



Critical Thinking for Higher Education: Are Our Students Ready?

Ngew Yeok Meng,

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Abstract :

How can we improve the quality of undergraduate learning by instilling critical thinking while focusing on learning how to learn? Can critical thinking be learnt via students' self-directed learning? My curiosity on this matter prompted me to conduct this teaching inquiry. Despite the urgent need to stimulate critical thinking skills among students, are they willing to learn and ready to use these skills in my course? I conducted inquiry on eight first-year students who in general demonstrated relatively higher level of thinking skills in individual critical essays. Resulting from this inquiry, my paper looks into two aspects of learning critical thinking: (1) How did students learn to acquire critical thinking skills prior to their tertiary education? (2) How would do students perceive thinking skills during their university life? By reflecting on students' learning experience, needs and aspirations, I hope they have their voices heard by concerned educators. As the major stakeholders in whatever innovative educational reforms, students need to be given opportunity to speak up. This shall be an evidence of student-centered learning, and respect for young minds is salute to critical thinking.

Keywords : Critical thinking in higher education, student assessment, Malaysia

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Critical Thinking in Higher Education: Are Our Students Ready?

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ABSTRAK

How can we improve the quality of undergraduate learning by instilling critical thinking while focusing on learning how to learn? Can critical thinking be learnt via students' self-directed learning? My curiosity on this matter prompted me to conduct this teaching inquiry. Despite the urgent need to stimulate critical thinking skills among students, are they willing to learn and ready to use these skills in my course? I conducted inquiry on eight first-year students who in general demonstrated relatively higher level of thinking skills in individual critical essays. Resulting from this inquiry, my paper looks into two aspects of learning critical thinking: (1) How did students learn to acquire critical thinking skills prior to their tertiary education? (2) How would do students perceive thinking skills during their university life? By reflecting on students' learning experience, needs and aspirations, I hope they have their voices heard by concerned educators. As the major stakeholders in whatever innovative educational reforms, students need to be given opportunity to speak up. This shall be an evidence of student-centered learning, and respect for young minds is salute to critical thinking.

Keywords: Critical thinking in higher education, student, assessment, Malaysia

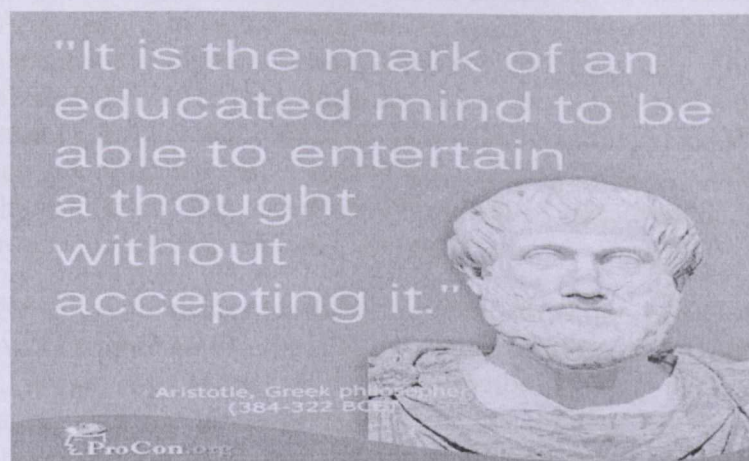
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Introduction

“The essence of the independent mind lies not in what it thinks, but in how it thinks.”

Christopher Hitchens



My observation and discovery of students' critical thinking skills prompted me to reflect on my practice. Before I proceed, here is the context or background of critical thinking among tertiary students in Malaysia. In line with the aspiration of the National Higher Education Strategic Plan (PSPTN), all tertiary students are expected to acquire the ability to think critically, sharpening their analytical skills as an integral part of learning process in the academic pursuit. Malaysian Qualifications Framework (MQF) depicts that critical thinking as one of the seven essential Soft Skills Element Indicators in addition to communication skills, teamwork, lifelong learning and information management, entrepreneurial skills, professional ethics and moral, as well as leadership skills.¹

Imparting critical thinking skills remains a relevant and vital task for academics in higher education. Ironically, most students have not been taught critical thinking course or subject prior to tertiary education. It is really up to the student's own initiative to enhance critical thinking skills, with the help of parents, family members and teachers who share their knowledge in critical manner. Due to examination-oriented school system, majority students are aware of and know *what* to learn by meeting the requirement of achieved learning outcomes. Regardless of academic achievement and life experience, students find it difficult learning *how* to learn – having to go beyond the scope of content and tacit knowledge of what they learn. *How* to learn is a key outcome of higher order thinking that reflects the maturity of student learning.

