

# COOPERATIVE LEARNING AS A MEANS TO DEVELOPING STUDENTS' CRITICAL AND CREATIVE THINKING SKILLS

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## ABSTRACT

With the emphasis today on the employability of graduates, the debate is on whether classroom practices have much relevance to the 'real world'. At higher education, as universities are the final pit stop for students before they embark to working life, we, the educators, must be mindful of the demands of the workforce. This research will focus on how effective cooperative learning skills and the deliberate and conscious use of problem solving tools can aid students to develop their thinking skills which in turn can positively affect their personal, interactive and analytical skills - skills vital in the workforce. In this paper the researcher would like to define critical thinking as encompassing both logical and lateral thinking. It cannot be denied that both critical and creative thinking are interrelated and complementary aspects of thinking. Therefore, in order to develop effective thinking skills, one must pay attention to the development of both aspects of thinking.

Feedback will be gotten from students via semester end compulsory student journals. Apart from that, observations, on the part of the instructor, will also be noted from time to time.

## INTRODUCTION

The rapid social and technological changes during the past few decades have impacted our lives in one way or another. With the emphasis today on the employability of graduates, the debate is on whether classroom practices have much relevance to the 'real world'. At higher education, as universities are the final pit stop for students before they embark to working life, we, the educators, must be mindful of the demands of the workforce. This research will focus on how effective cooperative learning skills and the deliberate and conscious use of problem solving tools can aid students to develop their thinking skills which in turn can positively affect their personal, interactive and analytical skills - skills vital in the workforce. In this paper the researcher would like to define critical thinking as encompassing both logical and lateral thinking. It cannot be denied that both critical and creative thinking are interrelated and complementary aspects of thinking. Therefore, in order to develop effective thinking skills, one must pay attention to the development of both aspects of thinking.

## THEORETICAL BACKGROUND

Critical thinking in simple terms is the ability to think for one's self reliably and to responsibly make decisions that affect one's life. As mentioned in the introduction, in this paper critical thinking is defined as encompassing both logical and lateral thinking as both critical and creative thinking are interrelated and complementary aspects of thinking. In traditional critical thinking courses, logical thinking which focuses on arguments and reacting logically to arguments is emphasized. De Bono (1992) cautioned that too much logical thinking which focuses on only the right and wrong is defective as it omits the generative and creative. This simply means there should be room for "thought experiments" on the part of the thinker. One way to achieving this is via conscious and deliberate thinking which involves provocation, exploration and risk taking. This allows thinkers the time and focus to be more

creative and to come up with novel ideas and solutions. Hence, to develop effective thinking skills, one must pay attention to the development of thinking skills.

Elder and Paul (1994) interestingly define critical thinking as self-guided, self-disciplined, and self-corrective thinking. She further adds that to be a good thinker, one must be good at effective communication and problem-solving abilities and be ready to embrace new ideas and skills. De Bono (2000) has repeatedly propounded that being a thinker does not involve being right or clever and solving all problems that come your way. Being an effective thinker, according to De Bono (2000), involves consciously wanting to be a thinker and going through the motions of thinking i.e. role playing, deliberate use of thinking tools etc. He further adds that being a thinker involves deliberately practicing and focusing on your operating skill. And like any skill such as playing the piano or football, one can improve his/her thinking skill over time. Gladwell's (2005) book 'Blink' is an eye opener on the importance of our adaptive unconscious in making good decision making. The adaptive unconscious is seen as a giant computer that speedily processes information to keep us functioning as human beings. Gladwell (2005) advocates training, controlling and improving our adaptive unconscious for better judgments. This is done by investing time on deliberate thinking and having a better understanding of what goes behind the locked door of our unconscious.

