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Motivation Matters

Big Idea

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Motivating Learners of Today

Motivation drives all that we do, including learning. We ask NIE Director Professor Lee Sing Kong how teachers can motivate students through their pedagogy, professionalism and passion.

Professor Lee Sing Kong knows all about the power of motivation.

For a period in his life, Prof Lee had to juggle both work and studies. During the weekdays, he was a civil servant at the Parks and Recreation Department. But at night and during the weekends, he was a PhD student in plant biotechnology.

"I've a great interest in that subject," Prof Lee enthuses. He wanted to clone roadside trees that flower at the same time to create a "sakura effect" in Singapore.

"My interest is my motivational factor. It drove me to work weekends and nights, forgoing good TV programmes and sporting activities just to focus on my studies," he recalls. "Motivation is important; it's an emotional thing."

"Motivation is Emotional"

As he narrates his personal experience, Prof Lee gets to the core of the matter. "Motivation" and "emotion" both derive from the same Latin word, *motere*, which means "to move".

Motivation is the force that initiates and drives our behaviour, and it keeps us going even if we encounter obstacles. In the context of learning, it is the key ingredient for success.

But how can we motivate students, especially those who are not doing well? Perhaps the best way is to first engage them emotionally, and then intellectually.

Here, Prof Lee shares with us another story. Years ago, he supervised a student teacher who was teaching a Normal (Technical) class. She struggled to capture her students' attention. Worse still, her class became smaller as days went by.



The strictest of norms must be challenged in this new landscape.

- Prof Lee Sing Kong,
Director,
National Institute of Education



An Institute of



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Situational Interest and Learning



Teaching for Success



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Read about the three Rs that Prof Lee says all teachers should possess in our online version.

When your pedagogy aligns with their preferences for learning, that is what can motivate them.

- Prof Lee on teaching the students of today

"I told her, 'Talk to your students informally and engage them. Find out what are their interests.'"

After she realized that her students loved football, the student teacher watched a match just so that she could talk to them about it in class the next day. The students were amazed by her.

"It was like a great gathering of football enthusiasts in the classroom! By the third lesson, whatever the teacher said, the students listened with great enthusiasm," Prof Lee recalls with a smile.

But the job of motivating students does not stop at just building rapport with them. "Today, we want our students to enjoy the process of learning, and not look at learning as a chore," says Prof Lee. This is especially so because for today's generation, learning will extend far beyond schooling.

Teaching EPIC Learners

In our world today, human knowledge is growing at an exponential rate. To keep up, foundational knowledge and skills such as literacy and numeracy are still needed, but are not enough.

Instead, says Prof Lee, we have to teach students to *learn how to learn* and to be self-directed learners.

At the same time, he describes this generation of students as EPIC learners (those who learn in ways that are experiential, participatory, image-driven and connected to the world).

To teach them, teachers will have to transfer the ownership of learning to students. They should not be made to learn, but actively want to learn.

This is where teachers should tap into their knowledge of their students' learning profiles, and then strategically wield pedagogy as a form of motivation to keep them going.

"When your pedagogy aligns with their preferences for learning, that is what can motivate them," he says. "They become motivated learners; they become active and engaged."

NIE Research on Motivation

As the NIE Director, Prof Lee Sing Kong had identified research as a key priority for the institute.

He feels that there is much more to student motivation that we need to know about, and research can lead the way.

The Office of Education Research in NIE is focusing on applied cognitive

development and motivational studies as a critical research niche area.

Prof Lee also supported the setting up of the Motivation in Educational Research Lab (MERL) in NIE in 2009.

"When Professor John Wang (Head of MERL) approached me about setting up a lab looking into areas of understanding motivation of

student learning, I give it a complete endorsement."

Through the research being done in NIE, Prof Lee hopes we can learn how to motivate students so that they "will be very much driven—and not just driven, but also actually enjoy the learning."

Responding to the Changing World

Ever since he became the Director of NIE in 2006, Prof Lee has been positioning the institute as one that responds to the changing world.

To prepare student teachers to teach EPIC students, he wants them to learn like one too. The NIE classrooms and library have been transformed into learning spaces that encourage group work and collaboration. Many of the spaces are also equipped with ICT tools to encourage the use of visuals for learning.

