Creating a 'Safe', Supportive Mathematics Classroom Environment
创建一个安全、可靠的数学课堂环境

Recently I had a conversation with some colleagues who teach in a university.|They were very worried about something they had noticed about their undergraduate students - a fear of making mistakes. They had noticed that these students were very reluctant to hand in assignments in case they were 'wrong' and were often spending time very unproductively in checking and re-checking their answers. While it is, of course, important to encourage students to be careful about checking their work, and to help them to develop a repertoire of checking strategies, this conversation does seem to reflect a growing problem, that more and more students are becoming afraid to try new things in case they fail, and/or become depressed and question their own self-worth if they do make mistakes. Mathematics, with its emphasis on 'right' or 'wrong' answers can potentially reinforce these fears.   On the other hand, however, the mathematics classroom can also be the pe rfect environment for sensitive teachers to help their pupils to face up to and overcome these fears - and, of course, the earlier in the child's school life that this support begins, the better.

最近，我和大学里的一些同事进行了一次交谈。令他们非常担忧的是，自己的学生非常害怕出错。他们发现，为了避免出错，这些学生很不情愿交作业，并且经常将时间白白耗费在一遍又一遍地检查自己的作业上。当然，鼓励学生仔细检查作业，培养他们的检查策略和技能是很重要的。本次交谈的确反映了一个成长问题：越来越多的学生欲避免失败而害怕尝试新事物，或者由于犯错而变得沮丧，从而怀疑自身的价值。数学强调的是答案的对错，在潜意识中就加强了人的恐惧感。然而，从另一方面来讲，数学教室也可能是敏锐的老师们帮助学生勇敢地面对并且克服恐惧的良好环境。 当然，在学校生活中，这种支持开始得越早越好。

The purpose of this article is to illustrate some ways in which mathematics teachers can help to create a secure, supportive classroom environment in which the pupils learn to not fear failure and to value making mistakes as an opportunity to learn and grow. Each section begins with a quotation from Sathya Sai Baba.

这篇文章的目的是为了阐明数学老师可以用一些方法来协助创建一个安全、可靠的课堂环境，在这样的环境中，学生们习得不畏失败，并且把出错看作是学习和成长的机会。下面的每一部份的开头都引自赛斯亚·赛·巴巴的语录。

"True education should make a person compassionate and humane."
教育应该使人变得富于同情心和仁慈心。

It is likely that unwillingness to participate in the mathematics classroom arises from lack of *understanding and compassion*, which can often be unconscious, by teachers and other pupils. Consequently, we need to ask the question: how can we encourage more effective participation by any students not participating fully?

不愿参与数学课堂活动很有可能是缺乏理解和同情，这一点是不常被老师和同学们意识到的。那么，试问：如何更有效地鼓励那些不完全参与的学生积极参与呢？

- Do not be angry if a child cannot understand something or makes a mistake, because this can lead to fear of failure.
- 如果孩子不能理解某事或出错时，不要发怒，因为发怒可能导致孩子害怕失败。
- Show them how to recover from the mistake and try again.
- 向他们表明怎样从错误中走出来，并再试一次。
- Tell them about famous people who were not afraid to make mistakes (see stories below), or about some of the mistakes you have made - but also encourage accuracy and patiently ask them to correct their careless errors. A useful source of ideas is a book called "Mistakes That Worked" by Charlotte Foltz Jones.

告诉孩子们名人是不害怕错误的（请看下面的故事），或者讲一些自己犯过的错误——告诉他们作事要精确、有耐心，改掉粗心的坏毛病。Charlotte Foltz Jones 在 "Mistakes That Worked（错误有错误的作用）" 这本书中阐释了这一有价值的思想。

"Students should not allow success or failure to ruffle their minds unduly. Courage and self-confidence must be instilled in the students."
"学生们不应该让成功或者失败的晕轮过度滋扰他们的思想，他们应该被赐予勇气和自信。

Use positive visual and body-language cues (nodding, smiling) and prompts (ah ha, hmm) to encourage them to arrive at appropriate answers.
• 使用积极的视觉表象和肢体语言暗示（点头，微笑）和提示（啊哈，唔）来鼓励得出适当的答案。
• Be careful not to frown if a child makes a mistake, and don't allow other children to frown if a classmate makes a mistake either.
• 有孩子犯错误时，不要皱眉头， 而且也不要让其他的孩子皱眉头。
•

