of the 21st century. The Delors report highlighted the need for individuals to “learn how to learn” to cope with the rapid changes and challenges of the present and the future.

The report discussed the four pillars of learning as fundamental principles for reshaping 21st century education. The four pillars are: learning to know, learning to do, learning to live together, and learning to be. Below are brief descriptions for each pillar.

**Learning to know** provides the cognitive tools required to better comprehend the world and its complexities, and to provide an appropriate and adequate foundation for future learning.

**Learning to do** provides the skills that would enable individuals to effectively participate in the global economy and society.

**Learning to be** provides self analytical and social skills to enable individuals to develop to their fullest potential psycho-socially, affectively as well as physically, for an all-round ‘complete person’.

**Learning to live together** exposes individuals to the values implicit within human rights, democratic principles, intercultural understanding and respect and peace at all levels of society and human relationships to enable individuals and societies to live in peace and harmony.

In the *Four Pillars of Learning for the Reorientation and Reorganization of Curriculum Reflections and Discussions*, Nan-Zhao (2006) provided a snapshot of the essence of these pillars - what these really are in the context of education. An excerpt from this article is provided in the following pages.

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1 Introductory paragraph and brief descriptions of the four pillars of learning were taken from “Learning, The Treasure Within: Report to UNESCO of the International Commission on Education for the Twenty-first Century,” Delors (1996).
Learning to know

This type of learning is concerned less with acquiring structured or factual knowledge, as is often stressed in conventional curriculum and in rote learning. Rather it implies the mastery of learning tools.

Acquiring knowledge is a never-ending process and can be enriched by all forms of experience. ‘Learning to know’ includes the development of the faculties of memory, imagination, reasoning, problem-solving, and the ability to think in a coherent and critical way. It is a process of discovery, which takes time and involves going more deeply into the information/knowledge delivered through subject teaching.

‘Learning to know’ presupposes ‘learning to learn,’ calling upon the power of concentration, memory and thought, so as to benefit from ongoing educational opportunities continuously arising (formally and non-formally) throughout life.

Therefore ‘learning to know’ can be regarded as both a means and an end in learning itself and in life. As a means, it serves to enable individual learners to understand the very least enough about the nature, about humankind and its history, about his/her environment, and about society at large. As an end, it enables the learner to experience the pleasure of knowing, discovering and understanding as a process.

Learning to do

This pillar of learning implies the application of what learners have learned or known into practice; it is closely linked to vocational-technical education and work skills training. However, it goes beyond narrowly defined skills development for ‘doing’ specific things or practical tasks required in traditional or industrial economies. ‘Learning to do’ calls for new types of skills, more behavioral than intellectual.

‘Learning to do’ thus implies a shift from skill to competence, or a mix of higher-order skills specific to each individual. The ascendancy of knowledge and information as factors of production systems is making the idea of occupational skills obsolete and is bringing personal competency to the fore. Thus ‘learning to do’ means, among other things, ability to communicate effectively with others; aptitude toward team work; social skills in building meaningful interpersonal rela-
tions; adaptability to change in the world of work and in social life; competency in transforming knowledge into innovations and job-creation; and a readiness to take risks and resolve or manage conflicts.

**Learning to live together**

In the context of increasing globalization, the Delors report places a special emphasis on this pillar of learning. It implies an education taking two complementary paths: on one level, the discovery of others, and on another, the experience of shared purposes throughout life. Specifically, it implies the development of such qualities as: knowledge and understanding of self and others; appreciation of the diversity of the human race, and an awareness of similarities and interdependence amongst people; empathy and cooperative social behaviour in caring and sharing; respect for other people — their cultures and value systems; capability of encountering others and resolving conflicts through dialogue; and competency in working towards common objectives.

**Learning to be**

At its very first meeting, the Delors Commission powerfully re-asserted a fundamental principle: education should contribute to every person’s complete development - mind and body, intelligence, sensitivity, aesthetic appreciation and spirituality. The report mentioned that all people should receive in their childhood and youth an education that equips them to develop their own independent, critical way of thinking and judgement so that they can make up their own minds on the best courses of action in the different circumstances in their lives.

In this respect, the Commission embraces one of the basic assumptions stated in the report *Learning to Be* (Faure, 1972) — that the aim of development is the complete fulfilment of man, in all the richness of his personality, the complexity of his forms of expression and his various commitments - as individual, member of a family and of a community, citizen and producer, inventor of techniques and ‘creative dreamer’.

‘Learning to be’ may therefore be interpreted in one way as learning to be human, through acquisition of knowledge, skills and values conducive to personality development in its intellectual, moral, cultural and physical dimensions. This implies a curriculum aiming at cultivating qualities of imagination and creativity; acquiring universally shared human values; developing aspects of a person’s potential:
memory, reasoning, aesthetic sense, physical capacity and communication/social skills; developing critical thinking and exercising independent judgment; and developing personal commitment and responsibility.

It is important to note that the four pillars of learning relate to all phases and areas of education. They support and interpenetrate one another and should therefore be applied as basic principles, cross-cutting themes and generic competencies for integration in and across subject areas or learning domains.

**Pillars of Learning for Reorienting Curriculum Objectives**

Generally speaking, school curriculum seeks to achieve two broad aims: to provide equal opportunities for all pupils to learn and to achieve, for best possible progress and at the highest attainment; and to promote learners’ spiritual, moral, social and cultural development and prepare all pupils for the world of work and societal responsibilities.

Curriculum objectives are derived from over-arching educational goals, which address human development at both personal and societal levels. On the one hand education is a very individualized process, whose stages correspond to those of the continuous maturing of the personality. On the other hand, it represents ‘a process of constructing social interaction’ (Delors, 1996). From this perspective, the four pillars of learning indicate broad goals of education in a new century and could thereby reorient the setting of curriculum objectives.