Interestingly, Glaser, as early as 1941, in a seminal study on critical thinking and education succinctly defined critical thinking as containing three aspects:

1. how you perceive a problem
2. methods of logical inquiry and reasoning you can employ on the problem
3. some skills in applying these methods

Based on the above, it will be apt to say that good critical thinking is higher-order thinking and these will be elements at the upper level of Bloom's Taxonomy which involve synthesizing, analyzing, and evaluating. These higher-order thinking skills require rigorous practice and training for according to Nickerson (1987); cited by Schafersman (1991), good critical thinkers must have the ability to not only use evidence skillfully, but to organize thoughts and articulate them coherently in varied contexts. Moreover, they must be adept at investigating problems in groups, discovering new answers and even questioning authorities and traditional beliefs. People at this level are adaptable to the fast changing environments and an asset to the modern workforce. This is evidenced by a research conducted on employers by Peter D. Hart Research Associates, Inc. in 2006. It is not surprising that intellectual characteristics that topped the list were effective communication skills (73%), critical thinking and analytical reasoning skills (73%), ability to locate, organize and evaluate information from multiple sources (70%) and the ability to be innovative and think creatively (70%). As today's economy requires people who are resourceful, knowledgeable, creative and good team players, possessing good thinking skills is a powerful resource for effective functioning in this modern world.

Case study analysis which is a problem based learning approach, is an effective way for students to practice these higher-order thinking skills and problem solving strategies. This is evident as Scriven and Paul's (1987) views critical thinking as a process of methodically conceptualizing, applying, analyzing, synthesizing and evaluating information gathered from sources to incorporate it as new knowledge learnt is similar to the steps involved in doing a case study. As students work in small groups, they are able to imbibe the virtues of cooperative learning such as positive interdependence, excellent team work strategies and effective interaction among members to develop broader perspectives on an issue. A major interesting point about doing a case study is that there is no perfect solution to a case. This is because solutions not only depend upon an individual's interpretation of the data, but also

the role and relationship of group members working on the case. Vygotsky, (1978; cited by Brown, 2007) a proponent of the Social Constructivist theory emphasized the importance of social interaction among learners to enable them to develop their thinking and construct meaning in a social context. According to Vygotsky (1978; cited by Brown, 2007) cooperation and collaboration among peers promote cognitive growth because students are apt to model and imbibe each other's more advanced ways of thinking. Furthermore, Piaget (1971) believed that this collaboration via working together and discussing the material reduced egocentrism and promoted more advanced ways of understanding and dealing with the world. Hence, to enhance learning, tasks set should be meaningful and purposeful. Furthermore, Tan (2000) argued that having real life problems as the focus trains students to be active problem solvers and teachers as coaches. The above allows the learning paradigm to tilt towards the emphasis and attainment of higher level thinking skills with the emphasis on real world challenges such as team work, communication skills and group interpersonal skills. Rogers (1983; cited by Brown, 2007) in his theory of facilitative learning further advocated that for effective learning to take place, teachers should become facilitators of learning through the establishment of interpersonal relationships with learners. This view was shared by Freire (1970; cited by Brown, 2007) who further argued that for effective learning to take place, students should be allowed to negotiate meaning and cooperate with teachers and learners in their small 'intellectual community' in a process of discovery.

Edge et al. (1978) further propounded on the long term multiple benefits of doing a case study which include practice in communication, analytical and interpersonal skills. They strongly felt that case studies were ideal in allowing students to act intelligently, rationally, and morally in business situations. The five key features of cooperative learning which include positive interdependence, promotive interaction, individual and accountability, small group, interpersonal and group processing (Johnson and Johnson, 1989) will corroborate with the work of Edge and Coleman of group case study as an effective strategy to enhance students' thinking skills.

