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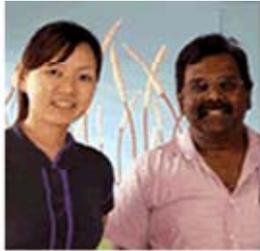
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**IDEAS**  
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## INSPIRE

Get to know the theories and issues that inspired defining trends in educational research, policy and practice.

### Choosing the Best Answer

Teachers are well aware of the limitations of traditional tests. But what does it mean to make use of the alternative? Professor Scott Paris responds to some of the frequently asked questions on alternative assessments.

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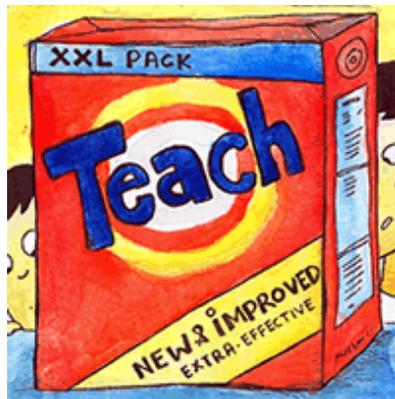
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## INSPIRE

### Choosing the Best Answer

| [Print](#) |

**Teachers are well aware of the limitations of traditional tests. But what does it mean to make use of the alternative? Professor Scott Paris responds to some of the frequently asked questions on alternative assessments.**



It would be hard to find a teacher who truly believes that a multiple-choice exam can reveal everything she needs to know about her students' learning.

In a world of critical thinkers, multiple intelligences and "Teach Less, Learn More", educators are now going beyond asking students to "choose the best answer". Yet, while many are aware of the limitations of traditional assessment, few actually know what the alternative has to offer, how to make use of it, or whether it fits into an educational system defined by largely high-stakes examinations.

SingTeach speaks to University of Michigan professor [Scott Paris](#) about some of the most common questions and dilemmas about alternative assessments. Read on to find out what this means for teaching in the Singapore classroom.

**Q: Does using alternative assessments mean avoiding all traditional tests (multiple choice, true or false, etc.)?**

**A:** I don't think that anyone thinks we're going to replace the current system with alternative assessments. "Alternative" mainly means supplemental, so that there are different ways of giving information about students.

The emphasis on alternative assessment and authentic assessment is really to supplement the kind of information that teachers have about students. This is so that we don't just have test scores and percentiles. Instead, we have more diagnostic information about their strengths and weaknesses in particular disciplines. We can figure out their scientific problem-solving strategies, their mathematical abilities and their literacy abilities so that people can provide better instruction.

**Q: Are we just trading the reliability of standard tests for the validity of an alternative assessment?**

**A:** I think the notion of trading reliability for validity is one of the outcomes because psychometric instruments are designed to be highly reliable. But these tests can be too narrow or may not necessarily have the qualities of validity that the teacher wants.

I think that alternative assessments have lower reliability because if you do an assessment that's based on performance or ongoing classroom activity, you expect it to lead to learning. So, good alternative assessments have lower reliability because learning takes place. That's not a negative feature, that's a positive feature.

Instead of seeing it as a trade-off between reliability and validity, I look at it as different tools for different purposes. If you need a highly reliable tool, maybe a psychometric

test is more appropriate. But if you need a tool that's very valid for the content of the classroom instruction and prediction of success and motivation, then you might turn to more performance-based assessments.

**Q: Aren't alternative assessments more appropriate for subjects like Social Science and Humanities? Is it important for Maths and Science?**

**A:** I think alternative assessments are partly created to compensate for some of the weaknesses in traditional, high-stakes multiple-choice or essay types of tests.

I think people who teach subjects like Humanities, dance or performance would never use a standardised test to look at dramatic abilities or poetic expression.

The question really is whether you can use alternative assessments in your traditional subjects like Math and Science. And I think you can. For example, a typical Science question you may ask is, "What is Boyle's law?" or "What is the Bernoulli's Principle?" It might be reliable, it might even have validity.



But it's easily memorised and doesn't really lead to deeper thinking, creativity or motivation.

If you turn that around a bit to an alternative assessment, you might say: "What are five ways that you can demonstrate the Bernoulli's Principle?" Suddenly, it becomes a better test. Suddenly, you have many different ways you can talk about a scientific principle and that shows the depth of the students' understanding in a way that perhaps a traditional test won't.

**Q: Are there any disadvantages in using alternative assessments?**

**A:** Well, there are many problems that are very well known. One is that it's hard to get quantitative data and so it's very difficult to use alternative assessments for high-stakes decisions. So, there's a reluctance to use them as replacements for standardised tests.

Another problem is that it takes a lot of imagination from the teacher. Unless the teacher is willing to take a chance and see if there are different assessments that work, it will be very hard for the teacher to use the assessments.

Schools can implement some alternative assessments with professional development and have teams of teachers trying it. Let's say they create an alternative assessment in Science, and they see how it works well and how it doesn't. Teachers can refine it and create the assessment to fit their students and their purposes. I think that's a very positive way that teachers capitalise on their knowledge together.

**Q: So do students go through less "test anxiety" with alternative assessments? Isn't a test still a test?**

**A:** The answer is yes and no. The test anxiety can be good in some ways. If you were going to do a dance performance or piano recital, you'd be anxious and excited. Some of that's good. It's good to be excited, eager and maybe a little bit anxious about how you'll perform. That can be positive in a motivational way.

The negative part of the anxiety is when you worry so much about how you'll do and whether you'll fail that your emotions



undermine your performance.

That type of test anxiety is usually less apparent in an alternative assessment because if you don't do well, you could do it again.

So, I think alternative assessments diminish the negative test anxiety and build up a more positive emotion about expectation and eagerness. You can be eager to show your ability and knowledge instead of being afraid to fail.

**Q: How important is the “teacher factor” in alternative assessments?**

**A:** Teachers are really critical for alternative assessments because they need to choose them, they need to use them wisely and they need to interpret them wisely. From my perspective, the main values of an alternative assessment are to provide better diagnostic information to the teacher and to allow students to demonstrate competence.

I think this is a very important topic and all teachers struggle trying to find the balance between the different ways to assess their students' learning. There's not enough time to do everything so they have to be very careful and choose wisely when to use alternative assessments and how to use the information. That way, they don't become too frustrated trying to give too many assessments or not knowing how to use the information.

I guess the key that I see for any assessment is connecting to the students' learning. If the teacher gets more information, and the student learns more from the assessment, then it's successful.

**Q: How do alternative assessments fit into the Singapore system?**

**A:** I think it fits well in Singapore as it does in the rest of the world. Singapore has a wonderful educational system with high achievement. But like many aspects of schooling, the traditional pedagogies emphasise rote knowledge, memorisation of facts over concepts.

I think alternative assessments ask teachers and students to think differently. And that's a good thing because if a teacher decides that she wants to assess a different type of knowledge and she has a clever way of asking students to demonstrate it, then the teacher is showing creativity in her assessment and pedagogy.

Then, the student is given a greater variety of options to demonstrate knowledge. Some students who don't take multiple-choice tests well, don't memorise things or don't really like to learn from books can be very intelligent about the same principles. They simply need to display their knowledge in a different way.