*Firstly*, the pillar of ‘learning to be’ reflects a shift from an instrumental view of education, as a process one submits to achieve specific aims (e.g., economic productivity), to a humanistic view of education that emphasizes the development of the complete person, in short, ‘learning to be’ (Delors, 1996). They imply an education aimed at all-rounded development and full flowering of the human potential of individual learners. Thus, school curriculum should be more balanced, taking into account not only the cognitive or intellectual dimension of personality but its spiritual, moral, social skills and values aspects.

*Secondly*, the pillars of learning stress an important educational goal in contributing to social cohesion, inter-cultural and inter-national understanding, peaceful interchange, and, indeed, harmony. ‘These are the very things that are most lacking in our world today’ (Delors, 1996). This goal therefore implies
a radically new curriculum domain, in which relevant knowledge and a range of skills and values should be taught and caught to resolve and manage conflicts for peace in family, at school, in community and in the world at large.

**Thirdly**, the pillars of learning imply an educational goal in developing a learning society in a new century. The concept of learning throughout life emerges ‘as one of the keys to the 21st century’ and ‘the only way of satisfying it is for each individual to ‘learn how to learn’. The shift from ‘schooling’ to ‘learning throughout life’ implies that school education is only part or a phase of the learning continuum and curriculum should therefore not attempt to ‘teach’ or cram the young minds with discipline-based details, apart from the fundamental knowledge, basic skills and universal values which will prepare the pupils for further learning.

**Fourthly**, the pillars of learning point to a goal for a much closer linkage between education and the world of work. This not only concerns ‘learning to do’ but the other three pillars of learning as one central function of education is to prepare young learners to be successful workers and responsible citizens in their adulthood. School curriculum can no longer be purely academic and college-bound; it has to impart employable skills, and positive attitudes toward work, and to develop competency in adapting to change, which is ‘the only thing that will not change’.

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**Guide Questions for Reflection and Discussion**

1. Reflect on the four pillars of learning. How can you apply these principles in your life as a teacher.

2. What are your significant learnings and insights from the article and why do you consider them significant?

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**Source:**

Who is a Lifelong Learner?

By C. Medel-Anoñuevo, et al. (2001)
(An excerpt from Revisiting Lifelong Learning for the 21st Century).
Who is a Lifelong Learner?

By Carol Medel-Anoñuevo, et al.

This article begins with a quote from the Faure Report (1972), that “lifelong education as the master concept for educational policies in the years to come for both developed and developing countries.” Then, it goes on to discuss the characteristics of a lifelong learner.

Who is a Lifelong Learner?

A range of assumptions on the individual as learner has evolved through time. There is the notion that the more the learner has acquired information, the more he/she is a qualified learner. There is the portrayal of the learner as uncritical in acquiring and accepting knowledge, conventional ideas and values. This is related to the authoritarian approach, which looks at the learner as a passive agent being treated as someone without any choice in what and how to learn, and therefore, should be lectured, taught and disciplined. This attitude underestimates the learner’s self-capacity to learn and to create. Finally, there is also fatalism in learning, the belief that learning takes place at the mercy of our hereditary make-up and our past bad experiences and hang-ups, and only within the limits of our cultural boundaries.

In this section, we propose a different constellation of characteristics of the lifelong learner.

The learner as an active and creative explorer of the world

The learner does not simply respond mechanically to environmental stimuli/events. He/she is an active explorer and creator. His/her interaction with the environment is informed by his/her hypotheses, perceptions, aspirations, values, attitudes, cognitive styles, etc. The learner can also anticipate future developments, test hypotheses and create. Learning is an interplay between the learner and his/her learning environments. Very early in life newborn babies can, for example, pay selective attention to different environmental stimuli (e.g., mother or objects). Even before the acquisition of language, very young infants can

already think and solve problems. For example, the newborn soon learns that crying can become an instrumental means to receive the mother’s help to release his/her from hunger or discomfort. These scientific findings confirm that almost from birth the learner is quite intelligent and manifests the capacity and desire to actively explore and make sense of his/her learning environments.

The learner as a reflexive agent

Learning facilitates a process which enables the learner to reflect on his/her life and environment. From the point of view of a provider of learning opportunities, learning materials and events must be organized so as to help the learner learn how he/she learns. The learner’s reflexivity cannot be sufficiently guaranteed by external learning resources or teachers and mentors alone. Lifelong learning needs to aim at building this competency through the eyes of the learner. Research on long-term memories generally suggest that meaningful memories, in which the learner understands its logic and associations, are retained and retrieved better than short-term and rote memories.

Another way to promote learner reflexivity is to encourage his/her own active engagement in problems. The learner needs to self-question and critically analyze learning processes and results. Learner comprehension and self-management of learning processes and results are two important bases for the development of self-reflexivity.

The learner as a self-actualizing agent

Motivation is intrinsic when a person studies because it is enjoyable and important in itself. Motivation is extrinsic when learning depends on rewards external to the action itself. The learner can be motivated to satisfy primary needs (e.g., food, water, shelter) but once these primary needs are fulfilled, he/she is motivated to fulfill secondary needs (e.g., social approval, competence, literacy, etc.). Many human behaviours are motivated intrinsically.

Self-actualization (or fulfilling one’s potential as an individual), curiosity, and exploration are lifelong drivers of human action.
The learner as an integrator of learning

The challenge for the lifelong learner is the so-called integration of thinking, feeling and action. We know that information analysis (cognition) motivates us to act. In recent years, the notion of multiple intelligences which encompasses “emotional” intelligence is drawing more and more attention. Goleman (1995) suggests that emotional intelligence encompasses self-awareness and impulse control, persistence, zeal and self-motivation, empathy, and social deftness. For example, we know that exercise is essential to fitness and health. But although many people acknowledge this, most of us cannot sustain regular exercise, perhaps because our cognitive understanding of it is insufficient. We need to put our thought into action and feel the effects of exercise directly on our bodies. It is therefore important to integrate our thinking, feeling and action.