"I often say this: The strictest of norms must be challenged in this new landscape," Prof Lee says. Instead of silence in the NIE library, he wants it to be an inviting space where learners gather and work together over cups of coffee, with their electronic devices connected to the Internet.

"Connectedness is what these students want," he explains. "If they can stay connected, they will be motivated."

The NIE faculty is also changing the way they teach student teachers. The faculty members are teaching concepts and then getting their students into groups to take over the processes of learning and application.

Useful Resource

Low, E. L., Joseph, J., & Atienza J. C. (2010). *Perspectives in motivating educators and learners: A report of the NIE TE21 roundtable discussion*. Retrieved from http://www.nie.edu.sg/files/RoundtableReport_Final.pdf

"If these skills in self-directed and collaborative learning can be picked up, our student teachers will go into schools to engage their students in the same process," Prof Lee says.

Teachers as Change Agents

In June this year, Prof Lee will step down as NIE Director and hand over the reins to Dean of Teacher Education Professor Tan Oon Seng.

Of his legacy, Prof Lee says he had worked to provide a positive learning experience for all student teachers in NIE. They can, in turn, bring about the same kind of experience to their own students.

"We prepare teachers to be change agents in the school," he says. "When they go to the schools, they will bring changes to the way curriculum is being delivered to motivate students to become engaged. And they will be the ones who will bring in ideas on how to reconfigure the classrooms and adopt new technological tools."

The effort that a teacher puts in to provide the best learning environment for their learners will not go unnoticed. Very often, students are moved to do their best if they can see how passionate their teachers are in their work.

As Prof Lee puts it in his farewell email to all NIE staff: "The best teacher is one who can inspire the heart of every student and through this, change their lives not only in the classroom, but beyond."

Professor Lee Sing Kong is a horticulturist by training and a Professor of Biological Sciences at the Nanyang Technological University. He joined NIE in 1991 and was in various leadership positions. He was appointed Director of NIE in 2006. A true educator and scientist at heart, Prof Lee has launched many key initiatives that have greatly impacted teacher education in Singapore and internationally.

Research

Situational Interest and Learning

Students tend to be more engaged if what they are learning is related to their personal interests. But what if there is a way to get them interested in just about any topic? The key lies in something that researchers call situational interest.

Educators spend a lot of time wondering how they can relate a subject or topic to their students' personal interests. But with 40 students in a class, the task can be challenging!

Dr Jerome Rotgans and his colleagues are looking into another form of interest that teachers can tap into: situational interest.

Unlike personal interests (such as sports or travel) that are developed over a long period of time, situational interest is temporary and triggered by the external environment.

For example, if you give students a problem or puzzle and they become curious or even intrigued, you know that you have created situational interest that will drive them to find out the answer.



How Situational Interest Works

"When I ask the students about their individual, deep-seated interest, it is common that they'll say, 'I don't like Math'," Jerome says with a laugh. "But when we give them some Math puzzles that are authentic or related to real life, they would want to know more."

His team is busy figuring out how situational interest works, and more importantly, how we can create it in students in our classrooms. What will make them want to find out more about something?

They realized that students' situational interest in a topic is triggered if they notice that they have a knowledge gap that needs to be filled.

"If you give them a problem and tell them to explain it, they'll notice that they do not know the answer and recognize that they have a knowledge gap," he elaborates. "And

Students' situational interest in a topic is triggered if they notice that they have a knowledge gap that needs to be filled.

- Jerome Rotgans,
Centre for Research in Pedagogy
& Practice

their reaction is, 'This is interesting; I want to find out more!' This leads to situational interest and eventually deep learning."

Improved Learning and Retention

It is important that what students learn stay with them beyond exams and tests.

Jerome and his team found that students' long-term retention was stunning if situational-interest strategies were used. In a History class they observed, students remembered almost everything they learned about the fall of Singapore even after 4 months.

"Normally, students would have forgotten about 80% of what they have studied after 2 weeks," Jerome says. "But in this case, they haven't forgotten anything about the topic!"

Those students were not just more interested; they learned and retained more. Jerome notes, "Previously, we found that students with high level of situational interest also perform significantly better on standardized tests. So we thought this was something important to look into."

Also encouraging to him was how students who are academically weaker benefit from the approach as well. While they did not get the top scores, their learning curve was steeper.

"For them, the more concrete and everyday and authentic you make the problem, the more they can connect it to the knowledge they have, and the more motivated they are."