*Scott Paris is a professor in the Department of Psychology and School of Education, University of Michigan.*

*His research interests include the development and motivation of children's learning as well as ways that teachers can use new kinds of instruction and assessment to foster children's learning. He is currently a consultant for CRPP's Core Research Program.*

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*Published in SingTeach, March 2007*



## Core Research Program

### An overview

CRPP aims to provide innovative and practicable answers to important and persistent educational questions and challenges faced by the Singapore educational system. The Core Research Program is the foundation for CRPP's work program. It is designed to provide a comprehensive multidisciplinary evidence base for the "next wave" of Singaporean educational policy and practice.

As such, it draws upon both qualitative and quantitative methods, ranging from large scale survey work, evaluation of student performance, and analysis of demographic and achievement data to qualitative observation and discourse analysis. It is both cross-sectional and longitudinal, with a "nested" design enabling higher level modelling and triangulation across large-scale data sets.

The designs of CRPP's research projects are explicitly aimed at taking account of the dynamism of Singaporean educational ecologies, and working with Singaporean teachers, administrators and policymakers to bring about productive changes. This program employs a variety of design and analytic methods to address questions about Science, Mathematics, English Language and Literacy, Mother Tongue Language and Literacy, and Information and Communication Technologies that will be consequential for classrooms, schools and policymaking bodies.

It consists of six distinct research projects (or panels), which are designed to examine the institutional, demographic, and pedagogical factors contributing to three facets of educational success: students' performance on examinations, their performance on extended project-style tasks, and their life/learning pathways. The data from these projects has already yielded research reports and publications, and has begun providing a solid evidence base for curriculum, teacher development and assessment policy developments.

Click on the links below to read more about each panel.

- **Panel 1**: Secondary analysis of student database
- **Panel 2**: Cross-sectional study of pedagogical practices & student outcomes
- **Panel 3**: Classroom observations
- **Panel 4**: Classroom interactional analysis
- **Panel 5**: Classroom-based assessment & student performance

### Project Brief

**Project Number:**

CRP 7/03 AL

**Research Focus:**

Interdisciplinary

**Keywords:**

Core; Mother Tongue Language; Mathematics; Science; ICT

**Start Date:** Mar 2003

**Status:** In progress

### Project Team

**Principal Investigator**

**(s):**

- **David Hogan**

**Collaborator(s):**

- Peter Freebody, USydney

**Contact Person:**

**Wah Shih Fen**

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**Project Publications**

- **Panel 6:** Longitudinal study of institutional experiences, attainments, goals & choices and pathways

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## IDEAS

**Discover innovative ideas on teaching through thought-provoking articles on the latest research findings by NIE academics and researchers.**

### **Special Needs Pupils in Mainstream Classrooms: Teachers' Perspectives on Their Approaches**

The call for teachers to cater to the greater diversity within Singaporean classrooms has never been so explicit. How do we effectively include pupils with special needs in the mainstream classroom? And are our teachers ready for this?

Click [here](#) to read more.

### **Unravelling Scaffolding for Classroom Practitioners**

Do we really know how scaffolding works or why it is necessary? This article shows how scaffolding can be useful for teachers.

Click [here](#) to read more.

### **Analysing a Learner-centred Lesson**

Examples from a Science classroom show how learner-centred teaching can simply be about asking the right questions.

Click [here](#) to read more.

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## IDEAS

### Special Needs Pupils in Mainstream Classrooms: Teachers' Perspectives on Their Approaches

| Print |

**The call for teachers to cater to the greater diversity within Singaporean classrooms has never been so explicit. How do we effectively include pupils with special needs in the mainstream classroom? And are our teachers ready for this?**



Recent educational initiatives announced by the Ministry of Education have called for better support of pupils with special needs and disabilities within mainstream schools.

Underlying these initiatives are the aspirations and efforts of younger parents with special needs children and a maturing society seeking to establish a sense of collective identity and nationhood through the involvement and participation of its diverse citizens.

The seeds of a society where people of diverse backgrounds and abilities can comfortably interact and relate well with each other are found in communities that educate its members to acquire the attitudes and skills to work with and be inclusive of other fellow citizens.

Many younger parents of children with special needs often send their children to mainstream schools instead of a special school so that their children can learn the skills to participate more fully in society. These parents see the promise of a better future for their children and greater membership in society if they can grow up and interact with diverse others in mainstream schools.

#### Vital spaces

School communities are "vital spaces" for children to learn the attitudes and skills to support the inclusion of others in society, and teachers play an extremely significant role in creating inclusive classroom communities.

In our research study, we interviewed teachers from various primary schools who were able to successfully create inclusive learning communities within their classrooms. We were specifically interested in the pedagogical approaches and strategies they used with their classroom communities.

The source of these teachers' use of appropriate pedagogies to foster and build a caring and inclusive classroom community can be traced to their "personal pedagogy". By that we mean what teachers strongly believe in, value, cherish about teaching, and the essential meanings they make about their work with pupils.

These teachers developed over time inclusive personal pedagogies, which were influenced by their own family upbringing, school experiences, school cultures, and their own reflections on their experiences with children with special needs. Having an inclusive personal pedagogy enabled them to model caring and inclusive dispositions, which, in turn, helped in creating learning environments that are inclusive for all pupils and yet responsive to individual needs and abilities.

#### Inclusive pedagogical approaches

The pedagogies adopted by these teachers focused mainly on two areas: social and academic inclusion.

Social inclusion refers to how the teacher fosters social relationships, friendships and networks so that each child has a strong sense of belonging within the classroom community. Academic inclusion refers to how the various learning needs and abilities of pupils are catered to using appropriately differentiated teaching and instructional strategies and materials. The pupils learn at a pace suited to their needs and, importantly, they enjoy learning.

Some of these pedagogical approaches and strategies are highlighted in Table 1 below.

Social Inclusion	Academic Inclusion
<p><b>At the individual level:</b></p> <p>Understand the child first and seek causes for his or her behaviour. Befriend the child, spend time trying to understand him/her, and what is happening to the child both at school and home.</p> <p>Individual work/counselling—spend time working on particular issues, give feedback and teach appropriate skills.</p> <p><b>At the whole-class level:</b></p> <p>Ensure the well-being and safety of all members of the classroom community, and that every pupil plays a part in this.</p> <p>Respect for differences—use your observations of pupil behaviour and everyday events as a point for discussions and teach skills such as perspective-taking and empathy.</p> <p>Building relationships—proactively create opportunities for interaction, relationship-building and the formation of friendships.</p> <p>Cultivate a helping ethic through peer support systems and cooperative learning activities.</p> <p>Let pupils participated in managing the classroom through self- and peer-regulation.</p>	<p>More specific and direct instruction—break down particular skill, task or concept. Teach basics before progressing to more complex skills or concepts.</p> <p>Focus on strengths—make it a point to focus on pupils’ strengths. Create opportunities for pupils to experience success and build self-esteem.</p> <p>Feedback and encouragement—give positive and constructive feedback for both academic and social aspects of learning.</p> <p>Differentiation—based on your pupils’ learning styles, abilities, interests or preferences, differentiate your teaching methods, types of activities or tasks, materials, grouping arrangements and assessment.</p> <p>Accommodation of learning needs — modify your teaching materials to support various disabilities.</p> <p>Cooperative learning and peer tutoring</p> <p>Relate academic learning to real-life situations—use relevant examples, stories and illustrations from everyday life to teach life lessons and values.</p>

### Making a difference

These findings show that the teaching and inclusion of pupils with special needs in the mainstream classroom is not as esoteric or “specialised” as one might imagine.