Another aspect of integration involves managing learning opportunities, taking advantage of all the different learning settings, whether in-school or out-of-school, formal or informal, and across a wide range of learning content.

Given the above characteristics of a lifelong learner, the stakeholders in the educational field face the following challenges.

Lifelong learning as optimizing individual differences in learning

Debate over how much our behaviour in general is shaped by hereditary (nature) or environmental (nurture) factors leads to the conclusion that the two interact, with neither having primacy. The more important question then is how our negative habits or behaviour can be unlearned or corrected through lifelong learning.

Lifelong learning helps the individual learner to reduce the burdens of hereditary “handicaps”. A bad-tempered child needs to learn and train himself/herself, over an extended period of time, to control his/her temper and channel his/her energy
into constructive professional and social activities. Lifelong learning is a key to our dealing with our past experiences and can diminish the effect of hereditary factors that influence learning negatively.

It is important for us to learn not to make hasty and negative conclusions or judgements about so-called “pathological” behavior or disabilities. People who exhibit such behavior or have some sort of disability should not be labeled “abnormal”, lacking in certain learning skills. Lifelong learning should be inclusive, aiming at developing understanding and sensitivity, so that the learners can live together with these disadvantaged people and attend to their needs, difficulties and aspirations. At the same time, one should consider that these disadvantaged people have special abilities of their own.

Lifelong learning as a continuity of learning experiences

We want to try to describe the kind of maturity that represents a culmination, rather than a downgrade, in which curiosity and the capacity to learn continue undiminished and even grow long after the body’s tissues have begun to fall (Stone and Church, 1973).

The concept of continuity of learning experiences is a major area of human development research. Research findings in this area generally suggest that if you were an active learner when you were young, you will stay that way when you are older.

Although learned behaviour and attitudes can change, these also maintain continuity, e.g., the use of the mother tongue, choice of food, value systems, etc. We also try to choose environments that fit our characteristics. We choose jobs that match our skills and personality. These facts indicate that our past learning influences our present and future learning.

Yet discontinuity of learning safeguards our creativity and our ability to adjust to our changing environment. Learning provides opportunities to individuals to develop the capacity to integrate new experiences and adapt to new situations. We seek to learn because learning enables us to change, sustain and improve our skills, knowledge and attitudes across the life span. Change involves self-growth, self-actualization, the development of self-efficacy, skill development, knowledge
acquisition, and creativity development. And not only children change but adults change as well. Indeed, is it impossible to imagine that adults do not change over 30 to 40 years?

**Lifelong culture-learning**

> Culture shapes the way we see the world. It therefore has the capacity to bring about the change of attitudes needed to ensure peace and sustainable development, which, we know, form the only possible way forward for life on Planet Earth. (...) When we speak about culture, we are looking at ways of living as individuals and ways of living together. A ‘living culture’ is one which – almost by definition – interacts with others, in that it involves people creating, blending, borrowing and reinventing meanings with which they can identify.
> (Frederico Mayor, Preface, World Culture Report 1998, UNESCO)

Lifelong learning should place the individual’s learning about his/her own culture and other cultures in the continuum of the individual’s learning throughout the life span. To achieve this goal, conscious effort by lifelong educators is needed to simultaneously understand the process of learning one’s own culture and those processes involved in learning about the diversity of other cultures, and to identify both inhibiting and facilitating factors. So-called home culture learning and learning cultural diversity cannot be treated as separate issues.

Although learning about different cultures is not a new task, it has not been systematically organized. Management programmes in this area are a rarity. Culture needs to be learned more consciously as part of our lifelong learning. Learning and teaching consciously one’s own culture comparatively with other cultures is a useful endeavor. When a person who is brought up in one culture confronts an unfamiliar culture and people, how does that person react? What learning processes are involved? What is the role of learning in anticipating and reducing culture shock in this global village? What is the role of language in understanding one’s culture and those of others? What are the advantages and difficulties of multilingual learning? How do we develop our positive and negative attitudes toward unfamiliar people? What is the role of learning in combating racial stereotyping and prejudices? In reducing inter-cultural conflicts? In discouraging extreme rightist movements? In changing a culture of dependency observed in developmental work? The lifelong learner needs to address these questions.
Guide Questions for Reflection and Discussion

1. What are your significant learnings and insights from the article and why do you consider them significant?

2. Do you consider yourself as a lifelong learner? Why or why not?

Source

Eight Habits of Highly Effective 21st Century Teachers

By A. Churches (2008)


Eight Habits of Highly Effective 21st Century Teachers

By Andrew Churches

What are the characteristics we would expect to see in a successful 21st century educator?

We know 21st century educators are student-centric, holistic and they are teaching about how to learn as much as teaching about the subject area. We know too, that they must be 21st century learners as well. But highly effective teachers in today’s classrooms are more than this - much more.

1. Adapting

Harness as we are to an assessment-focused education model, the 21st century educator must be able to adapt the curriculum and the requirements to teach to the curriculum in imaginative ways.

Educators must be able to adapt software and hardware designed for a business model into tools to be used by a variety of age groups and abilities.

Educators must also be able to adapt to a dynamic teaching experience.

When it all goes wrong in the middle of a class, when the technologies fail, the show must go on.
2. Being Visionary

Imagination is a crucial component of the educator of today and tomorrow.

Educators must look across the disciplines and through the curricula; they must see the potential in the emerging tools and web technologies, grasp these and manipulate them to serve their needs.

If we look at the technologies we currently see emerging, how many are developed for education?

The visionary teacher can look at others' ideas and envisage how they would use these in their class.

3. Collaborating

Blogger, Wikispaces, Bebo, MSN, MySpace, Second life, Twitter, RSS - as educators we must be able to leverage these collaborative tools to enhance and captivate our learners.

Educators, too, must be collaborators:

- sharing,
- contributing,
- adapting, and
- inventing.

4. Taking Risks

There is so much to learn. How can you as an educator know all these things?