Studies have proven that cooperative learning strategies do help in improving students' higher-order thinking skills. Over 375 experimental studies on social interdependence and achievement and productivity were conducted by Johnson and Johnson (1989). A meta-analysis of all studies indicates that cooperation results in significantly higher achievement and retention than do competitive and individualistic efforts. It was found that besides higher productivity and retention, cooperation resulted in more higher-order reasoning, creative thinking, transfer of learning, wanting to invest time on task, and persistence to take on more challenging tasks. In short, according to Johnson and Johnson (1989), the more problem solving required, and the more creative the decisions need to be, the greater the superiority of cooperative over individual and competitive efforts (Johnson and Johnson, 1989). Researchers have also assessed the impact of cooperative learning on problem solving. After reviewing forty-six studies, Zhining et al. (1995) concluded that students of all age levels (elementary, secondary, college, adult) who worked cooperatively outscored students who worked competitively. The average student in a cooperative group solved more problems correctly than 71 percent of the students who worked competitively.

In Lithuania, Klimoviene et al. (2006) researched on the significance of cooperative learning activities in developing students' critical thinking on 90 second year Economics and Management students in Business English classes. The activities here included asking pertinent questions, debating ideas, summarizing and synthesizing, critiquing ideas and communicating. The findings revealed a positive correlation between cooperative learning and their performance in the above activities. The research also revealed that students became better in making critique, developing

their own position and making better decision based on support and confidence from group members.

## METHODOLOGY

The sample population would be 38 business (5 Business Administration, 28 International Business and 5 Mechanical Engineering) degree students in a private university college in Malaysia. The research will be based on the critical thinking course that the university offers as part of its soft skills program to help prepare students for the workforce. The course runs for 14 weeks and has a two contact hour per week. For the purpose of this research, the researcher will focus on the three group tasks that students do in the course, in particular the problem solving tools that students are requested to deliberately and consciously use throughout their thinking and decision making process. The cooperative learning model used is a small group of four to five students who are grouped heterogeneously. In order to allow students to imbibe the virtues of cooperative learning, students are to remain in the same groups for the three group tasks throughout the semester.

The major part of the findings will be extracted from the semester end reflective journals students submit as part of their assignments. Questions are structured and students are assured of confidentiality. Apart from that, observation, on the part of the instructor, will be noted and presented in the findings

## PROCEDURE

### *Class Management*

The first two tasks dealt with business case studies. Using Edge et al. (1978) case study framework, students went through the steps of i) Understanding case situation, ii) Brainstorm problem areas, iii) Formulating the problem statement, iv) generating alternatives v) Checking solutions against problem solving tools and vi) Defending implementation. The entire class was given a similar case study. This was to encourage inter and intra group discussion.

### *Role of Students*

Through a process of negotiation, students were divided into groups of 4/5. They were briefed on the purpose and the advantages and benefits that can be derived from doing a case study analysis. They were also made aware on the importance of team work, interpersonal skills and individual and group commitment. They were then given 1.5 hours of class time to discuss the case study, share ideas, plan their strategies and delegate tasks. Students were given one week to prepare for their presentation. They had to prepare power point slides to demonstrate the key steps in their problem solving process i.e. summary of case, the problem areas, the main problem, their deliberate use of the thinking tools and justification to the solution to the problem. At the end of each presentation, students had to answer questions from the audience. For the third task on invention, students were given eight weeks to prepare. Throughout the eight weeks, some class time was set aside for group discussion. Here groups had to justify their invention, prepare a USP analysis on their product and sell their idea to the class. They should also be able to answer questions from the audience. At the end of each presentation session the whole class had to together to check and provide feedback on groups' problem solving strategies and to decide on which solution was the most feasible.

## *Role of the Instructor*

The role of the instructor was to guide students accordingly through the case study steps, facilitate group discussions where necessary, check on individual and group processing, clear doubts and encourage inter and intra group discussions. Again, this class time allowed the instructor to advise and monitor on effective cooperative efforts such as positive interdependence, face-to-face promotive interaction, individual and group accountability, appropriate use of social skills, and group processing (Johnson and Johnson, 1989) During the presentations and at the end of each class session, the instructor encouraged and facilitated intra group discussions and highlighted issues where necessary.