¹ The recently launched Malaysian Education Blueprint 2013-2015 also vows to improvise on the current course curricula to balance “academic content and soft skills” and to develop students’ problem-solving skills and the school curriculum based on “real-world experiences.” (p.223). Ultimately, it aims at enhancing competency of local graduates for a smoother transition into the job market by mastering crucial soft skills, such as critical thinking, positive work ethics, communications, teamwork, and decision making and leadership skills (p.227).

Can critical thinking be taught as a subject *per se*, just like science, history and language? That was precisely what puzzled me in the past two semesters, and it still does. I am aware of Critical Thinking courses being offered in world renowned universities, obviously indicating such skills can be transmitted, discovered and/or enhanced using appropriate pedagogies. Can teachers impart critical thinking with 'open-ended' interpretative nature with a highly structured course? How would conventional teaching with cliché like 'think/do as I say' contradict the characteristic of critical thinking? Assuming critical thinking can be taught, how would students apply such skill in view of the current socio-political issues in the society? How can we measure students' thinking skill more objectively? If critical thinking cannot be taught and can be acquired via internalization, self-learning or personal reflection, how else could first-year students learn to be critical throughout their learning process? I started my teaching inquiry wanting to know what made students learn how to learn, but ended up with loads of questions on, "How do I know whether students are ready for learning critical thinking?"

My intellectual engagement with quality teaching in higher education began after my encounter with scholars who have championed the spirit of Scholarship of Teaching and Learning (SoTL) (Harland *et al*, 2014). Within my capacity as lecturer, I embrace SoTL by making my teaching practice more transparent than my personal preference, but an area that prompts me to think critically about what I do and have done, and making these actions and thinking activities 'seen' by other practitioners by writing about it. This is to make public what I do in helping students learn, understanding how they learn best, and how I make sense of my own teaching philosophy, pedagogy, content knowledge and teaching practice.

In this study, I have chosen a teaching inquiry by problematising the issue of cultivating and assessing critical thinking skills among students in a public university. In fact, my curiosity led me to this teaching inquiry that eventually enables me to reflect on my own teaching practice and belief. It also empowers me to examine the journey of the first-year students when they had to write an individual critical writing based on article they chose to review.²

For Semester 1 2013/2014, my inquiry began when I was assigned to teach two groups of first-year students (totaling 208) on critical essay writing. With little prior knowledge and experience in academic writing, these first-year students wrote me two-page concise critical essays. They did their reflection based on one (out of 14) article they chose to read. Preliminary findings show that critical thinking is relatively new and unfamiliar to first-year students and only a handful received training in writing critical review in school for a variety of subjects.³ Given this scenario, I could foresee the challenges faced by my students undertaking a compulsory

² The allotted mark for this critical writing is 10% of the total continuous assessment (40%). 48 out of 104 students from the Faculty of Law scored 8% or higher; whilst only 28 out of 101 students from the Faculty of Arts and Social Sciences scored 8% or higher. Generally speaking, the Law students have shown higher level of critical thinking skills as compared to Arts students, perhaps due to the disparity in enrolment result, stimulation received in their respective faculties, or simply their individual differences.

³ Very few students claimed that they learnt critical writing via subjects such as General Studies (Pengajian Am), MUET (Malaysian Undergraduate English Test), History (Sejarah), Bahasa Malaysia in Form 6. Majority students opined that no subject taught them critical thinking in school, prior to attending university.

university course, not only in the knowledge and skills but also their readiness towards the cultivation of attitudes or habits that connect to learning (Biggs, 1999).