- You must take risks and sometimes surrender yourself to the students' knowledge.
- Have a vision of what you want and what the technology can achieve.
- Identify the goals and facilitate the learning.
• Use the strengths of the digital natives to understand and navigate new products, have them teach each other.
• Trust your students.

5. Learning

Educators expect their students to be life-long learners. Teachers must continue to absorb experiences and knowledge, as well. They must endeavour to stay current.

I wonder: "How many people are still using their lesson and unit plans from five years ago?"

To be a teacher, you must learn and adapt as the horizons and landscapes change.

6. Communicating

To have anywhere, anytime learning, the teacher must be anywhere and anytime.

The 21st century teacher is fluent in tools and technologies that enable communication and collaboration. They go beyond learning just how to communicate and collaborate; they also know how to:

• facilitate,
• stimulate,
• control,
• moderate, and
• manage communication and collaboration.
7. Modelling Behaviour

There is an expectation that teachers will teach values, so we must model the behaviors that we expect from our students.

Teachers are often the most consistent part of students' life, seeing them more often, for longer and more reliably than even students' parents.

The 21st century educator also models tolerance, global awareness, and reflective practice, whether it is the quiet, personal inspection of their teaching and learning, or through blogs, Twitter and other media, effective educators look both inwards and outwards.

8. Leading

Whether they are a champion of the process of ICT integration, a quiet technology coach, the 21st century educator is a leader.

Like clear goals and objectives, leadership is crucial to the success or failure of any project.

Guide Questions for Reflection and Discussion

1. Reflect on the eight habits of highly effective 21st century teachers. How would you describe yourself in terms of these attributes?

2. Which of the eight habits described in the article are you strongest? Which ones are you weakest and how do you plan to improve on these areas?

Source

Facilitating Learning: Issues on Learner-Centered Teaching

By D. Pan (2008)

Facilitating Learning: Issues on Learner-Centered Teaching

By D. Pan

1. Enhancing study skills

For students to engage productively in their own learning, they need to be competent learners with the requisite skills (e.g., skills in thinking, reading, writing, presentation, note-taking, writing examinations and time management). Some students, however, need more help than others. So you may wish to take time and ensure that your students have the skills necessary for effective learning.

2. Improving instructional design

Design instruction to facilitate learning.

• **Capture and sustain attention.**
  
  Make use of such stimulus tools such as intensity, contrast, change and repetition.

• **Enhance reception.**

  Recognise factors affecting reception of information such as students’ interest level, physical comfort, fatigue and anxiety.

• **Introduce diversity.**

  Develop a wider repertoire of teaching approaches and styles, both to create interest through variety as well as cater to different learning tasks. For instance, project work and case studies demand higher input from students.

• **Organise information.**

  A structured presentation provides a conceptual framework that enhances reception and enables students to fit in their knowledge and ideas. These principles suggested by Gestalt psychologists may be worth keeping in mind:
4. Stimulating critical and independent thinking

It is crucial that students learn to think for themselves.

• **Guard against spoon-feeding.**

Students must be encouraged and trained to fend for themselves. Instead of providing them with copious notes, teach library skills and guide them with a reference list to obtain information for themselves. Handouts have their uses, but ensure that they are used judiciously and not to perpetuate spoon-feeding. Consequently, summaries/outlines, diagrams, problems, questions and reading lists, are pedagogically more defensible than a copy of the full text of the lecture.

• **Do not condone low-level responses.**

Make clear to students that they cannot get by with regurgitating factual information (e.g., by setting challenging tasks; by announcing that an assignment that merely catalogues facts will get a low grade).

• **Demand demonstration of deep understanding.**

Use teaching activities that require students to engage in deep-level processing of what is learnt.

  o Raise pertinent questions and present problems rather than provide all the answers.
Set assignments that demand investigation, correlation and application rather than a ‘repackaging’ of lecture notes and recommended readings.

- **Prioritise understanding.**
  - Spend time helping students to grasp fundamental principles and concepts.
  - Keep the factual load that has to be memorised to a minimum. This will, of course, vary among disciplines.
  - Get students habituated to seeking/giving explanations for answers that are given by others or made by themselves; this will discourage ‘stock’/rote-learnt answers.

- **De-emphasise didactic teaching.**
  Allocate more time to interactive group work and self-directed learning.

- **Review assessment procedures.**
  Ensure that procedures are consistent with encouraging deep processing and understanding:
  - While multiple-choice questions are effective in checking knowledge of facts, they are less effective than essay-type questions in testing for critical thinking and understanding.
  - Excessive weightage given to summative assessment may discourage risk-taking and independent thinking.

4. **Promoting active learning**

Much significant learning is acquired through doing.

Research suggests that where students are passive observers or receivers, they may lose as much as 50% of substantive content within a few months. Conversely, long-term mastery is more likely when learning is active and meaningful. Active learning implies the involvement of the student in the learning process, as opposed to the monologic mode.
• **Encourage more active and interactive learning.**

Students need to participate, not merely receive; they need to understand, organise and encode information into their long-term memory. They must learn to relate it to their own experience and knowledge and be able to use it logically and creatively. Small-group work and project work are particularly conducive to such activities.

• **Practise effective questioning skills.**

Properly applied, this can provoke thinking and expression, encourage discussion and debate, prompt further and more probing investigation of the subject as well as provide opportunities for students to ask questions to clarify their understanding.

  o Stop for questions or comments when the need arises. Many teachers tend to wait till the last ten minutes but this is unlikely to be productive; there is perhaps no greater technique for stifling an intellectual exchange than to wait until the end of a fifty-minute period before asking: “Are there any questions?” Also, by then students are anxious to dash off to their next class.

  o Once in a while, pose questions: e.g., “What do you perceive as the most significant thing/major points made in the last twenty minutes?”, “What is the question/thought uppermost in your mind now?”, “What is your view (about some controversial issue)?”, and ask students to write down their responses. Have some of them read out their responses in class and collect the rest at the end of the session. This trains students to listen and process information and organise their thoughts instead of blindly transcribing the lecture.