"There is over emphasis on quick and easy gains rather than patience, fortitude and hard work."
这里来介绍一些快捷简便的方法。

Peter was a very clever eleven-year-old. In the final year of his primary schooling, there was only one test on which he scored less than 100%, and then he only lost half a mark. His classwork was always done quickly and correctly. When he knew that he could succeed, he was confident and willing to work hard. To challenge his thinking, Peter's teacher would give him some difficult problems. If Peter could not immediately see a way to solve a problem, he became a different child. He would sit, drawing on his notepad, or wander around the room. He would even ask his teacher if he could spend the time tidying the storeroom. Peter, who was normally so successful and confident, was afraid to tackle a difficult task because he was afraid that he might fail. So his solution was to quit, to make the fears go away. Fortunately, the story had a happy ending, because Peter and his teacher worked together to help him to develop more courage to tackle difficult problems rather than taking the easiest path of stopping.

十一岁的彼得非常聪明。在小学毕业那年, 仅有一次考试没拿100分，得了99.5分。他完成课堂作业总是迅速而准确。当知道自己可以成功的时候，他自信且乐意努力学习。为了挑战思维，彼得的老师给了他一些难题。如果彼得无法立刻找出解决问题的方法, 别人对他的看法就会改变。他要么坐下来在笔记本上演算，要么在房间来回踱步。如果他肯花时间整理储备室，那他也可以去问老师。因为彼得通常是成和自信的，他害怕失败，所以很担心被困难所困绕。解决彼得这一问题的办法是驱走恐惧。幸运的是，这一故事有了圆满的结局，因为彼得和他的老师共同携手鼓足了勇气去克服困难，而不是采取简单退却的方法。

Many writers have written about students such as Peter, who expect solutions to come to them quickly and easily and will give up rather than face negative emotions associated with trying the task. Another concern is that they often are not aware of when it is worthwhile to keep on exploring an idea and when it is appropriate to abandon it because it is leading in a wrong direction. They need to know when it is appropriate to use a particular approach to the task, and how to recover from making

a wrong choice.

许多作家描写过像彼得一样的学生，期待快捷地解决问题，愿意放弃而不是去面对或尝试。另外一个值得注意的问题是：不注意什么时候值得继续探究，明知方向偏移也不适时抛弃。他们应该明白何时恰当地运用特别的方式去完成任务，如何从错误的选择中复原。

Clare, aged ten, was given the following problem to solve:

By changing six figures into zeros you can make this sum equal 1111.

$$
\begin{array}{r}
111 \\
333 \\
555 \\
777 \\
+999 \\
\hline
2775
\end{array}
$$

Clare selected the strategy of changing numbers in all three columns simultaneously. She worked at the task with *patience* and *fortitude* for two hours. As she worked, she said to herself, "I know that this is going to work. All I need is time, to find the right combination." After she repeated the strategy 21 times, her teacher interrupted and suggested that it might be time to look for another way to solve the problem.

克雷尔，十岁，要解决下面的问题:通过改变下列六个数字，得到的和是1111。

$$
\begin{array}{r}
111 \\
333 \\
555 \\
777 \\
+999 \\
\hline
2775
\end{array}
$$

Clare 选择了同时变换这三栏中的数字的策略。她耐心而坚毅地工作了两个小时。工作时,她心里想,"我知道我会找到答案的，只是需要花时间来寻找正确的组合。"在重复了21 次之后，她的老师打断了她，并建议说可能是该找寻另外的一个方法解决问题的时候了。

In Peter's case, it was enough for his teacher to tell him that frustration, is a normal part of problem solving, and to encourage him to spend more time working on the task. Clare, on the other hand, was "overpersevering", locked into persistently pursuing one approach when it may be more appropriate when stuck to use other strategies, even such as help-seeking. One of the responsibilities of a mathematics teacher is to help pupils to learn how to persevere when the problem-solving process becomes difficult. They also need to know how to make decisions about avoiding time being wasted on "overperseverance".

