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<th>Classroom learning: Promoting students’ constructive thinking and understanding</th>
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<tr>
<td><strong>Author(s)</strong></td>
<td>Tay-Koay Siew Luan</td>
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<td><strong>Source</strong></td>
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CLASSROOM LEARNING: 
PROMOTING STUDENTS’ CONSTRUCTIVE THINKING AND UNDERSTANDING

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Nanyang Technological University, Singapore

Abstract: Efforts to improve student learning need to focus on the processes of classroom instruction as a locus of change. This paper explores the avenues of change that promote students’ constructive thinking and understanding so as to enable students to be psychologically connected to what is going on during the lessons.

Introduction

Recently, Singapore has been recognised as one of the most academically successful nation in the world after the publication of the results of the Third International Mathematics and Science Study (TIMSS). Singapore is seen as “successful” in reaching excellence in the education system because of the importance it places on verbal and numeral literacy, the development of talents in individuals, the provision of special programmes to cater to students who are not progressing well in schools and the rapid introduction of new technology in schools.

The goal of Singapore education is to nurture the potential of the whole child and to develop him or her into an educated person who will become a useful productive citizen. To be an educated person, the individual must be taught the useful knowledge, skills and inculcate positive attitudes and habits so as to help him or her fulfil his social, intellectual and creative potential and moral responsibilities. Schools have a major task of making learning useful, relevant, efficient and effective so as to help the individuals to grow and develop in all aspects of life. Teachers play a very important role in the classroom as they are in direct contact with the students and know them personally. The hallmark of their success as teachers would appear to be in their ability to understand and to cater to the learning needs of individual learners, continually challenge students’ thinking and assumptions, review the learning processes and seek to improve classroom learning and to participate in continuous professional upgrading. There is no doubt that the primary responsibility of teachers is to make sure that learning has taken place. Is that what is commonly understood as the basic requirement of teaching?

It is indeed puzzling that in spite of numerous research studies on learning and on classroom learning environment, yet there remains little understanding of why learning does or does not take place. The propensity and intensity to learn varies from individual to individuals be they students or teachers. What do we mean by learning?

The purpose of this paper, therefore is to present a framework for enhancing the learning environment in the classroom so that the relevant pedagogical principles can be applied in the classroom. It will basically focus on what teachers can do to promote constructive thinking through developing self and enhancing student motivation, providing a structure for deeper understanding and support for self-evaluation of achievement in the classroom. It is based on my personal observations of classroom learning situations in America, Finland and Singapore and personal belief in the necessary learner-centred conditions that must be in place in the classroom for the students to do “quality schoolwork”, a term used by Glasser (1994). Let me begin by elaborating on the notion of learning.
View Of Learning: Personal Change And Influence

Obviously, learning can take place everywhere and could entail practically everything. There are different views on learning and these have implications on the way we measure learning success. To learning theorists, learning is defined as a relatively permanent change in observable behaviour, interpretation or emotional response or unobservable processes involved in the acquisition of knowledge, skills and attitudes as a result of experience. A person is said to have learned something if his current response is different from his previous response in a similar situation.

All the theories of learning have described what is learning but they have not given an adequate description of learning in the classroom. Are student outcomes in subject performance are the only criteria for learning effectiveness? What is it about the process of teaching that makes learning possible in the classroom? How can we help students to learn better in the classroom?

Research has shown that the quality of instruction, time for learning, opportunity to learn, the support and the interactive effects of student motivation and aptitudes contribute to an effective classroom (Creemers, 1996). I recognise that learning is a process and achievement of each stage of growth and development takes time. The longer I’m involved in teaching, the more I am convinced that ultimately learning is all about personal change – of the teacher and of the student – and awareness of our empowerment regarding our capability in influencing change in others-the child, the family, the school and key individuals in the system. Every effective learner wants to be rescued from the grip of ignorance and become a more knowledgeable and a more competent person. However, according to Covey (1989), “knowing I need to listen and knowing how to listen is not enough. Unless I want to listen, unless I have the desire, it won’t be a habit in my life. Creating a habit requires work in all three dimensions... By working on knowledge, skill and desire, we can break through” to new levels of personal change” (p.47).