These teachers drew from their repertoire of teaching strategies for diverse needs and applied them appropriately in class-wide, group and individual settings. Guided by their own personal pedagogy of creating an inclusive and caring classroom community, they were able to capitalise on learning opportunities presented by difference and diversity, and use them for teaching not just the academics but also character development and the values and skills for relating to and including others.

We do not deny that trying to include pupils with special needs can be challenging when it is left solely to the teachers themselves. Where appropriate, necessary supports can be beneficial (e.g., related services in terms of needed therapies or a school-wide

support approach in transitioning children with special needs across grade levels). However, the notion of creating an inclusive and caring classroom community where pupils look out for each other, by default, creates an effective class-wide behaviour management system owned and sustained by the pupils themselves.

These teachers recognised and made use of difference to make a difference in their classrooms in ways that contributed to the social and academic aspects of learning and development of all their pupils and, ultimately, themselves.

> To learn more about this research project, click [here](#)

#### **About the authors**

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## Coping with Diverse Abilities

### Coping with diverse abilities in mainstream schools

Students with diverse abilities and needs are increasingly found in mainstream schools in Singapore. Their presence inevitably adds greater difference to classrooms which are already recognised as inherently diverse in terms of race, culture, abilities, and learning styles. Greater diversity among students in classrooms requires pedagogical approaches that are inclusive of the learning needs of all and yet responsive to individual abilities.

This project examines, first, how classrooms are meeting the educational needs of students with diverse abilities. Current practices of teachers and schools in making classrooms inclusive of diverse learners will be documented. Second, the project seeks to explore how classroom pedagogies and practices to include diverse learners can be enhanced. Change and reform in pedagogical approaches and practices are theorised as sociocultural processes for creating inclusive classroom and school communities and new opportunities for valuing diversity.

A large amount of relevant literature has been collected and synthesised to review relevant methodologies for doing surveys, qualitative interviews and observations. Interviews with teachers and parents started in November 2004; while surveys with in- and pre-service teachers were conducted early in 2005.

### Project Brief

**Project Number:**

CRP 46/03 LL

**Research Focus:**

Interdisciplinary

**Keywords:**

Teaching strategies

**Start Date:** May 2004

**Status:** Completed Jul 2006

### Project Team

**Principal Investigator:**

- Levan Lim, ECSE
- Thana Thaver, ECSE

**Collaborators:**

- Cheng Yuanshan

**Contact Person:**

[Levan Lim](#)

### Related Links



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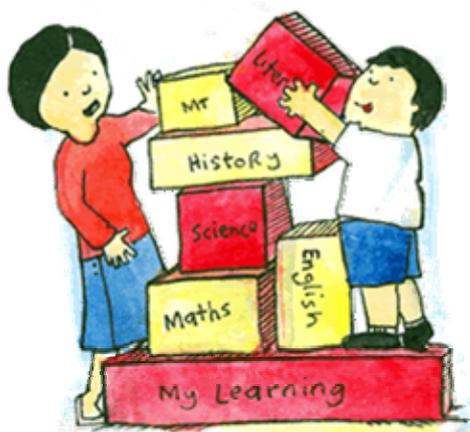
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## IDEAS

### Unravelling Scaffolding for Classroom Practitioners

| Print |

**Do we really know how scaffolding works or why it is necessary? This article shows how scaffolding can be useful for teachers.**



Quality teaching involves not only effective use of teaching strategies but also the implementation of techniques to frame and support those strategies. All too often, the terminology used to describe and justify instructional strategies is vague or poorly understood. This can create confusion and misconceptions, especially about the origin and intent of educational theories and practices.

For example, the term **scaffolding** is used to refer to classroom interactions that range from teachers introducing pre-planned worksheets to giving spur-of-the-moment feedback to students.

For most, the essence of scaffolding is in assisting students to learn. But do we really know how scaffolding works or why it is necessary?

If scaffolding is to be effective, it must be used in a strategic, informed way; otherwise its use will not be as meaningful or as purposeful as teachers would like it to be.

In this article, we attempt to unravel scaffolding for classroom practitioners. First, we trace the origins of scaffolding and outline some of the perspectives that are directly and indirectly derived from that origin. We then raise and respond to a number of practical issues related to scaffolding in classroom contexts.

#### Origins and evolving perspectives

Scaffolding was first used by researchers to describe the role adults could play in helping children or novices solve problems in tutoring situations (Wood, Bruner, & Ross, 1976). The scaffolding phenomenon is frequently associated with Vygotsky's zone of proximal development (Kozulin, 1986). In line with Vygotsky's theory of social and cognitive development, Bruner (1985) expanded the notion of scaffolding to include "competent" peers:

If the child is enabled to advance by being under the tutelage of an adult or a more competent peer, then the tutor or the aiding peer serves the learner as a vicarious form of consciousness until such a time as the learner is able to master his own action through his own consciousness and control.

When the child achieves that conscious control over a new function or conceptual system, it is then that he is able to use it as a tool. Up to that point, the tutor in effect performs the critical function of "scaffolding" the learning task to make it possible for the child, in Vygotsky's word, to internalize external knowledge and convert it into a tool for conscious control. (pp. 24-25)

Thus scaffolding is a tool that is crafted by the tutor for the tutee to use. Importantly, this is done by controlling those elements of a task that are considered to be beyond the learner's current capacity.

Within the context of the classroom, scaffolding usually involves the teacher providing expert assistance based on the perceived needs of students as they work on tasks. This assistance should be temporary—as students become better able to do the work without assistance, support can be gradually withdrawn.

Scaffolding could also be conceived as the degree of support, guidance and direction a teacher provides when students set out to complete a task (Nitko, 2004). A general rule, especially in assessment practices, is that the degree of structure in a task (what is possible and how this is achieved) is determined by the amount of scaffolding provided. Therefore, highly structured tasks are considered to be scaffolded strongly and explicitly and vice versa.

In Singapore, one classroom coding scheme identifies three main scaffold types that a teacher can provide in classroom teaching and assessment contexts (Koh, 2004; Luke, Freebody, Cazden, & Lin, 2004):

1. Content
2. Procedural
3. Strategic

In **content scaffolding**, the teacher provides students with guidance on the possible sources of relevant knowledge and information that can be used to complete a task. **Procedural scaffolding** provides guidance on how to utilise available resources, materials and tools to complete a task. With **strategic scaffolding**, the teacher provides guidance and structure about alternative solutions, strategies or options to complete a task.

In certain circumstances, a **language scaffold** can also be provided (Silver & Kogut, 2006). Here, the teacher provides information or guidance about linguistic knowledge and the use of language to facilitate task completion. This includes feedback, modelling, explanation, and the use of metalanguage.

### Questions arising

Many of the concerns about scaffolding in classrooms arise out of use of materials, activity structures and sequences where an expert (usually the teacher) is involved. For example, teachers may ask:

- What are the best kinds of scaffolds?
- Does scaffolding necessarily result in learning?
- Does it always need an expert or more capable peer?
- Can students scaffold their own learning without the teacher's intervention?
- How is scaffolding different from other types of guidance provided to students when they embark on a new task?

Contemporary views of scaffolding emphasise its ongoing, interactional nature. Learning scaffolds, unlike those used by workers on a building site (see picture below) are constantly erected and dismantled as new, systematic knowledge is crafted in social, activity-based contexts.