On the other hand, academics presume students who thrived and succeeded in national examination would have been exposed to critical thinking skills, though there was no assessment attached to it. It was obvious to me that there is a mismatch between the expectation of students (hoping to be trained to acquire such skills in lectures) and academics (hoping to see such skills demonstrated in the learning process and in assessment). From an institution's point of view, there seems to be a lack of inquiry-related literature that can justify the worthiness of extra-pedagogical challenges of introducing and maintaining inquiry-based learning (Justice *et al*, 2009). In the context of Malaysia, there seems to be a missing component to link students of pre-university to higher education where appreciation of inquisitive habits of mind (critical thinking for example) is yet to be comprehensively inculcated in our current curriculum.

Adhering to the Five Principles of Good Practice in SoTL

By adopting 5 principles of Good Practice in SoTL (Felton, 2013), I intend to examine what I did rightly and wrongly to stimulate critical thinking among my students in the previous semester, and why.

Principles of Good Practice in SoTL

- Inquiry focused on student learning
- Grounded in context
- Methodologically sound
- Conducted in partnership with students
- Appropriately public

1. Inquiry focused on student learning

I constantly reminded myself that this teaching inquiry is not really about my conduct *per se* rather about student learning, by reflecting on what I did. Here are three issues that emerged in this inquiry.

1.1 Issue of fairness

Students are not formally trained in critical writing hence, is it feasible for me to grade them after just 1 week of lecture on critical thinking and 7 weeks of lecture on the subject matter, i.e. Ethnic Relations? To me, the irony in assessing critical thinking is also a matter of fairness. Prior to coming to the university, most students may have been exposed to different level of critical thinking but none of them has been assessed or obtained any grades for critical thinking. Hence, can I assess critical thinking skills without proper guidance? Or, can students be assessed a skill that they have not been taught? If they don't get good grades, what then do I do to enhance their skills? If I do nothing about it, then it is meant for assessment of learning. If I review the draft and guide them in future assessment, then it is assessment for learning. Why do I assess them using critical essay writing? Is this assessment for learning, or assessment of learning?

1.2. Issue of standard

As I look out for 'standards' that students proclaim to have, I try to imagine whether these standards are prescribed for highly critical and 'matured' students at the age of 20-21. I asked students to respond by answering questionnaire on whether they possess these criteria of critical thinking, do they consider themselves Accurate, Analytical, Broad, Clear, Creative, Deep, Inquisitive, Interesting, Logical, Precise, Relevant, Systematic and Truth-seeking. As teacher, I may not be able to fulfill some of these standards. Whilst such awareness came after I constructed the questionnaire, I realised that I overlooked the fact that how I see and make sense of the world is shaped by my very own experiences and ideas that I have encountered over the past 45 years, as compared to 20 and 21 years of experience as students.

1.3. Issue vs. Non-issue

Students were given a few articles to choose from, before they wrote a critical review of the article of their choice. I promised them to give personal feedback and keep their work confidential if they were to write about 'sensitive issues'. Hence the selection of articles by the lecturers was intended to highlight issues that have been 'taken for granted' by us, social issues that raised controversies. Hence, by encouraging and instigating deeper thoughts into what they read, see and experience, I wished to receive critical writing that makes me think and ponder. The issues highlighted vary from education, constitutional rights, democracy, politics, socio-economics, religion, welfare, nationalism, patriotism to marginalization of the underprivileged Orang Asli communities.

Among other issues selected and commented by students are among others, the standard of the national education system, ethnic polarization, equal accessibility to the education system (quota system, meritocracy), conduct of people and the government in the 13th general elections and by-elections, the rationale of Biro Tatanegara, Malay hegemony, the middle-class lifestyle, the struggle of the laypeople for a better Malaysia. Students set out to learn about unfamiliar issues such as debate on possible implementation of Hudud (Islamic criminal law).

I realised that students who put on their critical thinking hats began to see things slightly differently. For example, the more complacent students who used to view every issue under the sun being undebatable 'sensitive issue' began to talk about those issues, such as May 13 racial riot and the "Allah controversy". Students who used to mingle within own ethnic group, or used to be Peninsular-centric began to view their behaviours as not conducive to harmonious ethnic relations. Putting on critical thinking hats might also bring forth unprecedented issues such as becoming less contented about the current situation after seeking the truth.