对于彼得这种情况,老师只需要告诉他挫折是解决问题的很平常的一部分,鼓励他在这项任务上要花更多的时间,就足够了。然而,克雷尔过于矜持,坚持寻求更恰当的方法,甚至包括寻求帮助。 数学老师的职责之一: 当问题解决过程中出现困难时帮助学生学会如何坚持下去。他们也需要知道该如何做出决定,避免在 "过于矜持"上浪费时间。

1.　　Equip learners with a range of strategies/techniques for solving
　　　different types of problems.

2.　　Encourage them to experience the full range of positive <u>and</u> negative emotions associated
　　　with problem solving.

3.　　Promote the desire to persevere.

4.　　Help them to make "managerial" decisions about whether to persevere with a possible
　　　solution path (when to keep trying, and when to stop).

5.　　Encourage them to find more than one way to approach the problem.

增强坚韧性的策略
1. 赋予学习者一系列解决不同类型问题的策略或技术。
2. 鼓励他们经受与解决问题有关的全部积极和消极的情绪。
3. 促进对坚持的渴望。
4. 帮助他们作出 〞管理者似的 〞 决定, 即是否坚持使用一种可能方法(何时该继续尝试?何时该停止?)。
5. 鼓励他们找寻多种方法接近问题。

One sequence of strategies which is used frequently by successful, persevering problem solvers is the following:

时常被成功而又有坚持不懈的解决问题者使用的策略，其后果是：

1.　Try an approach.
1.　尝试一种方法
2.　Try it 2-3 times in case using different numbers or correcting errors might work.
2.　在使用不同的数字和更正错误的情况下反复试 2-3 次
3.　Try something <u>different</u>.　(You might decide to come back to your old way later.)
3.　尝试一些不同的方法(你可以决定以后还是回到老办法上来)

The Appendix shows how one student used the sequence to persevere successfully with a problem.

附录表明一位学生在某个问题上如何成功的。

Stories About Famous Mathematicians
著名数学家的故事

When you are teaching the appropriate topic, take a minute to tell your pupils an anecdote about one of the famous mathematicians who contributed to this particular field of mathematics. It is important for pupils to be aware of the 'human' side of these famous people. "Using biographies of mathematicians can successfully bring the human story into the mahematics class. What struggles have these people undergone to be able to study mathematics?..." (Voolich, 1993, p.16)

当你正在教课的时候，花一分钟时间告诉学生关于某一数学领域著名数学家的

轶事。学生知道这些名人的 "人性" 的方面是很重要的。 "使用数学家的传记能成功地把人文故事带进数学课堂。 这些人们付出哪些努力才能学好数学?"(Voolich,1993, p.16)

MARY SOMERVILLE Born 1780 in Burntisland, Scotland
玛丽萨默维尔 1780 年出生于苏格兰的 Burntisland.

Examples of Contribution to Mathematics: algebra, differential and integral calculus
对数学的贡献：代数, 微分和积分学

Mary was one of the world's first famous female mathematicians.   She became interested in mathematics, and desperately wanted to study it, at a time when it was not considered acceptable for a woman to do so.   She bought books on algebra and geometry and read them at night.   Despite disapproval from the people around her, she persisted with her struggle to learn. Later in her life she began to solve problems in a magazine, and won a prize for her solution to an algebra problem.   She went on to write several books about mathematics and science. Later in her life, she reflected on "the long course of years in which I had persevered almost without hope.   It taught me never to despair" (p.6).
Perl (1993)

玛丽是世界上第一个著名的女数学家之一。她对数学感兴趣，而且强烈地想要学习数学，在当时并不常见。她买了代数和几何学方面的书晚上读。尽管不被周围的人赞同,但她坚持努力学习。后来，她开始在一本杂志上解答问题,还因成功解出了一个代数问题而赢得了一个奖项。 她又继续写了一些关于数学和科学的书。 稍后，她终于领悟出"是我一直坚持度过几乎绝望的漫长岁月,生活教会我从不绝望。"（ p.6).Perl(1993)

MARIA AGNESI (1718-1799) Italy
MARIA AGNESI (1718-1799),意大利人
Example of Contribution to Mathematics: calculus
对数学的贡献： 微积分学

"Maria was a child prodigy, but was also shy. She stayed at home, teaching the younger children and following her own studies. When her mother died after giving birth to twenty-one children, Maria took over the running of the household.