### *Summary of the 7 Tools Used (available from mindtools.com)*

#### *i. The Six Thinking Hats – by Edward De Bono*

The main difficulty of thinking is confusion. This is caused by the influx of information and trying to be logical and creative at the same time. In the words of De Bono 'it is like juggling with too many balls'. The solution will be to unscramble the decision making process with the "six thinking hats". This involves deliberate role playing of the hats either in parallel thinking of the hats by all members or deliberately requesting for any one hat to be worn based on the situation. This will create a climate of clearer thinking, improved communication and greater creativity. Summary of the 6 hats:

- White hat: white is neutral and objective, concerned with facts and figures
- Red hat: gives the emotional view
- Black hat: gloomy and negative, the devil's advocate hat
- Yellow hat: sunny and positive
- Green hat: associated with fertile growth, creativity and new ideas
- Blue hat: blue is cool, the colour of sky, the control tower - the organizing hat

#### *ii. Reversal*

Reversal is a good tool for improving a product or a service. To use it, you ask the opposite of the questions you want to ask, and apply the results accordingly.

#### *iii. Appreciation*

Appreciation is a very simple but powerful technique for extracting the maximum amount of information from a simple fact. You keep on asking 'so what' until you have drawn all possible inferences.

#### *iv. 5 Whys*

The 5 Whys is a simple problem-solving technique that helps users to get to the root of the problem quickly. The strategy involves looking at any problem and asking "Why?" and "What caused the problem?"

#### *v. SWOT Analysis*

SWOT analysis is a very effective way of identifying your Strengths and Weaknesses, and of examining the Opportunities and Threats you face. Carrying out an analysis using the SWOT framework helps you to focus your activities into areas where you are strong and where the greatest opportunities lie.

#### *vi. The Reframing Matrix – the 4P's approach*

This matrix is a simple technique that helps you to look at business problems from 4 different viewpoints which are:

- Product perspective: Is there something wrong with the product?
- Planning perspectives: Are our business plans and marketing plans at fault?
- Potential perspective: If we were to seriously increase our targets, how would we achieve these increases?
- People perspective: Why do people choose one product over another?

Firstly, you put the problem in the form of a question in the middle of the grid. Use boxes around the grid for the different perspectives. Then ask as many questions as possible in relation to the problem and perspectives concerned. This technique will help you put yourself in the minds of different people and expand the range of creative solutions that you can generate.

#### ***The Tasks***

##### *Task 1 – Case Study 1*

In groups of 4/5, students deal with a business case study. Using Edge and Coleman's case study framework and applying any 3 of the problem solving tools from *i-v* above, groups have to demonstrate their problem solving and decision making process. Groups then take turn to defend their implementation in front of the class. Presentation time per group – 15 minutes and 5 minutes question and answer session. The first case study was on Western Airport, in the British Midlands, which is operated by the Western Airport Authority (WAA). The growth in business has brought about problems and complaints from customers. Students, in groups, to decide what action plan the WAA should take (case study adopted from Cotton et al., 2007).

##### *Task 2 – Case Study 2*

Similar to task 1, but this time around they concentrate on only 1 tool – the reframing matrix (refer to *vi*). The second case study was on KGV Europe. KGV is a traditional high-street music retailer based in Amsterdam and has 12 stores in the Netherlands and around 60 stores all over Europe. The company is going through a tough period as profits have fallen steadily and there's stiff competition from the music industry. Students, in groups, to decide what action plan KGV should take (case study adopted from Cotton et al., 2007).

##### *Task 3 – Innovation*

Groups are required to modify an existing product and sell the idea to their mates. This task requires:

- ✓ A product design
- ✓ A poster presentation
- ✓ A one minute jingle that encompasses the product's Unique Selling Points (USP)
- ✓ A reflection on the tools used throughout this task – a Power Point sketch of at least three.

Presentation time – 15 minutes and 5 minutes question and answer.

## DATA ANALYSIS

The 38 student journals submitted generated a lot of information. The information was coded and summarized for analysis and discovery. The researcher then looked for key words, themes and concepts that reoccurred. These were then grouped into categories based on the main objectives of the research.