If this view is accepted, it is possible for assistance to be derived from a variety of sources, making three kinds of scaffolded interaction possible:

1. Expert to novice
2. Novice to expert
3. Novice to novice

With respect to the dialogue that occurs when students are working together, Wells (2002) notes:

It is not necessary for there to be a clear difference in expertise for participants to assist each other...whenever the dialogue that occurs in joint activity leads to an increase in individual as well as collective understanding, there is an opportunity for each participant to appropriate new ways of doing, speaking, and thinking, and thus to augment the... resources they can draw on, both in the present and in their future activities. (p. 61)

Therefore, dialogic exchanges among students can also be a scaffold. This is shown, for example, when students discuss what a task involves and how they can complete it. If this kind of talk is common in the classroom, students can learn how to produce procedural and strategic scaffolds for themselves.

### **Conclusion**

Scaffolding is an instructional practice that has evolved from a formal and narrow conception of expert-novice interactions to one that is potentially peer-based and highly situational. Scaffolding can be used for a variety of purposes, using diverse resources in order to respond to learners' needs. Given this, what then is the best way to understand the term "scaffolding"?

It is useful to make a distinction between a scaffold (the material resource or assistance provided) and scaffolding (the method and/or process through which the resource is presented and used). For instance, advanced graphic organisers (a scaffold) can help bridge the gap between what learners already know and what they need to know before a task can be completed.

However, a particular risk with any kind of scaffold is when its use becomes habituated.

If students are not given the opportunity to sometimes organise information using their own categories, the practice of using predetermined graphic organisers can be constraining and uncreative.



When the support provided by teachers is fixed and constantly expected, it can no longer be considered temporary. In extreme circumstances of overuse, scaffolds become buttresses (see picture above), cannot be removed without everything toppling down.

In contrast, focusing on scaffolding helps draw our attention to what happens between teachers and students so students can work more independently, to their maximum potential. This view is consistent with the original spirit and intent of scaffolding first articulated 3 decades ago.

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> For more references, [click here](#) to download a selected bibliography on scaffolding.

### About the authors

The authors are staff of the *National Institute of Education (NIE)*, Singapore. Assistant Professors *Phillip Towndrow* and *Rita Silver* from the English Language and Literature Academic Group. Both are also involved in research projects by the *Centre for Research in Pedagogy and Practice (CRPP)* at NIE, to which Assistant Professor *Kim Koh* and Research Fellow *Guo Libo* belong.

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## IDEAS

## Analysing a Learner-centred Lesson

[| Print |](#)

**Examples from a Science classroom show how learner-centred teaching can simply be about asking the right questions.**



The learner-centred model is a teaching approach that emphasises the guiding and supporting of students in the learning process (Brown et al., 1993). The teacher serves as an anchor and makes learning meaningful and purposeful.

Unfortunately, while learner-centred lessons have been touted for their benefits, the reality is that this is not always easy to achieve.

Although teachers may wish to go beyond the lecture-style of lesson delivery, there is often not enough time to finish the lesson. This is especially true in the Singapore context where teachers must teach a specified number of topics.

Given these limitations, does this mean that the learner-centred approach cannot be applied in Singapore?

The answer is NO. In the research project [Classroom Interaction in Science](#), researchers analysed audio recordings from more than 25 secondary Science classrooms. They discovered that a number of teachers actually achieved a degree of learner-centredness through their questioning strategies and classroom interactions.

This article describes how one Science teacher designed and taught a lesson on the concept of compounds and mixtures which was learner-centred.

**The lesson**

This teacher begins the lesson by presenting a time frame and a list of learning points expected of his students. He then provides a list of substances and asks his students to classify them into the categories of elements, compounds and mixtures. When his students give mixed answers, he corrects them by elaborating on each concept's scientific definition.

The teacher then shows a video clip of a chemical change. Below is an excerpt of his exchange with the class after viewing the video.

**Teacher:** From this video, what's the observation? What do you mean by chemical change?

**Student:** Changing chemicals.

**Teacher:** There is more than that.

**Student:** Physical.

**Teacher:** No. What happened after there is a chemical change?

This brainstorming session helps students understand the crux of what a chemical change is. At the same time, the teacher is also able to explain how chemical properties change when compounds are formed.

When some students raise questions related to electrolysis (a method of breaking down compounds into constituent elements), the teacher responds with a video showing the electrolysis of copper chloride. He decides to discuss this topic even though it is meant for another part of the syllabus.

**Teacher:** You are assuming that all the copper chloride will decompose. Do you think it's possible to decompose everything?

**Students:** No.

**Teacher:** It's quite impossible. This means you must decompose until the last drop. Another characteristic of compounds that you should note is that they [elements] must be joined together by fixed proportion.

For example in the case of water there must be fixed proportion of mass, grams of hydrogen and grams of oxygen. It must be a fixed ratio! You cannot say I want more oxygen, so I put more oxygen. It doesn't work this way. I am using the word fixed proportion by mass. I am talking about the ratio of mass.

**Student 1:** Water is made up of two parts of hydrogen and one part of oxygen. So how do you find mass?

**Student 2:** What happens if you have more than necessary?

The students' responses show that they have not really understood the concept of fixed proportion by mass. To deal with this, the teacher creates a hypothetical example and leads his students through it by asking a series of questions.

Next, the teacher shows a video clip of a jar filled with chlorine gas and heats some table salt. Knowing that table salt is also known as sodium chloride, one student raises a question which allows the teacher to clarify how a compound is different from its constituents:

**Student:** Are we eating poison?

**Teacher:** Eating poison? No, you are not eating poison. The chemical properties change. I know chlorine is poisonous but that doesn't mean anything that has chlorine in it is poisonous. There is chemical change so you cannot say that you are eating poison!

The teacher also welcomes other questions from students – even questions which he does not have an answer to. He offers to find the answers to these questions and is open about his lack of knowledge regarding these issues.

#### **How is this lesson learner-centred?**

This teacher demonstrates several learning points about how to conduct a learner-centred lesson.

While the teacher had a curriculum to teach, he made sure to involve his students through presentations and video clips as well as to provide plenty opportunities for them to ask questions. Research has shown that questions can be used as a tool for teaching and as a way to develop thinking skills (Lemke, 1990). In this lesson, students posed 23 questions within a time frame of 35 minutes.

He also created hypothetical examples and used multimodal representations of information. Thus, although the class began with the teacher stating the objectives of the day, most of the lesson comprised video clips and was led by the students' participation.

The teacher was also flexible and willing to change his teaching strategies. During an informal discussion after the lesson, he said that he deviated from his lesson plan when he noticed that the students were not interested in the discussion.

The teacher did not reprimand his students and maintained a friendly manner throughout the lesson. In fact, he carried out multiple tasks while responding to questions—such as providing direct instruction, giving feedback, questioning and preparing video clips. He also allowed the students' questions to lead the discussion and shape his instructional strategy, which showed his ability and readiness to achieve an element of learner-centredness in his class.

### **Acknowledgments**

I would like to thank Professor Allan Luke, former Dean of the Centre for Research in Pedagogy and Practice, for granting permission to use the data.

### **About the author**

*Dr Suneeta Pathak was a researcher with the Centre for Research on Pedagogy and Practice.*

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**Learn from fellow teachers as they use research to reflect on, question, and voice out improvements for their own practice.**

### Innovation in the Classroom

Compassvale Secondary School teachers evaluate their new Integrated Curriculum through action research

Click [here](#) to read more.

### From Veteran Teacher to New Student

According to Mrs. Seah Hui Yong, researchers are not the only ones who have to “bridge the gap”. Teachers can get stuck in their own ivory towers, too. But she’s determined to keep her feet on the ground.