At the age of twenty she started a ten-year project, a book bringing together the work on calculus of Leibnitz and Newton titled Analytic Institutions. Sometimes she would have trouble with a problem. But her mind went on working even in her sleep; she would sleepwalk to her study and back to bed. In the morning, she would find the answer to the problem waiting on her desk. Her book made her famous; she was living proof of what she had argued at nine years old [that women had a right to study science].

But Maria had other interests in her life apart from mathematics. She had always worked with the poor people in her area, and she had asked her father for separate rooms and turned them into a private hospital. She worked at the hospital (and another) until she died at the age of eighty-one.

Maria Agnesi wrote an important book on mathematics, as well as another unpublished book. She ran a household of over twenty people, and she worked for people who had not had her luck and opportunities. Each one of these things was remarkable, but she did them all."

(Lovitt and Clarke, 1992, p.560)

〝玛丽亚是一个天才儿童，但很害羞。她待在家里,在教年龄小的孩子的同时，继续自己的研究。 她的母亲在生下二十--一个孩子之后就死了，玛丽亚承担了家中的各项事务。

二十岁时，她开始了一个为期十年的研究项目——编著一本把莱布尼兹的微积分和牛顿的分析结构结合起来的著作。有时她会因一个问题而苦恼，但是她总是不停地思考，甚至在睡梦中也一样。研究会让她在梦中漫游然后又回到床上。 第二天早上，她会在书桌上找到问题的答案。她的书使她出了名；这是她在9岁时就已经讨论过的问题的有力证据，即女人有研究科学的权利。

但是玛丽亚除了对数学感兴趣外，还有其它的兴趣。 她总是与当地的穷人一起合作，她向父亲要了些单独的房间，将它们建成一所私人医院。她自己在这家医院工作直到八十一岁去逝。

玛丽亚 Agnesi写过一本重要的数学方面的书，还有一本未出版的书。她掌管着一个二十多人的家庭，且为那些没有她幸运和没有机遇的人服务。这里的每一件事情都是很了不起的，玛丽亚却做了全部的事情。〞

"Education should impart to students the capacity or grit to face the challenges of daily life."
"教育应该向学生传授能力并教会学生如何面对日常生活中的挑战。"

For students who have tried but are still having difficulties, McDonough (1984) advised that the teacher:

对那些已经尝试但仍有困难的学生，McDonough的建议是：

◊ ask the pupils to restate the problem in their own words and if this indicates that they have mis-read or mis-interpreted the instructions, ask them to read the instructions again,

◊ to help with the understanding of the written instructions question the pupils carefully to find out if they know the meanings of particular words and phrases (i.e. mathematical terminology),

◊ have the pupils <u>show</u> the teacher what they have done, compare this to what is asked in the instructions, and question the pupils to see if they could think of another method, for example, "Could you have done this another way?" or, "Have you ever done a task like this before?"

◊ if necessary, give the children a small hint <u>but</u> only after questioning them carefully to find out what stage they have reached.

要求学生用自己的话复述问题，如果他们读错了或者理解错误，再读一遍问题。

如果他们知道特定字和短语（比如数学术语）的意义，则可以通过理解给出的提示语来帮助学生仔细地发现问题。

把老师做的示范与题目中所问的进行比较，问学生能否想出另一种方法，例如"你能用别的方法来做吗？" 或者，"以前，你曾经遇到过类似的问题吗？"

如果有必要的话，在仔细地询问并发现他们已经达到哪一个阶段了之后，再给一个小小的提示。

- If the teacher follows procedures such as those described above, the pupils will be encouraged to be more thoughtful and self-reliant.

如果老师按照以上程序去做，那么学生们就会受到鼓励，更加深思和自恃。

- If pupils are panicking or unable to think what to do, introduce them to the valuable technique of silent sitting - that is, sitting for a few minutes in a state of complete outer <u>and</u> inner silence. You can tell them about famous mathematicians who have solved problems by using this technique.