Framework: Promoting Constructive Thinking In Learner-Centred Classroom

What are the critical elements for influencing change and bringing about learning?

It is important that we focus on areas that we can do something about. We have to begin with ourselves, and then enlarge our sphere of influence to the students by motivating them and finally by structuring their learning process in the classroom so that understanding occurs in the lesson. Teachers can begin by constructing their thoughts and beliefs about learning.

Self-Motivation

Self-Understanding of Teacher and Quality of Relationship with Pupils

It saddens me whenever I hear remarks from teachers who have succeeded in producing good academic results in students but who are willing to leave the weak or disruptive students alone in a corner. Where are the concern, the compassion, the caring touch and the committed spirit of the teachers? Have they forgotten the teachers’ pledge that they “will be true to our mission to bring out the best in pupils…”? According to the philosopher, Hirst and Peters, there is no teaching if there is no learning.

In a study of 646 teachers in Singapore by Tay-Koay, Ho, Lim and Wong (1997), 612 teachers responded to the question “Do you regret becoming a teacher?” and to the statement “Your feelings towards the pupils you teach may be described as one of …” An overwhelming majority or 82.4% (or 505 teachers) reported that they did not regret becoming teachers. Only two out of every ten
teachers reported their regret in becoming teachers. Would their feelings about the choice of their career influence the teachers; feelings towards the pupils and towards their classroom practices?

Table 1: Choosing Teaching and Teachers’ Feelings Towards the Pupils (N=612)

<table>
<thead>
<tr>
<th>&quot;Do You Regret Becoming A Teacher?&quot;</th>
<th>&quot;Your Feelings Towards the Pupils You Teach May Be Described As One of ...&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liking Pupils</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td>Not At All</td>
<td>200</td>
</tr>
<tr>
<td>No</td>
<td>85</td>
</tr>
<tr>
<td>Sometimes</td>
<td>5</td>
</tr>
<tr>
<td>Yes</td>
<td>21</td>
</tr>
<tr>
<td>Very Much</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
</tr>
</tbody>
</table>

Thankfully, the findings by Tay-Koay et al. (1997) do not support the misconception that those who might regret becoming a teacher would be more likely to dislike the pupils they teach. On the contrary, even among those who did not regret becoming a teacher, 34.8% of the teachers, or one in every three teachers, described their feelings towards their pupils as one of mixed feelings, hovering between feelings of “like” and “dislike” towards the pupils they teach. However, it is a bit disturbing that only about half of the teachers in the sample (52.1%) reported that they liked the pupils they teach.

Teaching is about relating to people and helping individuals learn. If teachers do not have a strong liking for pupils that they teach, will they be capable of inspiring and draw out the best in the pupils? Fortunately, there were only 8 respondents (or a negligible 1.3%) who indicated that they disliked the pupils they taught. What could be the obstacles in preventing the healthy development of a more positive teacher-pupil relationship? This calls for further research into this affective aspect of the teachers’ lives in the classroom.

Teachers themselves may need further professional development help. Table 2 shows that 80 of the respondents or 12.7% described the general behaviour of the pupils as being disruptive or uncooperative. However, it is interesting to note that the teachers’ liking of the pupils seem to be positively related to their description of the general behaviour of the pupils as “good” or “helpful.” Development of the teachers’ mixed feelings towards the pupils seems to be connected to the negative behaviour of the pupils. It therefore appears that being able to overcome discipline problems and being able to manage the pupils well will affect the teachers’ sense of control and liking for the pupils.
Table 2: The Relationship Between Teachers' Feelings Towards Pupils and Their Description of Pupils' General Behaviour (N=629)