2. Grounded in context

Since the university does not offer any particular courses on critical thinking, it is highly optimistic to presume that students have attained the skills on their own without guidance and assessment. Educators at the higher education institutions of Malaysia are well aware of the importance of programme learning outcomes such as critical thinking, problem solving and other scientific skills. Without valid assessment, how do we know whether students have come close to achieving expected or intended programme learning outcome determined by the Malaysian Qualification Framework (MQF)?

To benchmark what established universities and institutions use to assess student learning, I turned to the Association of American Colleges and Universities (AAC&U) for inspiration and reference. Its signature rubrics entitled Valid Assessment of Learners in Undergraduate Education (VALUE) caters to hundreds of campuses worldwide as the recommended guides for measuring student learning including critical thinking. Carol G. Schneider, the President of AAC&U noted that the ongoing use of such rubrics yields questions about its effectiveness as well as the need to gather information on student performance and how best to adjust assignments, pedagogy and curricula with an ultimate aim to enhance student learning. Critical thinking, inquiry and analysis appear to be two out of 12 essential learning outcomes necessary for students of the 21st Century, categorised under "Intellectual and Practical Skills". Students

acquire these skills in school and continuing at successive higher levels across their tertiary education. In addition to such continuity, students are encouraged to have “practiced extensively, across the curriculum, in the context of progressively more challenging problems, projects and standards for performance” (www.aacu.org/leap).

This means critical thinking shall never be seen as a course *per se*. The skill is imparted as the underlying or implied learning outcomes of humanities courses, histories, languages, encompassing both science and social science subjects. Perhaps it is not possible to ‘teach’ critical thinking skills to students. Critical thinkers are transformed over time, by reinforcing what they have learnt, constantly be challenged to disorient the current habit of their minds. As transformation takes place, they sharpen their critical mind, internalise values and principles that can better justify thoughts and behaviours.

In the context of public universities of Malaysia, in particular in University of Malaya, we have yet to adopt reliable and valid critical thinking assessment for first year students. It would be timely to develop rubrics that can measure the learning behaviours that can reflect critical thinking skills. Shall the standards be slightly lower than the criteria of the global/international standards such as VALUE, so as to do justice to our students who have minimal exposure to critical thinking? This has to be dealt with at the university level or national level, perhaps one remedial would be to introduce critical thinking via language learning curricula in school.

3. Methodologically sound

Assessment of critical thinking in higher education is highly contextualized, and perhaps politically sensitive to the local culture. Various programmes designed to assess critical thinking of students cater to students in a particular context, for example, the Valid Assessment of Learners in Undergraduate Education (VALUE) where the undergraduates have experience in learning critical thinking across the curricula in school.

When I introduced critical writing in class during the first week, I gave a lecture on critical thinking followed by exemplary essays by students from other faculties. Students seemed excited but the excitement seemed short-lived when the actual subject matter of Ethnic Relations and other social issues took over the limelight in class.

Repeatedly, I informed students the criteria and rubrics of ‘excellent’ critical essay, i.e. presenting argument as thesis statement and its rationale, citing ample convincing evidences of what they believed in, or they believed to be true; having an organized structure and simple language. One week before deadline of submission, I helped some early birds to correct their draft, pointing out how students scored or failed to meet these assessment rubrics for critical writing.

Element	Mark Allocation (X /100%)	Description of Excellence
Essay Structure	10	Essay has a clear structure. Introduction has thesis statement. Paragraphs have topic sentences. Conclusion summarizes the points of the essay.

Argument/Thesis	50	Writer clearly states his/her position. Writer's argument is well thought out and presented, complex and thoroughly explained.
Empirical Evidence	30	Writer includes at least three (3) textual references to back up own argument. This evidence is specific, complex and thoroughly examined. Evidence is quoted or paraphrased and clearly support writer's argument.
Language/Grammar	10	Essay uses correct grammar, including spelling, punctuation and sentence structure. Work has clearly been edited.