• 如果学生恐慌或者不能思考该做什么，可以给他们介绍有价值的静坐技巧——即在外部和内部完全安静的状态下坐几分钟。你可以告诉他们著名的数学家们就是使用这种技巧来解决问题的。

SIR ISAAC   NEWTON
以撒·牛顿爵士

"We all have something within us which helps us, guides us, gives us the conscience to know what is right and wrong.   This "something" also gives us knowledge and wisdom. Whenever we cannot think of a solution to a problem we sit still and calm our mind.   Very often the answer will come in a moment of intuition.   Sir Isaac Newton, after thinking for some time on the effect of gravity, could not solve the problem.   So Newton went for a walk to relax and when sitting quietly under an apple tree, saw an apple fall down; in a flash of understanding Newton understood the law of gravity which governs the movement of minute particles as well as the stars and planets.   Many great scientific discoveries have been made not during serious thinking or when doing a lot of calculations but while the mind is relaxed.   This is when intuition starts."

"我们内心存在着某些能够帮助，指导和辨别正误的意识。它们赋予我们知识

和智慧。 每当我们不能够想到解决办法时，可以坐下来静心思考。通常，答案会在直觉的片刻中得来。以撒·牛顿爵士对地心引力的作用思考了一段时间之后，无法解决问题。因此他去散步放松，当安静地在一棵苹果树下坐下时，看到一个苹果落下，瞬间牛顿理解了地心引力规律，这一规律支配微粒子的运动和行星的运动。 许多伟大的科学发现并不是在严密的思考和作大量的计算时产生的，而是在心情放松时滋长，这就是当直觉萌动的时候。"

MARY SOMERVILLE   Born 1780 in Burntisland, Scotland
玛丽萨默维尔，1780生于苏格兰波恩特岛

Examples of Contribution to Mathematics: algebra, differential andintegral calculus
对数学的贡献：   代数，微分和积分学

(continued from above)
"Mary Somerville used an approach to her work that is useful today.   If she couldn't find the key to unlock a difficult problem she stopped work and turned to the piano, her needlework, or a walk outdoors.   Afterward, she returned to the problem with her mind refreshed and could find the solution.   If she could not understand a passage in her reading, she would read on for several pages.   Then, going back, she could often understand what was meant in the part which had been confusing" (p.12).

Perl (1993)

(续上表)"玛丽·萨默维尔用了一种现在还很有效的方式。如果她无法找到解决难题的答案，就停止工作而转向钢琴、针线活或户外漫步。然后，振作精神重新回到思考的问题上，就可以解决问题了。如果她不能读懂一段文章，那就继续读几页吧。然后，再回想一下，她就可以弄明白曾经一直迷惑的部份"(p.12).

Education must award self-confidence, the courage to depend on one's own strength.
教育一定赐予自信和依靠自身力量的勇气。

- Some of us may believe that it is acceptable to be untruthful if it is to avoid hurting somebody else's feelings.   On the other hand, some people can also be cruelly truthful and blunt if they do not like something about another person.   We need to realise that neither of these behaviours is really appropriate.

· 我们中的一些人可能相信，避免伤害别人的不诚实是可以接受的。另一方面，有些人如果不喜欢他人的某些地方，可能残忍地讲真话和生硬的话。我们应该意识到这些行为实际上都是不恰当的。

- If we are patient and consistent in our approach and give criticism with compassion, we will have a more significant influence on the child's subconscious levels of thinking than we realise.

    如果我们用自己的方式去宽容和协调，给予带同情心的批评，那会对孩子思维的潜意识水平产生更加深远的影响。

This does not mean that you have to be blunt or to hurt somebody else's feelings by telling them something unkind. For example, when correcting students you could say, "I don't like the way you answered that question.   I like it better when you give me a sensible answer and I know that you have put thought into it."   Or you could say, "I don't really like the way you have done this piece of work. I prefer it when you do it more slowly and make fewer mistakes".   This means that you are making it very clear to the other person why you are not happy and how you would prefer her to behave.

这并不意味着你必须生硬地讲一些伤和气的话语来伤害别人。举例来说，当更正学生的错误时可以说："我不喜欢你回答问题的这种方式，更喜欢你给我一个明智的答案，让我知道你对这个问题已经理解透彻了"。你也可以说"我真的不喜欢你做工作的方式，我宁愿你做事时更慢条斯理和少出错"。这意味着你在向别人表明为什么你不高兴和你更喜欢她怎样做。

By example and precept, in the classroom and the playground, the excellence of intelligent co-operation, of sacrifice for the team, of sympathy for the less gifted, of help…has to be emphasised.