"Isn't It Surprising?"

How can teachers make students sit up and take notice of their knowledge gap? It's simpler than you think!

A teacher can pose a real-life problem to students and remark, "Isn't that surprising?" This will arouse their curiosity and make them think the problem needs a closer look.

For example, when teaching coastal erosion, a Geography teacher can make it relevant by sharing that every 2 years, Singapore's coastline disappears by 3 metres.

The teacher can then add, "Isn't that surprising? When you look around Singapore, the waters are really calm; there are no big waves.

Isn't this surprising—why is it being eroded?"

Jerome understands that it is not always easy for teachers to constantly come up with scenarios that will interest the students. But if they are able to, the impact on learning can be significant.

From Situational to Lifelong Interest

Situational interest makes students want to explore. But once they have gained sufficient understanding to close their knowledge gap, their interest decreases. "If you know the answer to a puzzle, do you still want to work on it? No, you already know it, so you move on," Jerome explains.

But if a teacher can create and maintain situational interest in students, the exploration and subsequent "aha" moments will eventually increase their personal, deep-seated interest in the subject.

In a series of studies, Jerome and his team demonstrated that when a teacher used situational, interesting Science problems over the duration of just 4 weeks, students changed their attitudes towards the subject, thinking, "Actually, this is not that bad!" Over time, they become more interested in the subject in general. That leads to better understanding and students may even continue to engage with the subject outside of school.

To Jerome, it is about letting students experience the joy and satisfaction of learning. If we can get students interested in the thought-provoking questions of a particular subject, it may just change their attitude towards it, and even their perspective of learning. And this change will be a change for life.

As Jerome puts it, "You really have to give students opportunities to learn something for life and not only for the test. When they learn for life, they never forget it, and they use it to understand the world better. That's what I feel education is about."

Jerome Rotgans is an Assistant Professor at the Centre for Research in Pedagogy & Practice and Office of Strategic Planning and Academic Quality. His research interests include situational interest, problem-based learning and diagnostic reasoning.

Do you have a few minutes left in class? Why not try out Buddy Talk? It simply means getting students to discuss a topic with their partners.

Jerome shares an example of how just 4 minutes of such talk can make a difference.

In classes where teachers use direct instruction, students usually show low

levels of situational interest. But in his study, Jerome noticed a spike in situational interest in one of such lessons.

“We asked the teachers what happened there,” he says. “The teachers said they had some time left during that lesson, so they asked the students to talk to their neighbour

about the learning objectives and how it applies to the real-life context.”

So the next time you find that your students need a break during a lesson, use this nifty strategy to get them interested and learning!

Classroom

Teaching for Success

A successful student is a motivated one. We find out from a group of Senior Teachers how they use differentiated instruction to help all students succeed in class and stay motivated.

All learners like the taste of success, be it a secondary school student learning the facts of History or a primary school pupil studying Math.

This innate drive in students to succeed is something that teachers can harness to motivate them. How should teachers do it?

Designing Lessons for Success

“In order to give students success, we need to design our lessons in a certain way that they can succeed,” says Senior Teacher Mr Elamaran Natarajan, who teaches History at Holy Innocents’ High School.

Together with three other Senior Teachers that he met at the NIE Senior Teachers Programme, Elamaran looked into how differentiated instruction can help with that.

Mr Tan Keok Kee, who teaches Math at Jurongville Secondary School, shares that differentiated instruction recognizes that teaching should address three aspects of students’ needs: their learning preferences, interests and levels of readiness.

With that in mind, teachers will better understand that students have different abilities and interests. While some will do well for a particular topic, others might not.

“Those who do fail miserably will start to think it is their fault that they failed. And from there on, their motivation is totally wiped out, because they are not doing well,” says Elamaran.

To avoid such scenarios, teachers can find out more about students’ different learning preferences.

Profiling Students’ Learning Preferences

Are your students visual or auditory learners? Or do they learn better by reading or through hands-on activities?

“Because of our different strengths, we need to learn in different ways,” says Elamaran.

By administering a free questionnaire called VARK (which stands for Visual, Auditory, Reading/Writing, Kinesthetic) and through observation, the Senior Teachers were able to



(From left) Zaini Bin Daud, Elamaran Natarajan and Tan Keok Kee believe that using differentiated instruction will help students stay motivated

The learning points for our students are exactly the same. But how we reach the learning point is different.