• **Asking Questions**

Why ask questions?

Questions may be used for various instructional purposes, e.g.,

  o to motivate students,
  
  o to establish focus,
  
  o to check on comprehension,
to stimulate participation,

to direct or redirect the discussion.

Skill in asking questions depends on an awareness of the purpose and direction of the question and, correspondingly, the ability to use a variety of questions to suit different purposes and to make different demands. It is clearly useful to have a repertoire of different types of question so that better decisions may be made about which questioning strategies to adopt in order to facilitate teaching and learning.

How to Ask Questions

- Plan questions that are purposefully focused rather than general and vague.

- Phrase the questions clearly.

- Ask one question at a time rather than a cluster of questions which may leave students uncertain which to respond to.

- Pitch questions according to students’ capability but introduce some variation in the degree of complexity. Questions that are too simple may be insulting to students and will not be taken seriously. Questions that are too difficult might discourage effort, though this might be overcome by asking students to discuss the questions with others.

- Observe ‘wait time’ after posing a question to allow students to think and respond.

- Establish the expectation that responses are expected of questions asked.

- If there are no responses, rather than giving the answers immediately, try the following:
  - rephrasing the question
  - asking students what/which part of the question they have difficulty with
  - asking a simpler but related question.
• Acknowledge/follow up on students’ responses (e.g. incorporate students’ ideas into your response to the answer).

• Encourage other students in the group to respond to an answer by:
  o Inviting comments and elaborations
  o Remaining silent and conveying the impression of expecting responses
  o If no comments are offered, paraphrase the initial response to re-state, remind and perhaps clarify and again invite comments.

• Vary questioning techniques according to students’ abilities (e.g. for students with lower ability, provide a longer wait-time, more cues and encouragement).

• Guard against letting a few students monopolise the answering or asking of questions.

• Questions such as ‘Do you understand?’ or ‘Do you have any questions?’ are not very useful. Instead, ask questions which check for and require demonstration of understanding.

**What are the Main Types of Questions?**

Questions need to be framed with a view to their purpose.

Looking more closely at the last two categories—the closed and open questions—a taxonomy may be offered.

**Taxonomy of Questions**

**Factual recall questions**

• Such questions require recall of specific information and may be used to test mastery of basic information. They are also useful as ice-breakers, their relative simplicity serving to encourage response.
• At the simplest level, this kind of questions is often associated with such words as define, memorise, repeat, record, list, recall, name, relate.

  e.g., “What is nominalisation?”

<table>
<thead>
<tr>
<th>Type</th>
<th>Purpose/s and Examples</th>
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| Rhetorical  | • For restatement or emphasis.  
  e.g., “The point about ... seems fairly clear, doesn’t it?”                                                                                   |
| Managerial  | • To deal with ‘housekeeping’ matters; to manage class process.  
  e.g., “Can each of you make copies of your tutorial assignment for distribution to the rest of the group?”  
  “Can we move on now to look at the second text?”                                                                                         |
| Closed      | • To test for specific knowledge of facts and to focus attention. These questions tend to be convergent thinking and cognitive-memory operations.  
  e.g., “What are important factors to consider in writing advertising copy?”  
  • A closed question can be recognised easily because it usually starts with words of phrases like: Do, Is, Can, Could, Will, Would, Shall, Should. |
| Open        | • To encourage divergent and evaluative thinking operations (e.g., critical/lateral thinking, evaluation, alternative viewpoints, discussion, interaction).  
  e.g., “How important is Eliot’s influence on modern poetry?”  
  • Open questions are designed to give information. They tend to start with words such as: How, Why, When, Where, What, Who, Which. |

• At a less simple level, they involve facts organised into some logical relationship. They are often associated with words such as restate, discuss, describe, recognise, explain, express, identify, locate, report, review, tell.

  e.g., “In what contexts would you use nominalisation?”
Questions of ‘who’, ‘what’, ‘when’, ‘where’ tend to ask for retrieval of information; ‘why’ and ‘how’ questions generally test for higher level skills but may also be found in closed and convergent questions.

Centring questions

- These help to focus attention and thinking on a particular topic or aspect of a topic. Carefully chosen, they may also serve to arouse students’ curiosity and interest and motivate them to engage in discussion or thoughtful exploration.

  e.g., “What is your stand on euthanasia?”

Probing questions

These may be a series of questions which require going beyond the first response.

- Clarifying

  e.g., “Could you please elaborate on that point?”
  “Could you be more precise about what you mean?”

- Increasing critical awareness

  e.g., “What are you assuming?”
  “What are your reasons for thinking that it is so?”
  “Is that all there is to it?”
  “How might someone in the opposite camp respond to your view?”
  “What is the question being addressed here?”

What are the essential features and conditions of the ERP?
Given this situation, what do you think will happen as a result of its introduction?
What facts and generalisation support your prediction?
What other things might happen as a result of this situation?
If the predicted situation occurs, what will happen next?
Based on the information and predictions before us, what are the probable consequences you now see?
What will lead us from the current situation to the one you predicted?
• Generating ideas

e.g., “With the standard of English sliding, what can we do about improving it? Let’s brainstorm for a bit to see what ideas we can generate within the next few minutes.”

• Refocusing

e.g., “How does this relate to what you (someone else) said earlier?”
“If this is so, what are the implications?”
“Can we examine the argument more closely?”

• Prompting

e.g., T: “What implications are there in the introduction of electronic road pricing (ERP)?”
S: “No idea.”
T: “What about considering first the functions of the ERP?”

• Redirecting

e.g., T: “What is A Passage to India about?”
S: “It’s about the relationship between the Indians and English.”
T: “Li Leng, to what extent do you agree with that?”

Divergent questions

• Such questions encourage plurality of thinking and exploration of a number of alternatives, and they require both concrete and abstract thinking to arrive at complex responses.

e.g., “What do you think might be the consequences of the publication of the ranking of schools?”
“In what ways would history have been different if Singapore had not separated from Malaysia?”