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## VOICES

### Innovation in the Classroom

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#### Compassvale Secondary School teachers evaluate their new Integrated Curriculum through action research



If schools had a "report card", this is what it might say for **Compassvale Secondary**:

*Many of the teachers in this school are HOT – "Happy Ordinary Teachers". Not only are they passionate about their work, their commitment to helping students learn has led some of them to become curriculum designers. At the same time, they're also enthusiastic about conducting action research.*

#### Taking the lead

Take Mr Arasumani, for example. If anyone exemplifies this spirit of innovation in the classroom, it would be Mr Arasu. He has been teaching for 26 years, and still he is constantly asking himself how he can do things better.

In 2006, he led the Secondary 2 teachers at **Compassvale Secondary** in implementing an Integrated Curriculum (IC) programme. The IC programme, as he defines it, aims "to show links between the different subjects".

According to Betty Shoemaker, the Integrated Curriculum can be defined as:

"Education that is organised in such a way that it cuts across subject-matter lines, bringing together various aspects of the curriculum into meaningful association to focus upon broad areas of studies. It views learning and teaching in holistic way and reflects the real world, which is interactive."

In this programme, level teachers work closely together to design "integrated" lessons that were centred around themes. For 2007, teachers chose the theme "People - Singapore's Most Precious Resource". This enabled students to see the relationships and connections among different disciplines.

Instead of the usual continual assessments and semestral examinations, students were given various performance tasks which required them to use the knowledge, values and skills of the different subjects together.

"What is most valuable about the Integrated Curriculum is the autonomy that's given to the teachers to be active curriculum designers," noted Vice-Principal Mrs Sng Ching Yee. "The synergy which we managed to hone among the teachers through very open dialogue about each other's curricular priorities, to come together to determine certain key pedagogical practices and assessment formats."

#### Embarking on AR

As this was a new initiative, the teachers could not be certain about its effectiveness in achieving the desired learning outcomes. The next step for them was to initiate a process of careful evaluation – they decided to do some action research (AR).

AR was already a part of the school's culture. It was first introduced in 2005 by their Principal, Mrs Ang Ju Lang, with help from consultants from NIE. "We embarked on AR because it's basically a natural progression as we grow as a school," explained Mrs Sng. "AR is actually one of the ways to build the capacity of our teachers."

The school is so serious about AR that all of their teachers are involved in doing research. Last year, the school even published a book of their research reports based on AR projects done in 2005 (Chew, 2006). This caught the attention of the Education Minister, who highlighted it in his [speech](#) at last year's Work Plan Seminar as an example of schools that have taken the initiative to deepen their teachers' expertise through practice-oriented research.

The school is currently putting together a second publication, edited by Dr. Lana Khong from the Policy and Leadership Studies Academic Group at the [National Institute of Education](#).

For Mr Arasu and his colleagues, AR offered a good way to evaluate the effectiveness of their IC programme. Said his colleague and fellow researcher, Ms Bernice Tay, "AR offered a good structure for reviewing the programme – how do we assess, how do we review, how do we analyse our data."

They carried out surveys and conducted interviews with teachers, students and even parents. They also engaged in an extensive review of the literature. "It's a very holistic kind of research," added Bernice.

### **Unexpected findings**

The team carried out the AR in Semester 2 of 2006 and turned up some surprising finds.

For example, they found that they had inadvertently over-stretched the students. "The students found it enjoyable but very stressful. We found that we gave them too many performance tasks last year within a short period of 15 weeks," shared Mr Arasu. So this year, they have cut down on the number of performance tasks, focusing more on quality rather than quantity.

They were also surprised to find that the students lacked the skills to do groupwork, which was integral to completing the performance tasks. "We found that there are some students who do not know how to participate, do not know how to hold discussions," explained Bernice.

But isn't groupwork something that teachers have always employed? "You see, that was our mistake," said Mr Arasu. "It was an assumption that kids would know how to do groupwork, but the feedback from the pupils made it clear that they did not know – they got together as a group but they didn't know how to function as a group. That was a very key learning point for us."

The findings from their research have helped them improve on the design of this year's IC programme, which was rolled out when the new school year began.

### **A fruitful process**

For this team, the entire process has been a satisfying and rewarding one – to be able to trial a new pedagogical method, and also to be able to say with confidence that this is the way to go, based on the evidence in hand.

"AR really helps us take stock of what we have done – I think that's very important," said Mr Arasu. "Without AR, I probably would have done feedback, but I think it'll be at quite a superficial level. AR really forces us to do in-depth research, thinking, reflection and writing."

Comparing the end result to finding "gold at the end of the rainbow", Bernice said, "When we just begin, we do not really see the benefits. But at the end of it we realise it's actually very beneficial to us."

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## VOICES

### From Veteran Teacher to New Student

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**According to Mrs. Seah Hui Yong, researchers are not the only ones who have to “bridge the gap”. Teachers can get stuck in their own ivory towers, too. But she’s determined to keep her feet on the ground.**



I did not shake Hui Yong’s hand when we met for this interview. Not because I wasn’t glad to meet her. Rather, it was due to the large number of books she was carrying in her arms. “I’m trying to do some reading while I’m free,” she chuckled as we settled down for the interview. I couldn’t help but laugh in response, realising that with her T-shirt, short-cropped hair and stack of books, this teacher of 21 years was actually very much like...a student.

As it turns out, I was right. Just last year, Hui Yong decided to pursue the toughest degree in academe: a PhD. Five years of coursework, independent research and less pay is definitely no joke for someone who used to be the Integrated Programme Coordinator of [Nanyang Girls’ High \(NYGH\)](#).

So what pushed Hui Yong to go for what jokingly stands for “permanent head damage”? I wanted to find out what makes this veteran teacher determined to keep learning.

#### Trying something new

Interestingly, the inspiration to pursue a PhD came from an unlikely yet serendipitous source: a five-day work attachment with the [Centre for Research on Pedagogy and Practice \(CRPP\)](#).

Organised by the [Teachers Network](#), the [Teacher Work Attachment \(TWA\)](#) programme aims to give teachers a broader perspective by “attaching” them to external organisations beyond the school environment. “It was the first year they sent the word out to schools,” Hui Yong recalls. “The principal asked who might be interested, and I was one of those approached to consider it.”

While teachers were free to explore a whole range of industries—from banking to tourism—Hui Yong decided to stick with something closer to home. “I’m very much a teacher at heart,” she explains. “I was not really interested in other jobs but I always hoped to get involved in research work one day.”

Along with 35 other teachers, she was tasked to judge the quality of tasks and student work using a rubric designed by Dr. Kim Koh and the researchers of CRPP’s [Core Program](#). The rubric emphasised the use of alternative assessments as a way of evaluating student learning.

Luckily for Hui Yong, this was something extremely relevant to her job at NYGH. “When I came to CRPP, I was in my first year as coordinator of the Integrated Programme,” she explains. “We had drastically changed our assessments into alternative assessments, so it was my vested interest to find out what other schools were doing as well.”

#### Tasting humble pie

Interestingly, the work attachment turned out to be more than Hui Yong expected. One

thing she especially remembers was the opportunity to interact with teachers from other schools.

"After 20 years, it serves to be reminded that different teachers can have very different concerns," says Hui Yong. "Admittedly, NYGH is an elite school and sometimes we tend to think that we are at the forefront. I realised that we are only one baby step ahead of the rest. It's good to hear from other schools—people who have fewer resources but can achieve so much. It's a humbling experience."