- Elamaran Natarajan,
Holy Innocents' High School

gauge how their students could learn more effectively, says Mr Zaini Bin Daud, who teaches Foundation Math at Blangah Rise Primary School.

Keok Kee notices another benefit of this exercise. "The students realize that the teachers care for them enough to find out how they prefer to learn. This is already a plus point to them, so they are more keen to learn and more attentive."

From there, teachers can then modify their teaching strategies to suit their students' preferences.

"The learning points for our students are exactly the same. But how we reach the learning point is different," Elamaran says.

"Kinesthetic students do a trail and go around the whole school. The higher ability students and the readers; they can do research in the library. And another group of students can watch a video on the same topic."

However, the teachers note that it is also a good idea to teach a topic in different ways to the whole class.

"When I teach, I try to figure out how to present the same concept in four different ways. Then, I will teach it to the whole class rather than focus on the groups separately," says Keok Kee. "This will help students to level up on the learning preferences that they are not so strong in."

Pacing the Learning

The teachers also take into account the readiness of their students in a particular subject or for a topic.

In Zaini's class, many pupils struggle to read. He plans his Foundation Math lessons carefully so that everyone is learning at a comfortable pace.

For weaker pupils, he gives them a separate set of worksheets or tasks that he knows they can manage.

"This approach lets them celebrate small, personal successes. When they succeed in doing some tasks, they get so motivated and want to do more," says Zaini. "And this is coming from a group whose self-esteem can be very low!"

"It's like a game for them," he elaborates. "If they're ready, we let them proceed to another level. Eventually, everybody will get the same worksheets, because everybody will be doing the same exam. Only the approach and speed differs from pupil to pupil."

No doubt, it is more time-consuming to teach in this way, but Zaini finds a sense of satisfaction in deviating from the one-teaching-strategy-fits-all approach.

Differentiated Instruction as Motivation

To find out if the differentiated instruction approach works, Elamaran did a survey with his students. In particular, he wanted to know if it did motivate them. "I think all of them were motivated due to the fact that they now understand something and are able to do something about the topic that they really found difficult in the past!"

Keok Kee also notes a big improvement in student performance in his "project" class of Secondary 4 Normal (Academic), compared to the control class.

As for Zaini, his pupils are now trying harder. Instead of leaving lots of blanks in their worksheets, they are providing more "promising" answers. The struggling readers are also improving. "It's moving forward a little bit; I also want to celebrate my own little successes to motivate myself!" he says.

Even though these teachers are teaching different subjects at different levels, they were all able to use differentiated instruction to make a difference in their students' learning. To them, this is proof and encouragement that teachers should never be afraid to try something new. As Elamaran sums it up, "We must always find out new ways to attain the goals of education and not just be happy with what we have now."

Elamaran Natarajan

is a Senior Teacher in History at Holy Innocents' High School. He has been teaching for 16 years. **Tan Keok Kee** is a Senior Teacher in Math at Jurongville Secondary School. He has been teaching for 26 years.

Zaini Bin Daud is a Senior Teacher in Foundation Math at Blangah Rise Primary School. He has been teaching for 24 years. Their project group also includes **Loo Hup Tee**, who has been teaching for 14 years and is now at Nan Chiau High School.

Bringing Out the Best in Students

Once upon a time, Professor John Wang was a teacher's proverbial nightmare. Attending school and doing well in exams were not his priorities. But today, he is a leading researcher in learner motivation and also founded a research lab in NIE. He shares with us how motivation has changed his life.

Q: Why is it your dream to study motivation and set up the Motivation in Educational Research Lab?

I believe motivation is the key to success. I was almost a school dropout. I still remember it was during the first year in junior college when I did badly in all my subjects. The principal called me to his office, and I thought, "I'm going to be expelled from the school." But he said to me, "John, your results aren't that good. I think you can do much better than that. I'll give you one more year to try and improve on them. I'm sure you'll be able to do it!"

Even though I was the worst of the worst, my principal believed in me and did not give up on me. I was greatly encouraged and that was the turning point of my life. I made a conscious decision then to change my attitude and behaviour. I started to attend lessons regularly and worked hard to overcome my weak foundation in the subjects.

I was educated in the Chinese stream, so I studied Chinese as a first language and English as a second language. I had never read an English book until I was in Secondary 2. That was partly why school had always been a struggle for me.