### Findings

The first item on the journal was for students, having completed the course, to provide their own definition of critical thinking. Interestingly, all 38 respondents' definitions were based on their learning experience during the semester. The step by step case study analysis and the deliberate use of the thinking tools to solve problems greatly influenced their definitions. Some of students' definitions are reproduced verbatim below:

- *Critical Thinking would represent the ability to use our mind and senses to make a decision. Anyone can make a decision with or without substance. Hence, critical thinking would encourage an individual to analyse an issue or problem step by step before coming up with a conclusion.*
- *Critical thinking is a logical and organized manner of thinking whereby a systematic procedure is used to arrive at a decision.*
- *A complex problem, you break it into smaller parts, to simplify the problem, so that it would not look complex and difficult.*
- *You emphasize more on methods and ways to solve a problem, not just by thinking deeply and blindly of a subject.*
- *CT is the skill that helps us to think deeply and to identify the root cause and by eliminating the root, you can solve the problem without wasting too much effort.*

The recurring phrases found in most journal entries such as 'methods and tools to solve problems', 'thinking, analyzing, evaluating and making decisions', 'practical thinking', and 'conscious thinking' and 'break problems into parts' parallel the definitions of De Bono (1992); Elder and Paul (1994) and Glaser (1941) mentioned earlier in this paper. Interestingly, Gladwell (2005) highlights that for effective decision making, a complex problem should be reduced to its simplest elements for the underlying pattern to be identified. This editing process called 'thin-slicing' is done unconsciously and based on his research in his book 'Blink', he strongly believes that with practice, we can fine tune our ability in making credible snap decisions.

The second item asked students to comment on the usefulness of the tools learnt and to state which tool they particularly liked and why. All 38 respondents or 100% of them found the problem solving tools learnt effective and useful. What they particularly like was the conscious use of practising these specific tools in class. This encouraged focused and deliberate thinking among group members. Generally, while the business students saw a positive effect between the tools learnt and their business studies, the 5 engineering were optimistic that the tools, although learnt in a business situation, can be adapted and used in engineering education and in their future.

**Table 1. The breakdown of individual students' preference for the tools learnt**

Problem Solving Tools	Student Preference (n= 38)	Percentage (%)
<i>The Six Thinking Hats</i>	12	31.57
<i>Reversal</i>	8	21.05
<i>5 Whys</i>	5	13.18
<i>Reframing Matrix</i>	5	13.18
<i>Appreciation' So What'</i>	5	13.18
<i>SWOT Analysis</i>	3	7.9

31.57% of the 38 students selected De Bono's the Six Thinking Hats as the tool they like best. Some of the reasons for selecting this are it is '*simple to use*', '*practical*' and '*the different colored hats make it possible to view a problem from different angles*'. One student found this tool '*user friendly as it uses colors to represent meaning*'. Another stated that the tool '*forces us to think positively, creatively and negatively*' and helps us to '*avoid digressing*' from the topic of discussion. Reasons given by students for not selecting this tool are '*too much focused thinking involved*' and '*too much time involved in wearing the different hats*'. Interestingly, these very students said that they would not mind investing more time later in getting used to the different thinking hats.

The second tool selected by 8 of the 38 students was Reversal. All seven students gave the reason that it was easier for them to pick out the negative side, ask questions from the exact opposite and apply the results appropriately.

The three tools Appreciation, 5 Whys and the Reframing matrix received similar score that is 13.18%. This group of students found the three tools easy and simple to use. A few students responded that merely asking 'why' and 'so what' helped her group probe deeper and get to the root of the problem. The Reframing Matrix was selected as students said they had studied this and the SWOT analysis before in their business studies. One student commented, "*I prefer the reframing matrix because I learnt the marketing mix before in my marketing lessons, so I can understand this tool clearer and faster*".