Judging student learning without the usual pen-and-paper tests was also something that appealed to Hui Yong. In fact, she became so interested in the concept of alternative assessments that she decided to do her own research.

"The CRPP scoring rubric was a godsend because I was allowed to take the instrument back and evaluate the assessments that were already in place in our school," she recalls. With the guidance of Dr. Koh, Hui Yong completed a [research study](#) on the intellectual quality of alternative assessments in NYGH and presented it at the school's research seminar. Impressed with her work, Professor Koh encouraged Hui Yong to consider taking a PhD at NIE. The rest, as they say, is history.

### **Climbing down the ivory tower**

Hui Yong's enthusiasm to keep learning within a profession where one is stereotypically expected to know everything is certainly remarkable. But it is her honesty about the teaching profession that is most disarming.

"When you stand in front of the classroom, there's a tendency to slowly buy into the idea that you know everything about teaching," she admits. "It's a very isolated craft and it's easy to dismiss research and say, 'Oh, these people don't know what they're talking about.' That's not something I agree with."

Before one can downplay this as mere idealism, Hui Yong is quick to show that she is speaking from experience. "To be fair, teachers are sometimes just so bogged down with work," she says. "You can't entertain such thoughts when your nose is barely above the water and that's very sad. I know many intelligent teachers who are now merely fighting fires—sending emails, writing reports. It's very difficult."

How then can teachers "keep learning" and still handle the demands of the job? Hui Yong's response is once again both frank and to the point: "I have no easy answer for that," she says, shrugging her shoulders.

"I think if there's anything this one year has taught me, it is that you have to make your priorities clear to yourself," she explains. "I don't think it would have been possible to do my PhD and still claim the same pay. At the end of it, you have to decide, 'This is important. Okay then, I'll cut back on something else.'"

Is it just me or did that make a lot of sense?

#### **Saber-tooth steak for dinner?**

Written by J. Abner Peddiwell, [The Saber-Tooth Curriculum](#) is a story about a tribe that stubbornly believes in teaching its children how to scare away the Saber-Tooth tiger long after it had already become extinct.

"It's a story about how we need to constantly challenge what we do and look for ways to improve our craft," Hui Yong says. *The Saber-Tooth Curriculum* is one of her favourite stories, and she would definitely encourage others teachers to read it.

> [Click here](#) to read the whole story.

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## VOICES

### Leading a Learning Circle

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**Five teachers from MacPherson Primary School show us what it really means to “facilitate” change in the classroom.**



When teachers at [MacPherson Primary School](#) first found out they would be given the chance to facilitate their own [Learning Circles \(LC\)](#), it was hard not to be a little worried.

Led by the [Teachers Network](#), an LC is a professional development tool whose success is dependent on having teachers talk, reflect and work together in solving a particular issue. Therefore, an LC facilitator is not only expected to lead discussions but also to motivate, inspire and guide the participants as well.

“It was kind of funny because some of us are introverts,” chuckles Herda Suleiman, a Primary 1 teacher. “So when we were chosen to facilitate an LC, we were afraid we wouldn’t be able to live up to their expectations.”

Apparently, a lot has changed since then. Having completed a whole Learning Cycle in 2005, Herda and her colleagues Latha Balakrishnan, Constance Chia, Yer Lay Keow and Sharleen Chong don’t seem to be either anxious or introverted. All five teachers are confident, frank and even a little philosophical as they share the ups and downs of teacher research and what it really means to “facilitate” change in the classroom.

#### Choose and Eliminate

The first important role of an LC facilitator is to help the teachers decide what problem the LC should focus on. An easy task? Not really – especially if you’re dealing with 5 to 8 different teachers, each handling a class of at least 40 students.

“When we choose a problem to be solved, it has to be for the whole level,” explains Herda. “It must be relevant from the first class to the tail-end class. We prefer that everyone will benefit from the LC.”

Of course, this begs the question: Isn’t this easier said than done? As it turns out, finding a common problem was something that came naturally. In Latha’s LC, Malay and Tamil teachers collaborated in helping students improve their oral skills. “We realised that pupils were not using the proper vocabulary that needed to be used in the classroom context,” says Latha. “We also felt it was a very timely issue. Since 2006, the weight given to oral skills in

the PSLE is very high. It is almost a quarter of the total marks.”

Similarities surfaced not only within but across levels as well. As each LC completed their action research studies, teachers realised that a good number had chosen to focus on improving the students’ oral communication skills. They then found themselves comparing strategies and different speaking activities. Making the effort to find common ground then proved to be extremely beneficial.

“We do have common worksheets but some classes need more help in a particular topic,” explains Herda. “One teacher may prepare extra worksheets to help her students without knowing that other classes are also facing the same problem. Two teachers then end up making extra worksheets for the same issue!”

“In one way or another it actually saves time,” agrees Lay Keow, whose LC dealt with improving English speaking skills among Primary 5 students. “If your class and my class have the same problem, we don’t have to do the same thing separately. We can share.”

### **Dealing with the data**

Once the problem is identified, the LC then embarks on an action research study to determine the effectiveness of the strategies they have chosen. For LC facilitators, this means ensuring that all teachers take part in gathering and analysing the research data.

“The time was really tight. Teachers had to meet and do research, so that cut into the time they used for teaching and marking,” recalls Constance. “Still, I think they were really cooperative. They were trying their best given their limited time.”

“We definitely had to work within a time frame,” agrees Latha. “We couldn’t just drag on and on; so from the start, we had to decide how long we were going to work on the research. Is it going to go on for 10 weeks or 6 weeks? We had to draw the line first then see how we were going to progress.”

As it turns out, all five action research projects facilitated by the teachers showed a considerable improvement in student performance. Sharleen, a Primary 3 teacher, is especially proud of her LC’s study on using the buddy system to help students who were weak in Mathematics.

“We paired up the weaker students with the ones who were stronger in Maths and did a pre- and post-test,” she says. “We even did a subsequent test later on to check on how they were doing. At the end of the year, the students did tremendously well.”

### **Not extra work**

Ironically, the most difficult task of an LC facilitator is not part of the research process at all. Rather, it has to do motivating fellow teachers to see the benefits of the LC in spite of the effort and time it requires.

“The first thing we have to do is convince them that action research is not additional work,” Sharleen says. “Knowing our busy schedules, it’s very important to let them know that it is something that will make their work easier.”

Of course, in order to achieve this, LC facilitators have to believe that action research is not extra work for them as well. For Herda, it’s all a matter of seeing it as part of the teaching profession. “We believe that anything that can help us improve our students’ learning is good. Therefore, it’s not extra work because it’s our job to make them better pupils. If action research works, why not?”

### **Next steps**

As another school year begins, all five facilitators are hoping to see more LCs in their school. “Teachers will probably be facing different issues from those faced in the previous years. Other colleagues will probably think of better strategies,” says Herda.

Although action research has definitely boosted the teaching at MacPherson Primary, the LC facilitators hope that teachers will be able to take away something as individuals as well. Says Constance, “This whole experience was meant to help teachers grow and meet the needs of the classroom. Now, they can say, ‘What can I do to go about improving and learning on my own?’”

> Want to learn more about Learning Circles? [Click here.](#)

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Get teaching tips and advice as we share our reviews of books, websites and teaching aids, written especially for the Singapore context.