<table>
<thead>
<tr>
<th>Teachers' Description of Pupil Behaviour</th>
<th>Teachers' Feelings Towards Their Pupils</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liking Pupils (n=323)</td>
<td>Mixed Feelings (n=299)</td>
<td>Disliking Pupils (n=7)</td>
<td>Total (N=629)</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>228 36.2</td>
<td>133 21.1</td>
<td>2 0.3</td>
<td>363 57.8</td>
<td></td>
</tr>
<tr>
<td>Helpful</td>
<td>74 11.8</td>
<td>78 12.4</td>
<td>0 0.0</td>
<td>152 24.2</td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>8 1.3</td>
<td>25 4.0</td>
<td>1 0.2</td>
<td>34 5.4</td>
<td></td>
</tr>
<tr>
<td>Disruptive</td>
<td>11 1.7</td>
<td>50 8.0</td>
<td>3 0.5</td>
<td>64 10.2</td>
<td></td>
</tr>
<tr>
<td>Unco-operative</td>
<td>2 0.3</td>
<td>13 2.1</td>
<td>1 0.2</td>
<td>16 2.5</td>
<td></td>
</tr>
</tbody>
</table>

The results seem to indicate a need for teachers to be involved in more self-discovery professional development workshops that will enable teachers to talk about their feelings and classroom experiences that may be affecting their teaching and relationship effectiveness. Trained facilitators can help teachers work through their feelings and problems and to equip them with interpersonal skills and classroom management skills.

Self-Direction of the Students and Motivation for Learning

I believe that there is a need to accommodate the students’ learning differences so as to enable the educationally disadvantaged to succeed. I believe that students have within themselves the ability for self-understanding of their attitudes, their self-concepts, their motives and behaviour and for self-direction. How students construct knowledge and produce representations of that knowledge are closely related to their own perceptions, needs and existing resources. To help such students realise their abilities, teachers must not give up on them. What can we do to bring about thoughtful learning in the classroom? The features of such a classroom involve emphasising on motivation, understanding, and attention to constructive thinking.

As we look at students’ academic performance and recognise the existence of learning problems around us, we begin to realise that we need a deeper level of thinking to deal with these learning concerns – the learner-centred approach to learning effectiveness.

It is my belief that even the most academically unmotivated person has unique interests and strategies for motivating himself or herself in learning something new – so long as it interests the student.

In a study by Chang, Goh, Moo and Chen (1997, the Normal (Technical) stream students in the secondary school have been found to be of average self-esteem, are not highly motivated, have short attention span, poor study habits and low English language proficiency.

In another study of 67 Secondary One Normal Technical students from a neighbourhood school, Ng (1999) found that teachers were of the belief that students refused to put in effort to learn. However, during the interview with Ng (1999), the sampled students expressed that “they were never given opportunities to try new methods of learning. Lessons were boring because they were taught in the same way all the time—sit, listen and watch” (p.77).

In another simple study of a selected group of 20 bright but “worst-behaved” secondary two express students (10 female and 10 male students) from a neighbourhood school, it was found though they were considered to be the third best Secondary Two class, they held the most demerit points (23
demerit points) in conduct for the level. When asked whether they would describe themselves as motivated persons, the majority of the students or 14 students (70%) out of 20 Secondary students see themselves as motivated learners. They were aware of their ability to motivate themselves if they wanted to as 65% of students (or \( n=13 \)) felt that the motivation comes from within themselves. In other words, their level of self-discipline could be the most important factor in determining how successful they were in motivating themselves. Students believe that “school is boring” and that “school is useless in our everyday lives.

I agree that anyone, who is convinced of the uselessness of what has/she is being taught, would certainly be not so motivated to learn. Hence, if students cannot find the relevance in what they learn, they become demotivated. According to the Russian neuropsychologist, Alexander Luria (1980), thinking begins when a person is motivated to solve a problem for which there is no ready solution. The students’ motivation remains high when they recognise the problems and realise that they have the tools to solve them.

The onus is then on teachers to make homework and class work interesting and relevant. It is therefore the teacher’s role to influence change in the attitude of the students through their rapport skills with students and the way they structure the learning experiences so as to help students understand what they have learning.