• Affective questions (questions which invite expression of attitudes, values, feelings of individuals) tend to invite divergent responses.

e.g., “How do you feel about legislating organ donation?”
Analytical/evaluative questions

- These questions require working out of an answer rather than merely recalling it. They require generalisation related to facts in meaningful patterns.

- They include questions which involve higher-order skills of application, analysis, synthesis, problem solving and evaluation.

  o Application

    This requires the use of a concept or principle in a context different from that in which it was learnt. It is often associated with words such as translate, interpret, apply, demonstrate, illustrate, employ.

    e.g., “Can you think of an example to fit this definition?”
    “How can group dynamics be exploited in the tutorial situation?”

  o Analysis

    This requires the determining of whether ideas/objects are similar, dissimilar, unrelated or contradictory. It is often associated with words such as distinguish, analyse, differentiate, appraise, calculate, experiment, test, compare, contrast, criticise, inspect, debate, question, relate, solve, examine.

    e.g., “How does the use of the narrator in “Heart of Darkness” compare with that in “The Good Soldier?”
    “How sound is the proposal to implement national service for women?”

  o Synthesis

    This requires putting ideas together in a new way to formulate hypotheses, plan courses of action, design experiments and so on. It encourages engagement in imaginative and original thinking, and may require inductive or deductive reasoning. It is often associated with words such as compose, plan, propose, design, formulate, arrange, assemble, construct, create, design, set up, organise.
e.g., “Having considered what these novels have in common, what might be a possible definition of the modern novel? Why?”

0 Problem-solving

This requires the use of previously learned knowledge to solve a problem. It involves the ability to see relationships between knowledge and the problem, to diagnose materials, situations, environments, to separate the problem into component parts, and to relate parts to one another and to the whole.

e.g., “You have been asked to design an informative advertisement promoting the services of the Hotel du Lac. In the light of your insights from the analysis of the sets of advertisements in the previous assignment, think carefully of the potential clientele you want to attract, their specific forms of appreciation and their notions of literacy, which express class-related meanings.”

0 Evaluation

This requires judgment, value or choice based upon comparing ideas or objects to established standards. It is often associated with words such as judge, appraise, evaluate, rate, compare, value, revise, score, select, choose, assess, estimate, measure.

e.g., “Given the facts of the case, how would you advise your client?”

When to Use Questions

• Questions are useful and usable in both large-group and small-group teaching.

Though it is obviously easier to use them in the latter, it might be argued that there is perhaps greater need for them in the more formal lecture situation where:

0 questions are helpful in breaking possible monotony, and in monitoring the ‘pulse’ of the class (whether students are following and understanding what is being said);
• students are less likely to take the initiative in raising questions.

• Different types of questions have their respective and appropriate uses.

  o At the start of a class, a specific, closed question may be less daunting and thus may encourage responses from students.

  o To encourage the shy or less able students, a simple factual recall question may be more effective. The satisfaction derived from giving a correct answer can provide positive reinforcement and encourage them to offer subsequent responses.

  o Where the intention is to ascertain mastery of a certain body of information, closed questions would obviously be appropriate.

  o Before starting a topic, open questions can provide indications of students’ pre-knowledge and views.

  o To help decide on approaches, areas to investigate, activities to explore, open questions are more likely to yield useful responses.

  o Open questions can be used to stimulate divergent thinking and generate a variety of responses. Challenge students to consider other options or formulate alternative hypotheses.

  o Towards the end of a class, open questions might be useful for directing students to think further on the subject.

How Not to Ask

• Questioning strategies may be varied to suit the circumstance. Generally, the ask-pause-call approach is more likely to keep everyone attentive, since anyone may be called upon to respond. If there is a predictable pattern (e.g., calling only on those in front or back row or starting at one end of the class and working systematically and predictably through the group), attention of those not in immediate ‘danger’ of being called upon may stray.

• However, there are occasions when it may be desirable to identify the intended respondent first, e.g., to give some forewarning so that there is a higher degree of concentration and perhaps a more considered response. Also, for shy students, this may allow for some mental preparation and make it less painful for them to respond.
• Be aware of how questions are asked. It should convey an interest in finding out about what the learners know and encourage learners to think further of what they should know. If it is perceived as an inquisition, it will intimidate and deter risk-taking responses.

**What Not to Ask**

Clearly, questions vary considerably in range and purpose. Properly applied, they can provoke thinking, encourage discussion and debate, prompt further probing and investigation of the subject as well as provide opportunities for students to ask questions to clarify their understanding. On the other hand, vague, dead-end, strongly directive questions will stifle intellectual development and do little to help students cultivate self-confidence.

Questions to avoid include the following:

• **The ‘yes-no’ question**
  e.g., “Does everyone understand what shifts the demand curve and the supply curve up or down?”
  
• A better alternative might be: “Let’s review the salient factors that cause demand and supply curves to shift. What are these?”

• **The ‘run-on’ question**
  e.g., “Do you think Jim is a romantic? What do you understand by the term ‘romantic’? Remember what Stein said about Jim being a romantic and how that is both good and bad? Why do you think he said that? And what about Marlowe’s point of view?”

• By the time the questioner pauses for breath at the end of the series of questions, students would probably have lost track of the original question and be at a loss as to which question to address.

• **The ‘woolly’ question**
  e.g., “What about the imperialist theme?”
  “Well, what about it?”
• The ‘guess-what’s-in-my-mind’/programmed response” question
  e.g., “How would you go about encouraging participation in tutorials? Do you think that creating a conducive atmosphere might help? Might the way questions are asked help? What about the use of buzz-group activities?”

• The question steers the respondent towards an answer that the questioner wants and hampers independent thinking and the articulation of individual views.

• The ‘put-down’ question
  e.g., “We’ve gone through the first sonnet. Any reasonably intelligent person should be able to read the rest on his/her own. You shouldn’t have any difficulty, should you?”