I eventually earned a place in Loughborough University. I studied hard when I was in England and became the top student of my programme. I then went on to complete my PhD under NIE's Overseas Graduate Scholarship.

My own experience made me realize that motivation is a very powerful driving force. Our beliefs and drive can determine our destiny, perhaps more so than the abilities we were born with. It also made me appreciate the impact a teacher or principal can have on a student. That was why I chose to become a teacher. I wanted to teach and share with student teachers not merely content knowledge on sport psychology, but also motivation: how to motivate and get the best out of a person.

Q: You know what it's like to not feel engaged in school. Have you done any research on low-achieving students and how teachers might help them?

Currently, we're doing a project that looks at low-achieving students, or the bottom 15% of the cohort in Math. The project aims to firstly, examine the cognitive and motivational characteristics of unmotivated students in the Normal stream, and secondly, find ways to increase motivation and academic performance of these students.

The project will identify concrete practices teachers can use to inspire the students. By managing their self-beliefs and achievement goals, teachers can transform the passive and academically disinterested students in the classroom into active, self-directed learners.

I'm a sports psychologist as well. In sports, mental strength is one of the most obvious factors in achieving peak performance. We cannot compete in a competition with only our skills. There's a lot of psychological preparation beforehand. It's about conditioning our mind to perform at our best. We can be well prepared for an exam, but if we panic when we enter the exam hall, we will not perform at our best.



Our beliefs and drive can determine our destiny, perhaps more so than the abilities we were born with.

*- John Wang,
Physical Education and Sports
Science Academic Group*

Motivation and mental skills go hand in hand. This is something that can be better emphasized in our schools. We know that concentration is very important. If we want to learn anything, we need to concentrate. But we seldom teach our students how to concentrate.

Likewise, relaxation skills are very important. When we go for an exam or a competition, if we are too anxious and think negative thoughts, that will affect our performance but again we don't teach our students and athletes how to relax! In the same way, having high self-confidence is very important but we seldom teach students how to build self-confidence.

Essentially, if we want to motivate a person, we've got to look at specific skills that we need to build on. I believe mental-skills training has a part to play when we are trying to bring out the best in ourselves or our students.

Also, there are skills to help us get rid of negative thoughts. Sometimes, when we get emotionally charged, how do we control ourselves? When we're faced with challenges, how do we find a way out? We can train ourselves and our students in certain thought processes to navigate these situations.

Q: When you were a teacher, did you apply any strategies to motivate your students?

I have to admit what I did as a teacher was based more on intuition. I didn't really know enough about motivation then. I do remember that at the beginning of Math lessons, I would get my students to do some breathing exercises, just to quieten down their thoughts. I used to give them scenarios such as: I'm the captain of the train. I'm going to drive the train and I want all of them to be on board the train, so that even if I'm moving at a high speed, they're following me. I was trying to gain their attention before starting the lesson. I did not know it then but what I was trying to do was to link mental-skills training to motivation.

We had to be very creative if we wanted to create an environment where students could concentrate. At that time, we only had an overhead projector in the classroom, and not even computers. I had to deliberately plan a lot of interesting games, such using playing cards to teach Math to keep them engaged. If students are able to focus, they will feel more confident about themselves and that will motivate them.

Q: Do you think our understanding of motivation has improved since the time when you became a teacher?

Yeah, definitely there is more research showing us the way to motivate ourselves and our students. We have learned that human beings have innate psychological needs and we have inner resources to motivate ourselves. As teachers, we must focus on how we can create classroom environments that can fulfil our students' innate needs so that they can harness their own resources to motivate themselves.

If we talk about teacher education in NIE, we really need to imbue in student teachers the belief that every child can learn and instil in them a zest for learning. These values will determine, to a large extent, their commitment and will to constantly seek opportunities to better their teaching practice and to motivate and bring out the best in their students.

Professor John Wang is the Guest Editor of this issue. He is Head of the Physical Education and Sports Science Academic Group in NIE. His areas of research include motivational and emotional aspects of physical activity and exercise. His recent publications have been on sport-ability beliefs, achievement goals, intrinsic motivation, emotion, and self-esteem. He is an established researcher in the areas of achievement goal theory and self-determination theory.

Online Exclusives



From Theory to Practice



Creating a Good Learning Environment



Learn Positively!



Motivated from Within