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## SHARE

## Guidance Channel Online

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<http://www.guidancechannel.com/>

Providing guidance and counselling for students is never easy. Your skills, training and academic background will never guarantee favourable results, even if you have the more sincere intention to help. This is because every "counsellor" requires a special approach to address his or her problems and needs.

As a former guidance counsellor, I have had to lead various group sessions meant to develop the students' self-concept, self-awareness, coping skills and life strategies. I also needed to help not only the students but their parents as well. As a result, I often found myself looking for more information on parenting, effective communication and other family-related issues.

One very helpful resource is the [Guidance Channel Online](http://www.guidancechannel.com/). This website offers a wide variety of information regarding the usual conflicts and dilemmas encountered by teenagers in everyday life. It is packed with tips, preventive information, and the latest research and programmes which can be applied to local school settings.



One topic that caught my attention is Teen Anxiety. I have often encountered students complaining about how anxious they get over an upcoming examination. While they try their best to prepare for the exam, they suffer mental blocks when the actual test begins. As a result, they end up feeling frustrated and hopeless because they don't get favourable results even if they feel they have prepared well enough.

Useful information on how to battle anxiety is featured in the [Guidance Channel](http://www.guidancechannel.com/) website. The piece entitled [Anxiety Tips for Teens](#) is especially worth reading. The tips provided are realistic, achievable and encourage students to express their feelings to an adult, teacher, counsellor or any professional that can help them.

However, the examples in the website are quite clinical in nature. Perhaps it would have been more helpful if a wider range of teen anxiety experiences was discussed, like test anxiety, the fear of participating in class, stage fright, and the fear of not being able to socialise. This information can serve as a springboard for teachers who would like to conduct modules that involve group dynamics and address such problems in class.

The website also features other helpful topics such as career counselling for students who

are considering college or vocational school, programmes or interventions for eliminating violence in school, and even topics for teachers' professional development.

The Guidance Channel Online is truly enriching not only for guidance and counselling practitioners but also for teachers from any field. Teaching requires one to interact and build relationships. Therefore, there is a need for information that hones one's awareness on how to deal with teenagers, parents and the school community. At the same time, it keeps us up-to-date with the newest trends in education. With these resources, perhaps Carl Rogers' statement about "loving your clients unconditionally" may not be so difficult to practise after all!

**About the reviewer**

*Anna Liza Guerrero is a former psychometrician, preschool teacher and guidance counsellor. Her interests include test development, workshop facilitation and counselling. She joined the [Centre for Research on Pedagogy and Practice](#) as a Research Assistant in 2007.*

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## Sites for Teachers

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<http://sitesforteachers.com>

It's easy to compare [Sites for Teachers](#) with Singapore's trademark investment and economic strategy. While the latter is about being the regional, continental and international hub for anything and everything, the former is effectively the pedagogical hub for all things related to education.



Reading  
Mathematics  
Science  
Social Studies  
and more

**SITES FOR TEACHERS**  
Hundreds of Educational Web Sites Rated by Popularity

Lesson Plans  
Worksheets  
Activities  
Clip Art

Site of the Moment  
[Pathways to Learning](#)  
Illinois based inservice courses and graduate credit courses for teachers, full course descriptions and discussion forum.

With links to sites hailing primarily from the USA, Canada and UK, one can argue that [Sites for Teachers](#) provides teachers with the latest pedagogical techniques and educational technologies.

At the same time, it has the unique feature of ranking educational websites according to the most number of visits and materials downloaded.

For instance, [abcteach](#) is currently ranked number one on the list. With its tagline of providing "6000+ FREE printables, Holidays, Classroom Signs, Word Walls, Portfolios, Theme Units, Seasonal Units, Basics, Shapebooks, and Teaching Extras", it is obviously a sure winner. The site does indeed provide a kaleidoscope of teaching materials for teachers and teachers-to-be.

With the plethora of teaching materials, one could easily be overwhelmed. Thankfully, [abcteach](#) categorises the materials clearly and effectively for its users. The site also offers refreshing teaching tools that can be used in the classrooms such as shape books, word walls, and even the ever-challenging Sudoku.

Number two on the [Sites for Teachers](#) list was [SchoolExpress](#). With over 900 free worksheets and software programs, this site aims to make classroom activities fun yet enriching. It also provides a free e-newsletter where teachers can receive regular updates on new material being uploaded on the site. Other tools available on this site include a free puzzlemaker, e-books and, yes, a free game-a-day! However, as compared to [abcteach](#), this site is more suitable for lower primary students.

Of course, [abcteach](#) and [SchoolExpress](#) are merely the top 2 among over 650 other education-related sites that can be found in [Sites for Teachers](#). Others worth mentioning include: [Gamequarium](#), an online educational-gaming experience; [Busy Teacher's Café](#), a site which appeals to all teachers; and [A Kid's Heart](#), a good source of refreshing graphics teachers can use in their PowerPoint presentations.

Overall, [Sites for Teachers](#) is a godsend for all teachers. Teachers will no longer have to

rely too heavily on Google or Yahoo in order to get alternative teaching material. Almost everything can be found on this site. You name it, they have it: e-books, vocabulary banks, worksheets, and even templates for attendance records and class blogs.

Teachers surfing this site just need to be judicious in selecting the best materials for their students. The resources are already right in front of us and as we all know, knowledge is indeed everywhere, literally. As philosopher al-Kindi once noted:

“We ought not to be ashamed and lazy in appreciating the knowledge of truth and acquiring it wherever it comes from, even if it comes from races distant and nations different from us.”

**About the reviewer**

*Muhammad Irwan Bin Jamal is a first-year teacher trainee at the National Institute of Education, specialising in Malay Language. He is also an executive member of the Singapore Malay Writer's Movement (Asas '50) and the chief editor of its newsletter, Berita@Asas '50.*

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## RELAX

**Sit back and relax with our silly cartoons on anything and everything about the fun side of teaching. Who says teachers can't laugh at themselves?**

### What If the Classroom Could Really COME ALIVE?

Here's an idea of what that might look like based on our penchant for extreme wishful thinking.

Click [here](#) to read more.

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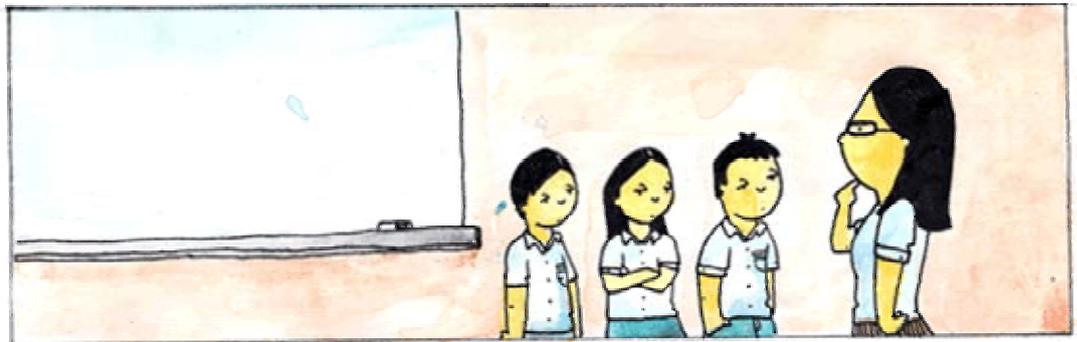
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## RELAX

### What If the Classroom Could Really COME ALIVE?

Here's an idea of what that might look like based on our penchant for extreme wishful thinking.