• Predictably, such questions do not encourage any further questions or responses.

• The personal question
  e.g., “I hear you’re getting married soon. How about telling us about it?”

• The line between interest in a student and ‘nosiness’ is somewhat thin and teachers should guard against the possibility of embarrassing students through asking questions of a personal nature, especially where there is an audience. Also, questioning strategies may differ.

What is Your Questioning Behaviour?

• Do you prepare questions in advance?
  Forethought ensures that the right questions are used for the intended ends.

• Do you observe questioning behaviour and class interaction?
  Video a class. If the purpose of this is explained to students, and if it is done periodically and established as a routine, students are more likely to accept what is admittedly a ‘distraction factor’ in the classroom. You could also wish to ask a colleague to observe one of your classes and provide you with feedback.
• **How often do you ask complex questions?**
  Do you frequently ask questions that require students to go beyond what they already know, and to evaluate and apply this information?

• **Do you practise ‘inquiry’ rather than ‘inquisition’?**
  Inquiry is something teachers and students may do together. Inquisition is something teachers do to students.

• **Do you ask too many questions?**
  As in many things, quality rather than quantity is preferred. Open questions, which stimulate more complex responses and invoke higher-order skills, used with appropriate pauses, are likely to generate longer and more in-depth student responses.

• **Do most of the questions occur at the beginning of a class?**
  Classes quite often start with questions but unless sustained, the dialogic mode can very easily lapse into the monologic.

• **Are most of the questions answered by the same few people?**
  There will always be some students who are more vocal than others, and care should be taken to prevent them from dominating the discussion to the exclusion of the others in the group. Some strategies include:

  o spelling out the ground rules at the outset, for example:

    ■ every person in the group must have had a chance at answering a question before anyone gets a second opportunity to respond;
    ■ the person sitting next to the person who asked a question responds to it;

  o specifically inviting the less vocal students to respond.

• **Do you create a conducive classroom atmosphere?**
  Non-threatening, trust-building conditions are necessary if students are to respond to questions, especially the more open type which involves greater risk-taking on the part of the students. Where students feel threatened or embarrassed about real or perceived inadequacies, they are not likely to contribute freely.
• Do you demonstrate respect for your student?
• Do you play down the authoritarian role for yourself?
• Do you treat all students fairly and impartially? Sometimes with a vocal student in the class, there is a tendency for the discussion to become a dialogue between this student and the teacher. This is discouraging to the other students and may even be perceived as favouritism.
• Is the seating arrangement one that encourages group interaction, e.g., can group members see each other?
• Do you show, by example, that it is acceptable to offer answers other than ‘cast-iron safe’ responses, and to confess to ignorance?

• What are your personal philosophy of education and your perception of your role as an educator?
  Is it to transmit information? Or is it to teach students to think, investigate and learn, and ultimately to do these for themselves and by themselves?

Reminders

The amount a teacher says is not necessarily directly proportional to the amount of learning effected. Students need time to formulate and articulate an answer. It is important, therefore, to make a conscious effort to provide ‘wait time’, not only after asking a question but also after an answer has been volunteered, as there may be more to come.

Teacher asks question
P A U S E (30 seconds)
Response from student
P A U S E (30 seconds)
Response from teacher

Hold it!

Don’t be the first to answer every question, especially those asked by yourself. Refrain from commenting after a response if there are others answering. Let them have their say first.
Encourage responses

Invite, verbally or non-verbally (e.g., eye contact), the others in the group to react to a question or a response made by one of them.

Acknowledged students’ answers

Reassure and encourage students by nodding, praising a good answer, building on an answer, by referring where relevant in the subsequent discussion to a point or points made in an answer.

Deal with incorrect or partially incorrect answers constructively

Criticism is discouraging but obviously an incorrect answer cannot be accepted. The ‘yes...but’ reaction may be used to some extent, especially with partially correct answers, but some restraint must be exercised in its use, or it may lead students to think that their answers are inadequate and invariably need to be rectified, qualified or definitively endorsed by the teacher.

Some possible reactions may be to:

• wait for a few seconds; the student may wish to qualify or modify the answer, or another student might;
• ask another student to comment on the response given and perhaps provide peer correction in the process;
• acknowledge the acceptable part of the response—if the answer is partially incorrect—while prompting the student to rethink or modify the unacceptable part of the response;
• ask student to explain how the answer was arrived at (if this response is not only given to unacceptable answers students will not perceive this as a negative response).
Guard against unwittingly putting down a student

In the unequal teacher-student relationship, students may be more than usually sensitive to criticism. What is perceived as a put-down may put him/her off trying again and risking further humiliation.

Restate complex or inaudible questions

Alternatively, ask another member of the group to do so. This not only clarifies but also turns an individual’s question into ‘group property’.

Deflect

Put a question back to the person who asked it by a counter or prompting question, e.g., “What do you think?” or “What do you mean by...?” Or turn the question over to another student: “..., how would you answer that question?”

“I don’t know”

For many of us, however, this is perhaps one of the most difficult responses, especially when we really do not know. There are certain psychological and sociological factors – perhaps more so with the Asian inclination to ‘save face’ which contributes to our reluctance to confess to inadequate knowledge. Despite the difficulty, it is arguably better to admit that you do not know the answer. Students respect honesty and complaints are unlikely if you indicate your willingness to find the answer and get it back to them at the next meeting. You could also call on the help of another member of the group, or the group as a whole might try to work out the answer.

But even when we do know, feigning ignorance may sometimes be a good move as it may serve to encourage students to be more involved in and to take responsibility for their own learning.

To act the fool is sometimes the greatest wisdom.

– Cato
Don’t answer

This is offered NOT as an endorsement of deviousness, evasiveness and irresponsibility, but as a reminder that answering questions is not always a sacred obligation and that, in some instances, more may be achieved by not answering questions, thereby redirecting the questioner to attempt finding the answer for himself or herself.