*Structure For Meaningful Learning And Understanding*

Teachers can help by being more patient and by structuring classroom learning experiences such that they are within their level of comprehension and the learning activities are closely related to student goals and interests. Students come to school with a wealth of experiences. What they know and how they organise what they know will greatly influence what they are able to learn. The cognitive constructivist view proposes that learning is a matter of constructing knowledge in a learning community (Cobb, 1994). It believes that with proper guidance, students are able to construct the knowledge acquired in the classroom and are constantly attempting to make sense of their learning experiences (von Glasserfeld, 1988, Leinhardt, 1992). Understanding comes about when the students have been motivated to make sense of what they have learned and to seek application of information they have acquired and mastered. According to Jerome Bruner, a person who understands is one who is capable of going beyond the information given. The students who truly understand the lessons are able to use their knowledge to solve problems successfully. The more active the learners are, the more they will engage in meaningful tasks and the more they will take ownership of the content (Honebein, Duffy and Fishman, 1994). Teachers’ care and concern with how students are coping in class can significantly and positively change the behaviour and their learning process in the classroom.

Wlodkowski (1986) believed that in any learning situation, motivation plays a decisive role in influencing learning right from the beginning of learning, during learning and at the end of learning. What are some potent factors that need to be considered in structuring classroom experiences so that they influence learning and engage students in understanding the lesson at various stages of learning?

*Structure for Safety and Development of Positive Attitudes*

At the beginning of learning, the students’ positive attitudes such as feelings about themselves, towards the school, their teachers, their peers and their subjects and their needs such as physical and psychological safety are two key motivational factors in learning. There must be a warm, supportive classroom environment. In this type of environment, teachers get to know the students and like
them and provide a caring place to learn. Glasser (1994) points out that students tend to work harder for teachers whom they know and like.

**Structure for Arousing Curiosity and Sustaining Interest**

During the learning process, stimulating students’ thought processes and affect such as their feelings about the classroom work are closely linked to maintenance of interest in the lesson. What are the students attending to during the learning experience? Are there elements in the classroom or in the environment that attract-or-distract-their attention? All of the students are curious and capturing their interest can lead to meaningful and more insightful learning. According to deCharms (1976), structured but relaxed classroom conditions that allow for an acceptance of students’ ideas can encourage the creative use of their curiosity. It is therefore important that students are asked to do only useful work. Students express a desire to learn once they believe that the work assigned is always useful and is related to a life skill or future work.

**Structure for Achievement of Locus of control**

During the last stage of learning, the key motivational processes involved are competence and reinforcement. In other words, students achieve competence when they have the skills necessary to attain the desired goals.

According to Ford (1992), teachers can support students in their work by providing them with the skill mastery and feelings of classroom acceptance. A sense of competence reduces fear and anxiety for a task and increase the effort expended on the task (Bandura, 1986). By believing that they have the ability to master the knowledge and skills and to exert control over their lives, they develop the sense of competency. According to Bandura (1986), this sense of competency becomes a powerful motivating force in the learning process. Proving praises for effort and reinforcing small improvements in learning are meaningful activities and encourages the students in the learning process.

According to Hart (1983), the brain is able to search, detect, construct and elaborate patterns as a basic built-in function so as to meet the demands of new experiences. It is important for teachers to present information in a way that helps the students’ brains to extract the patterns such as through integrated and thematic teaching approaches and the current use of summary of lesson as a whole. These help students to make sense of what they are learning (Caine and Caine, 1990). Teachers can play their part by displaying a variety of behaviours that will help to develop students’ understanding of the lesson such as:

- **Explanation** – explaining in own words
- **Exemplification** – giving new examples to illustrate points
- **Application** – using the law or theory to explain a phenomena
- **Justification** – offering evidence to defend the law or formula or test
- **Comparison and Contrast** – relating to prior knowledge and making comparisons
- **Contextualisation** – providing a context in terms of why the content is important
- **Generalisation** – summarising the principles that are manifested.