藉着例子和教训，在教室和运动场，在智力合作、为团队作出牺牲、对天赋不足者的同情、 帮助……等方面体现的优点都必须得到强调。

MARY EVERETT BOOLE   Born 1832 in England and lived in, France as a child
玛丽埃佛勒特·布勒， 1832生于英国，童年生活在法国Poissy

Examples of Contribution to Mathematics: geometry of angles and space; string geometry (curve stitching), mathematical psychology (understanding how people learn mathematics)
对数学的贡献： 角度和空间的几何学、线性几何学 （曲线接合）、 数学心理学（理解人们怎样学数学)

> As a young girl, Mary was very compassionate towards animals. Perl reported that she frequently rescued insects that had been hurt by frost or rain, and nursed them back to health. As an adult, she worked as a librarian in a women's college, and showed the same compassion in becoming a friend and mentor to the students.   She invited students to discussion sessions about mathematics and science, and one of these students later wrote;   "I found you have given us a power.   We can think for ourselves, and find out what we want to know" (p.50).   Even as an old lady, during World War I, Mary opened her house to people who needed to "find a quiet place for an hour, away from the turmoil of a country at war and the terrible news in the newspapers" (p.55).
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> Perl (1993)

作为一个年轻的女孩，玛丽对动物非常慈悲。据Perl报道，她经常救助被雨霜伤害过的昆虫，精心护理它们恢复健康。成年后，她在一所女子大学中担任图书馆管理员,并在交朋友和对学生的指导方面表示出同样的同情。 她邀请了学生开会讨论数学和科学，其中有一名学生后来写道： ＂我发现你已经给予了我们力量，使我们能够独立思考和探究我们想要知道的＂(p.50)。甚至在第一次世界大战期间，年迈的玛丽将家门向那些想要寻找片刻的宁静，远离战争骚乱和报纸的恐怖消息的人们敞开着。

Some teachers' comments:

Listening to what children say during discussion offered me a continuous and detailed means of assessing their understanding and progress. Before this session I doubted whether talk/discussion could be obtained in working with a class of thirty-six children. The class was formed into groups, which would discuss mainly on their own. I interacted with these groups by circulating. I controlled a second level of interaction between groups, by calling on spokespersons to report, and drawing in other children appropriately. I reinforce my belief that children need more opportunity to talk about their mathematics.

I learnt that children working together not only have the opportunity to listen and learn from each other, but also to try out some ideas in a non-threatening environment. Every member of a group has the chance of seeing the activity in more than one way than if they were working alone.

Team work can lead to better development of mathematical understanding because of the communication that must occur for the group to function. These activities necessitate that children use all four components of language skills: speaking, listening, reading and writing. Interactions are indeed the heartbeat of the mathematics classroom. Mathematics is learned best when students are actively participating in that learning. One method of active participation is to interact with the teacher and peers about mathematics. (Primary School Teacher)

老师的评论：

倾听孩子们讨论时所说的话，给我提供了评价他们的理解力和进步的一种连续和详细的方法。会议之前，我怀疑谈话/讨论是否可能在一个三十六个孩子的班级中进行。 这个班先分组进行组内讨论，我通过巡查促进组间的互动，并借助要求发言人报告和其他孩子的恰当描述来控制中等水平组的互动。这让我更坚信孩子们需要更多的机会来谈论数学。

我认识到，孩子们在一起学习，不仅有机会相互倾听和相互学习，而且可以提炼出一些在和谐的环境中产生的想法。如果他们正在进行组内学习，团体的每个成员都有机会尝试比他们独自作业更多样的方法。

团队合作还能够促进数学理解能力的更好发展，因为这种联系必然带动整个群体的活动。这些活动使孩子们全方位运用语言的 听、说、读、写四项技能。 互动的确是数学课堂的脉博。学生积极地参与的这种学习是最有效的学习,其中积极参与的一种方法是老师和同伴间的互动。 （小学老师）