5. Encouraging reflective learning

What characterises ‘high grade’ learners is the capacity for thoughtful and critical reflexivity. Reflective learning goes beyond active and experiential learning to explore what has been experienced in order to extend understanding and effect self-transformation. Reflective learning is not only cognitive, but also metacognitive—addressing not only what and how to, but why and what if—and it is essential for real mastery and independent, lifelong learning. Some ways to help students become reflective learners are suggested below:

• **Train them to think critically.**
  Clarify the criteria for performance and help students to cultivate a habit of mind which:
  
  o tries to make sense of the learning experience (e.g., validity/usefulness of claims, questions asked/unasked, completeness of data/records);
  
  o questions the assumptions upon which knowledge is predicated; challenges established definitions;
  
  o makes informed and discriminate choices, thus continuously re-assessing and adapting their learning; and
  
  o relates validated new learning to his/her existent conceptual framework and behaviour, with the consequent projections of how the integrated learning may be applied to future actions.

• **Develop their confidence in self-evaluation.**
  
  o Value their ideas/views.
  
  o Give practice in making independent judgements.
• **Allocate time for reflection.**
  Ensure that time/opportunity for reflection is factored into any planning of learning activities (e.g., set aside time for briefing/debriefing, provide opportunities for clarification, ask students to keep a journal recording the processes and outcomes of their learning) to habituate students into associating learning with reflection on learning.

• **Train students in the requisite skills.**
  If students are to become sophisticated learners, they must have the essential basic skills (e.g., thinking, study, research, writing, presentation, and time and stress management skills).

• **Energise the learning process.**
  Stimulate thinking and engagement with what is being learnt (e.g., ask questions, brainstorm, suggest buzz-group and syndicate-group activities).

• **Listen attentively.**
  Initially it may be difficult to persuade students that it is more productive for them to talk through and formulate their ideas rather than be fed with ready-made ones. But persistence in this is essential if autonomous learning is the goal.

• **Help students recognise barriers to learning.**
  Lack of self-confidence, for instance, may require efforts at validating the worth of the individual and/or group. It is important to give positive reinforcements and be sensitive to non-verbal signs betraying negative emotions.

• **Offer strategies for productive reflection.**
  Use supportive questioning; introduce learning techniques (e.g., learning conversations, concept maps, free association methods or repertory grids to clarify learner’s constructs).
Some possible problems of learner-centred teaching

- It involves much more time and thought.
- It may not be able to cover as much ground (but the printed page and computers can effectively deliver a good deal of information, with the advantage of individual pacing).
- Not being the controlling figure may be potentially threatening for the teacher.
- There may be resistance from students and possibly other sources.

Being prepared for such and other possible problems may forestall discouragement. The shift from teacher-centred to learner-centred teaching is not an easy one, but it seems quite clearly a movement in the right direction towards excellence in teaching.

Guide Questions for Reflection and Discussion

1. Reflect on your teaching practices in the classroom and compare these with the learner-centered teaching style discussed in the article. Would you consider your teaching style as learner-centered? Why/why not?

2. What challenges do you foresee in applying the principles of learner-centered instruction?

Source

Teaching and Learning Philosophy
And Strategies

By UC Regents (2000)
ChemConnections.Org. Retrieved from
http://chemconnections.org/modules/tandl_philosophy.html
Teaching and Learning Philosophy and Strategies
By UC Regents

1. The nature of the learning process

Students gain knowledge and understanding in a social setting. They interact with peers and instructors through a process of negotiation. They interact with the broader intellectual community through thoughtful reading of texts and journals. Each student starts from an initial base of knowledge and experience. All students work from this point to build a more meaningful understanding of the subject matter and to enhance their ability to ask questions and find answers. They must learn how to deal with new situations with tough problems and unknown answers.

2. The steps students must take in the learning process

- Articulate initial knowledge
- Add to what is already known to refine and enrich it with the student's own efforts
- Articulate and correct misconceptions
- Make connections between concepts
- Understand the viewpoints of others
- Realize the limitations of their own ideas
- Create and test new ideas
- Be concerned with mental processes as well as the "answer"
- Reflect on the way their conceptions are changing
- Ask questions (what if..?)
- Develop the ability to be imaginative and creative
3. The ideal learning environment

- Initial activities are accessible to everyone and come from common experiences
- The environment is both accepting and critical
- Students are made to feel free to propose their own ideas without premature judgment
- Students learn to support their ideas while interacting with peers and instructors
- Conversations take place in which all students feel they can contribute
- Ideas are illustrated and student interest engaged through demonstrations and experiments
- An environment is created that fosters self motivation among the students
- A variety of types of learning activities are used to meet the wide range of student needs
- Students must develop a sense of accomplishment and satisfaction

4. Responsibilities of teachers

- Help students learn the language of the discipline
- Explain goals and methods
- Validate knowledge brought by each student
- Create interest and generate curiosity
- Encourage students to work hard
- Communicate standards of judgment
- Help students learn how to use language precisely
- Wean students from dependence on instructors
- Act as a resource without directly answering every question
• Provide time to puzzle, wonder, and struggle
• Don't judge prematurely
• Provide fair criticism
• Encourage collaboration
• Be an active listener and learner
• Encourage students to work in new situations
• Question students so they realize the process of seeking explanations is critically important

5. Responsibilities of students

• Make use of initial knowledge
• Think freely
• Engage in an active social process of testing and clarifying their understanding
• Develop the ability to work effectively and intensely
• Avoid premature judgment of themselves or others
• Ask questions
• Carefully consider the ideas of others
• Learn to think independently and take responsibility for their own actions
• Value others as useful colleagues
• Evaluate their own progress in an objective manner
Guide Questions for Reflection and Discussion

1. What are your significant learnings and insights from the article and why do you consider them as significant?

2. Reflect on the teaching and learning philosophy and strategies discussed in the article. In what ways are they similar or different from your own instructional philosophy and classroom strategies?

Source