To encourage understanding in the classroom, teachers need to provide clear information, thoughtful practice, informative feedback and good monitoring of students’ learning processes. Such processes of helping the students develop deeper understanding also help them build mental images of the lessons.
Support For Self-Evaluation And Self-Development

It is important for teachers to always ask students to do the best they can do. Students are willing to put in a great deal of effort into their work once they know that the teacher cares and appreciates the effort they put into the work. In addition, the students can be asked to evaluate their own work. Self-evaluation is a prerequisite to quality work and students should be taught to evaluate their own work, to improve on it and monitor their own progress till quality has been achieved. Producing quality work always makes students feel good. Students feel good when they produce quality work. Glasser (1994) believes that feeling good is an incentive for one to produce quality.

In summary, research shows that students are able to think about what makes school a place where they want to learn. However, can students describe what they have learned? On many occasions, students are busy copying notes rather than trying to understand the lessons. Examples of such student responses include statements like the following:

“I’m not thinking about anything. I just copy whatever thing she (the teacher) gives, I didn’t listen a word to what she says? How can I copy and concentrate at the same time...?”

“I wasn’t thinking of any stuff at that time for I was concentrating on writing the notes. I mean, it is not very easy to write and listen for I can do one thing at one time…”

In a research by Tay-Koay (1997), the effective learners were found to be more capable in recalling and in constructing their thoughts about the lessons. These students are able to build a mental image in their mind concerning what they have learned. They were more specific in describing what they had learned and could elaborate on the lesson by providing details. Examples of specific responses that indicate constructive thinking are as follows:

“... I was thinking about cells and what I have not understood from the lessons before, I think and I was thinking about the Physics worksheet I have not completed etc. Then came lemons. I think about this show (which I can’t recall now) about the lemon I think...when the teacher wrote E= I (R + R) – VEXT + VINTER, I was thinking of the next computer and Next + Winter.”

“I was thinking about what she is teaching and sometimes thought back about the theory that she gave – how she arrived at it.”

“Recalling what we learnt from the previous lesson about interference of waves and trying to relate to the present lesson. Trying to reason out the rationale that teacher gave for certain assumptions that she made in order to devise a certain formula.”

The examples show that the students were aware of the specific thoughts that crossed their minds during the lesson and were able to articulate her thoughts. They were attending to the teachers, trying to understand and at the same time, processing and remembering the information taught. The mental map charts the students’ learning course. The mental image is a highly integrated kind of knowledge as they are able to link the various parts of the lesson and prior knowledge together into an integrated picture.

On the other hand, the less effective students were generally unable to construct their thoughts about the lesson. They were not able to remember what they had been learned. Examples of such student responses include the following:

“I cannot remember or describe what I thought about.”

“Many things but can’t remember now.”
Cognitive psychologists believe that for students to develop critical thinking skills, they must learn how to learn. They must be aware of their own thinking processes and be capable of evaluating their own learning by monitoring thought processes so that specific learning goals can be attained. Learning how to learn is therefore an important outcome of classroom learning and is the characteristic of an effective learner. Such a learner is aware of what they understand and what they do not understand. They are capable of searching for learning opportunities and critically analysing those opportunities. Hence, it is very important to help students develop their metacognitive ability to monitor their learning processes.

Conclusion

In summary, it can be said that the classroom teaching-learning process is a complex yet a fascinating process. Students are so unique. The intelligent and motivated students will be able to learn on their own. However, there are students who need the help of a concerned, compassionate and a committed teacher. Such a dedicated teacher may be able to achieve productive learning results through motivating the students, and providing a structure that allows the students to engage in a series of constructive thought processes and meaningful interactions of observing and reasoning, perceiving and thinking, questioning and seeking clarification and deeper understanding. By being stimulated, the students are being involved in the learning experiences. Their minds are kept busy as they are processing the information, reflecting on their observations, and integrating or modifying their learning experiences. By monitoring their own learning processes, students learn how to learn and develop a constructive sense of competency and belief in their own ability to master the knowledge and skills and to exert control over their lives. This sense of competency is a powerful motivating force in the learning process, in empowering personal change and in influencing lives for the better. This is an important outcome of classroom learning.

References