I chose to work with a group of children about whom I felt I knew very little. I realised that these children could have ability which was not being shown, so I decided to make a more concentrated effort to provide a variety of experiences and activities, to allow some 'non-performing' children to demonstrate their skills. I also recognised the need to discourage a group of 'noisy' boys from putting down the girls and their contributions. A colleague undertook a similar exercise with an older class. She was surprised that she knew the boys better as being more confident and responsive. She intends to investigate this further by asking a colleague to observe her teach to find out whether her suspicions are true that she is responding more to the boys than to the girls. (Secondary School Teacher)

我选择了一群我不太熟悉的孩子来验证我的想法。我认为他们具备一些鲜为人知的能力，因而我决定更努力色设计一种经验和活动，允许一些"非表现型"的孩子们展示他们的技能。此外，我还认为，需要制止"爱吵闹"的男孩子们侮辱女孩以及其他不正当的行为。一位同事在一个高年的班级进行了一个类似的练习。她很惊讶地发现，自己认为男孩更自信，能作出积极的反映。她想通过这样一种方式作更深入的调查，即要求一个同事观察她的教学，从而来证实她的猜想：(对男孩的反应多于女孩)是否正确。
(中学老师)

I was concerned about two things.　One was the way I could use praise to develop self esteem. The other thing was the way in which I was involved in my pupils' activities.　I chose these issues because I had got into the habit of teaching from the front of the room and responding to the students' answers with comments such as "Okay", "Good", "Sensible".　I was also concerned that the girls were outnumbered by boys in the class and there was an underlying assumption that the boys were better than the girls, made particularly evident by a vocal group of boys.　I consciously placed myself with different pupils in the classroom and moved to groups when asking or answering questions.　I deliberately targeted the quieter children to encourage them to participate in group/class discussions.　I developed a repertoire of responses to students' answers, including, "Good thinking strategy," or "Can you clarify that response?"　I allowed more response time, focused on permitting girls to respond following incorrect answers and followed their answers immediately by further questions.　Although I only had two weeks in which to implement these initiatives, I felt sufficiently positive about the change in quality of the students' responses to warrant continuing this approach.
(Primary School Teacher)

　　我还关注两件事。第一，能运用表扬发展自尊的方法。第二，参与到学生的活动中去的方法。之所以选择这两个问题，是因为我形成了从教室前排开始的教学习惯，对学生的回答作出诸如"好的"、"很好"、"明智的"之类的评价。我还注意到，班上女生的数量比男生多，这就产生了一个根本的假设：男孩比女孩学得好，这个假设已从一些男孩的话语中得到证实。我有意识地把自己融入到课堂上不同的学生中去，提问和回答问题时在各组间来回走动。我也有意鼓励较安静的孩子参与组/班级的讨论，培养学生回答问题的各种技能，包括"良好的思维策略"或"你能阐明那个答案吗？"我允许有更多的响应时间，并且把重点放在女孩对错误答案的反应上，并立即进行更深入的提问。虽然我只用了二个星期实施这一举措，但我已经深深感到在学生反应的质的方面变化是积极的，并将继续推行这一方法。
(小学老师)

The teachers who wrote the comments above were asked to recommend ideas which they could try in their classrooms to encourage more understanding of those students who may not feel safe to participate as fully as they should or could be.　Recommendations included:
- give continuous encouragement, mainly verbally.　Value everybody's responses and have firm

rules about interruptions and 'put downs',
- encourage a balance between co-operative and competitive teaching and learning styles,
- demonstrate an 'expectation' for students to participate,
- encourage group work and peer tutoring, particularly on activity-based and problem-solving tasks,
- allow students sufficient time to complete their work,
- encourage different strategies for approaching and solving problems,
- talk to the non-participators about their reasons for lack of participation - perhaps our perceptions are invalid.

我们要求写了以上评论的老师们谈谈想法：可以在课堂中尝试鼓励那些应该或能够完全参与其中却感到不安全的学生对这一举措做出更多的理解。建议包括：

- 不断地鼓励,主要是口头上。 评价每个人的反应,而且制定关于扰乱和羞辱的强硬的规则
- 鼓励合作和竞争两种教学风格之间的平衡
- 显示出对学生参与的一种期待
- 鼓励小组和互动,特别是在活动和解题方式方面
- 让学生有充分的时间完成学习任务
- 鼓励动手处理和解决问题的不同策略
- 与那些不参与者谈谈缺少参与的理由——或许是我们的感知不正确

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