Generally, the deliberate use of the tools in small group discussions allowed students the opportunity to see the many sides to an argument before making a decision. As noted by a student, the tools allowed him "*not to judge or make a decision based on one view, but to look from different dimensions, the good and bad, and then to pick out the best solution.*"



Table 2. Problem solving tools selected by groups for Task 3

Problem solving Tools	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
<i>Six Thinking Hats</i>	✓	✓	✓	✓		✓	✓
<i>Appreciation</i>	✓	✓			✓		✓
<i>5 Why's</i>	✓		✓	✓	✓		
<i>Reframing Matrix</i>						✓	
<i>Reversal</i>		✓	✓	✓		✓	✓
<i>SWOT Analysis</i>					✓		

In the third task, groups were required to use a combination of at least three tools to invent or modify a product. Similar to Table 1, the Six Thinking Hats topped the list as the most preferred tool as it was selected by six out of seven groups to be one of their three choices of tools to be used (refer to Table 2). This was followed by 'Reversal' (5 groups) 'Appreciation' and 5 Why's' (4 groups). It can be inferred from the two tables that individual preferences of tools influenced group choices when selecting the tools to be used for task 3.

The next question was on whether case studies should be done in groups and why. Again, there was a unanimous (100%) agreement for small group discussion. Some of the key words and phrases in the student journals have been grouped and phrased into categories. Hence, the key findings are summarized below:

- In small group discussions, students were not inhibited in giving ideas. By the deliberate use of the tools, they had the flexibility of giving their ideas 'crazily and without borders'. Some members were surprised at the ideas generated by their groups and this no holds barred style inspired them to think deeper into the problem. Extract from a journal (reproduced verbatim):

*"When we were doing the assignment to innovate a new product, all of us came out with many ideas. At first, we were thinking to innovate special chopsticks which could produce sauces from inside. But when we used the reversal tool to generate how not to sell these chopsticks well, we found the loopholes in our idea. Hence, we came up with another idea to create a dustbin with a compressor. There were problems with this product. My members continued to use the 'so what' and '5 why's' tool and finally the group decided that the dustbin with compressor is the better idea because it matched our idea to innovate an environmental friendly product and it also fulfills the daily needs of consumers."*

- There were arguments and disagreements among group members during discussions on different points of view, but they learnt to accept that their answers were not always correct, and to listen to ideas from others. A student noted that it was more important handling the situation right than getting the end result. Another commented that good behavior and effort were crucial points when working in group tasks. Among the values that received more than 5 mention were 'good listening skills', 'sharing', 'patience', 'cooperation' and 'tolerance'. In coming up with the best solution, members had to cross check each other's points and give explanation and reasons on why an idea should be selected, negated or put on hold. As mentioned by a student, "our leader reminded us to not practice finger pointing, but instead to help and tolerate each other". Another journal entry below highlights conflicts that can occur in group tasks. (reproduced verbatim)

*"I tried so hard to fulfill every requirement from my group leader for the third task, but it seemed to be unwelcomed as the documentation I submitted was changed by my group leader. All the details and even my product design was totally changed and I was forced to follow as he's the leader. I was very disappointed but I needed the marks to complete the course..."*

Surprisingly, appointing a leader for the tasks was not explicitly mentioned in the assignment. Hence, in the above situation, as an appointed leader, the leader had taken authority on the entire task. The reason could be because of time constraints, frustrations, or mere highhandedness. Another possibility could be that the above student (victim) needs time to develop his thinking skills to match good thinkers who are adept at articulating their thoughts and questioning authority. The conflict is typical in any cooperative setting. In class, the instructor as a facilitator can interject to allow all members into the decision making process and to create harmony. Nevertheless, interestingly, this student (victim) agrees that case study discussions should be done in groups as it allows for the generation of more quality ideas and better decision making.