### History



### English Literature



### Biology



### Chemistry



Artwork by Yasmin Ortiga

Do you have a keen eye?

There's something amiss in one of the pictures above. Can you spot it?

> For the answer and a fresh RELAX cartoon, [click here](#).

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Current Issue

**RELAX**

Inspire

**Do we really want our kids to...**

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Ideas

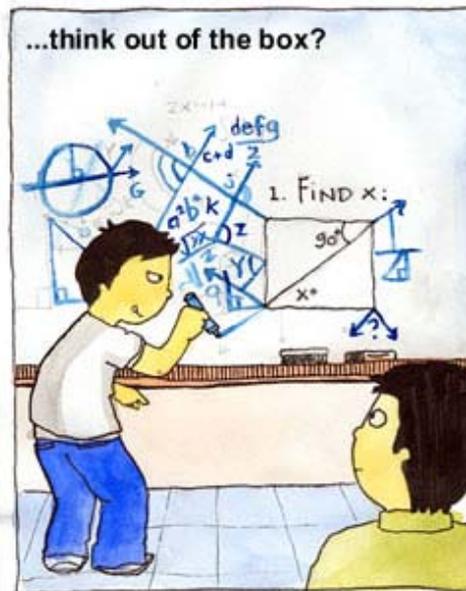
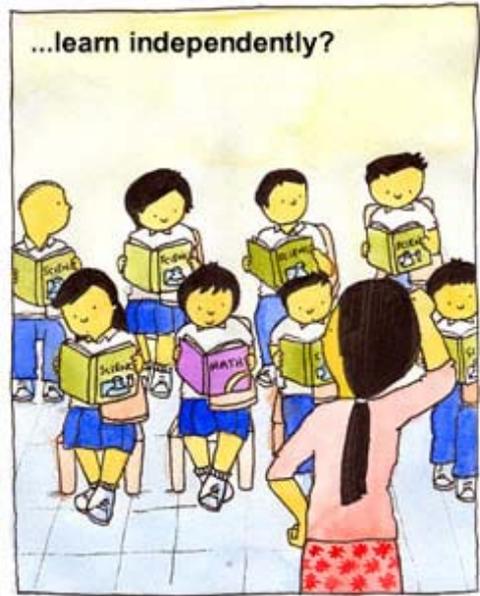
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Artwork by Yasmin Ortiga

**Need to take a second look?**

There's something amiss in our RELAX cartoon! Give your eyes a good rubbing and see if you can spot what it is. If not, [click here](#) for the answer and a fresh RELAX cartoon.

**Did you spot this one?**

Congrats to those who spotted the mistake in our [last issue's cartoon](#)! For those who haven't seen it yet, check out the cartoon's last panel. The compound being formed is supposed to be H<sub>2</sub>O so there should be two Hydrogen atoms and one Oxygen atom.

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Current Issue

## RELAX

Inspire

### What if there were a Singapore School of Magic?

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Ideas

Hooray for the wonders of doing things just for fun! Let loose with SingTeach's own version of J. K. Rowling's Hogwarts.

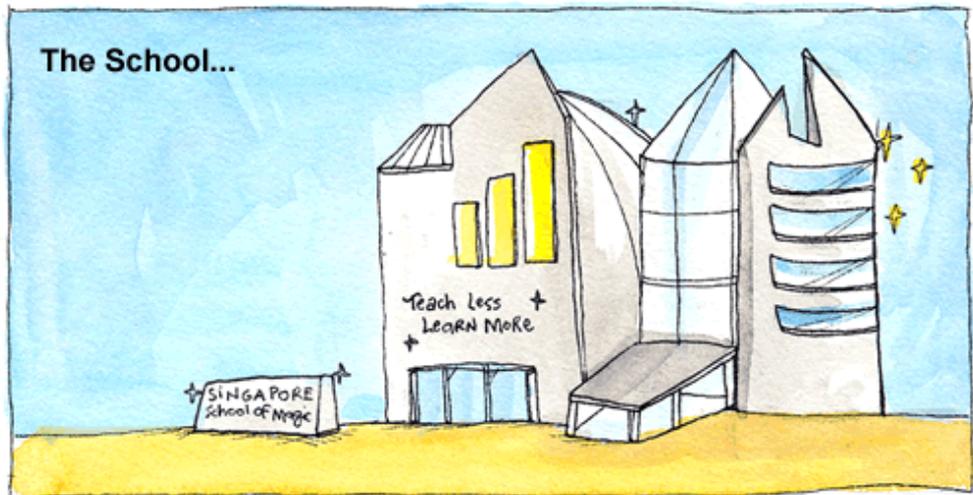
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## Vacation Plans

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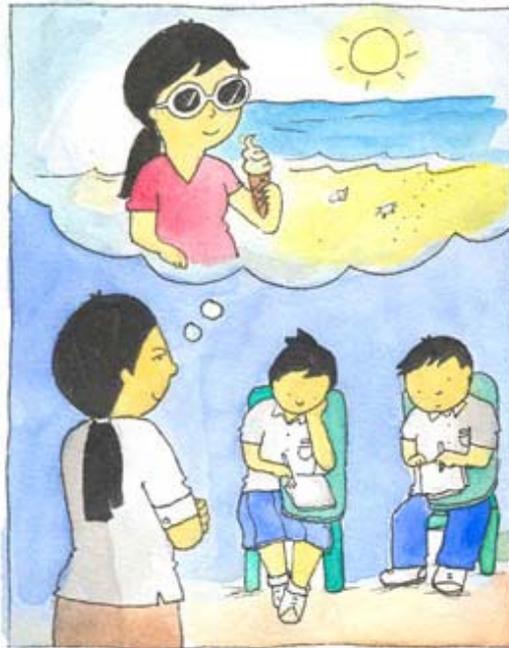
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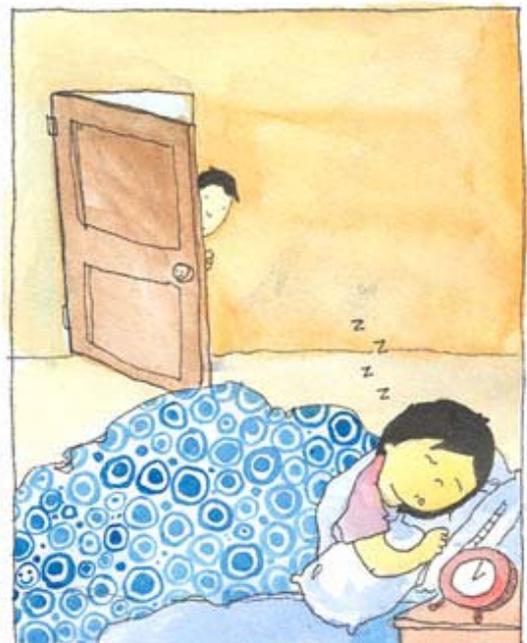
2 weeks to the school holidays



1 week to the school holidays



1 day to the school holidays



First day of school holidays

**SingTeach wants you to show and tell!**

Doing anything interesting during the holidays? Send a short description of your vacation plans (picture, paragraph etc.) to [sgteach@nie.edu.sg](mailto:sgteach@nie.edu.sg) . The five most unique entries win a special prize from SingTeach!

**Did you get this one?**

Our **last issue's cartoon** came with a pretty tough challenge. Congrats to those who spotted the mistake! If you look closely at the last panel, the child with the mother is too young to be taking his OWLs. Based on the Harry Potter books, students only take their OWLs when they're 16 years old.

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