- Positive interdependence among group members was evident when students relied on each other for contributions. One group even made it compulsory for each group member to provide input for the discussion to proceed. As succinctly put forward by a student, *"more brains, more ideas, better solutions and a short time taken to solve the problem"*. Because they remained in the same group for all three tasks, members were rather comfortable with each other and knew how to deal with one another better. From the instructor's point of view, there was a lot of thinking aloud evident. Also students made it a point to consciously use the tools and discuss ideas with group members. As aptly mentioned by a student (reproduced verbatim):

*"At times my creativity and ideas would come to a complete halt. The other members took control of the situation and managed to come up with quality ideas. I came to appreciate my peers' contribution in the group discussions. Members had their creative juices flowing and this is a concrete example of how we put into practice what was learnt in class. I would want again to emphasize on the importance of how the group gained from using the thinking tools. That's how we came up with the idea of the watch with the GPS system."*

- The students realized the importance of effective communication especially in verbalizing their thoughts in order to be understood. This was even more so when they had to present in front of the class. Some mentioned they had the ideas, but not the presentation skills to complement it. Also, their lack of language skills did not permit them to ask effective question to the other groups or effectively defend their product. Thus, what was supposed to be an exciting whole class sharing event turned out to be less exciting and motivating. The instructor had to do most of the probing and questioning. From the instructor's observation, not all groups critiqued their counterparts' ideas or solutions. It can be inferred that this group was not ready for large scale controversy and their questioning techniques were more on facts and details. Nevertheless, the whole class discussions allowed them to compare each other's solutions and to learn something new and see things from different perspectives.

The final question was on the challenges or problems faced while working on the three tasks. The summary of the findings is as follows:

- Because students come from 3 majors namely International Business, Business Administration and Mechanical Engineering and compounded with the fact that they had only one class per week, they had a tough time finding a common time to meet and discuss their assignments.
- Attendance at face to face meetings outside classroom hours was a problem and some had to resort to using the email to communicate. It was observed that some groups did last minute preparation of their presentation in class on presentation day.
- Working with group members who were rather quiet and did not contribute posed a challenge to other members who had to 'sink and swim' with these students the entire semester. Hence, some wanted to change groups in the middle of the semester.
- The final and more important point raised by most students is that this soft skills course does not carry any credit hours. Students lamented that the hard work put in throughout the semester had no bearing on their coursework, and that they would rather invest more time in their core subjects.

## CONCLUSION

From the journal feedback, it is interesting to note that initially students had reservations about the class. The word 'critical thinking' to them raised seriousness of subject matter. They had expected a 'Socratic' version of highly powered thinking that will go beyond their comprehension. But what they got were methods and tools and the perfect platform to practice using these thinking tools effectively. In fact, some know for sure that these tools are most often not taught in formal classes.

Adopting critical thinking tasks centered on cooperative learning strategies helps improve social relationships among team members. It gives learners the opportunity to learn and practice and imbibe the virtues of cooperative skills such as positive interdependence, positive interaction, group processing and interpersonal skills. Research has time and again proven that students who have opportunities to work collaboratively on real world tasks learn faster and more efficiently, and have greater retention and feel more positive about their learning experience (Johnson, 1999). More importantly, many of the skills developed through the real world tasks are those which employers usually seek such as team-work, making informed decisions, taking initiative, and solving real world problems. In this research most students did not realize that while working on the tools and on the case study, they were unconsciously practicing higher order thinking skills such as analysis, synthesis, problem solving and prediction. One student responded that over the weeks of working in groups she had the *'guts to share my thoughts and was more confident in my own judgment'*. This in itself highlights the sociocultural perspectives and classroom interaction that according to Vygotsky (1978), allows students to discover learning with other peers in their small intellectual community

Finally, critical thinking as a soft skills course has potential benefits for college students. For one, students can move away from rote learning and promote thinking skills so as to produce the problem solvers and innovators that the modern workforce needs. The research findings have proven true the words of De Bono (2000) when he said that being a thinker does not involve being right all the time. Instead, thinking involves consciously wanting to be a thinker and deliberately practicing towards improving your thinking skills in a social context. The success of this SSC 1106 course

in creating an impact on students is proof when 9 journal entries mentioned that the university should make it compulsory for all students to take the course to prepare them for the real world.

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