4. Conducted in partnership with students

During data collection, I uploaded questionnaire to Spectrum but received only nine responses during the revision week. Though feeling disappointed at the poor response, I carefully traced my previous exchanged communication with students throughout the semester. There I found some important insights, the do's and don'ts pertaining to my own teaching practice. Nine students responded to participate in my online survey and suggested the following measures to enhance critical thinking in this course:

Item	Rationale	Examples
1. Experiential learning	We as students need to experience and explore real life scenarios, hence fieldwork/fieldtrip complements rout learning (lecture, tutorial)	First-year law students had the chance to visit Orang Asli village and researched on the topic of customary rights of the Orang Asli community. This project has triggered our critical thinking and makes us realize the Orang Asli's situation in which their rights are always infringed. Finally, we came out with a few conclusions and solutions in order to improve this situation.
2. Demonstrate the benefits of critical thinking	Students need to be convinced to leave their comfort zone and to eliminate fear of discussing and debating 'sensitive issues'	The current scenarios are not the best for Malaysia particularly in politics, economy and religion. Students are allowed to critique but must also encourage them to give suggestions on how to improve. Give constructive criticism focusing on "what I can do to improve the situation".
3. Initiate group project to comment on current issues	Group discussion and presentation scaffold and serve as safety net for complacent students to test and polish their ideas before presenting them in public	A group of Malay-Muslim students should be made to present on Christianity. Or Chinese students ought to present on the history of Deepavali. Or maybe, a debate should be carried out with the title: The New Economic Policy has more benefits than drawbacks. The proponents could be non-Malays whereas the opponents the

		Malays. This forces people to think against what they may naturally agree or be comfortable with.
4. Explain the right way to enhance critical thinking skills	Encourage upkeep of personal journal to document own thoughts, initiate discussion by asking simple questions	For timid students, inviting them (calling their name) and force them to give opinions on sensitive subjects or subjects they never once thought of. When students present their work, comment after their presentation. Allocate time for Question and Answer session.
5. Minimise fear of the unknown or unfamiliar	Students need reassurance to venture into ideas previously unknown to them to leave their comfort zone	Initiate a debate on "Vernacular schools should be abolished". A group of Chinese students should support these schools be abolished whereas a Malay group of students be forced to defend these schools.
6. Freedom of speech vs. freedom after speech	Non-judgmental and respect students who are testing their ideas, hence do not interrupt	Lecturers must give assurance that students are free to think and that whatever their speech (as long as it is backed by facts and within the rule of law) will not have ANY repercussions.

As I analysed student feedback, I realized tertiary students usually do not have much say in *what* they have to learn, *how* to learn and *when* to learn. I sighed to see curriculum being determined by policy makers without taking into consideration students' viewpoints. I do not suggest we should empower students alone in determining what they want to learn, nevertheless as we mature we realize that loads of content knowledge seem to have faded as aging takes place, but *how* we learn is often being reinforced, and we learn best when timing is right, when we are ready, when we want to. Learners' willingness to learn determine *how* we learn new skills and knowledge – how effectively, how soon, how much etc.

As a measure of liberating my egoistic self as lecturer, I encouraged students to give feedback if they felt a need to do so. Hence, over the whole semester I received several emails from students commenting on how my practice impacted their learning/behaviour (positively and negatively). Though it was unusual to receive feedback from students, one student wrote to me after lecture professing that

"It is always sensitive for us, the non-Bumiputra to talk about Bumiputra's privileges... The Constitution told us that we have no right to question (*mempersoal*) Bumiputra's privileges. But somehow, I think it is important for Malaysians to have some focus on this issue. I felt that this system is not fair neither for Bumiputra and non-Bumiputra. As student, I will look into this matter from [the] education point of view."

"It's my prayer that one day they actually found out that this system instead of helping them is making them incompetent. I am hoping one day,

they themselves will stand up and fight against this system and be brave enough to abolish it just like what the white men did in Apartheid policy. It will be a long walk and very hard, but it's possible..."

Another student wrote and commented that I should not have interrupted her presentation, she wrote immediately after lecture,

"I would like to make confession about my expectation towards you. I don't want to be rude towards my lecturer but this is just a feeling... It's about the way you interfere your students while they are presenting their presentation. I really hate it as it makes us embarrassed, guilty, no confidence. We're just about to start our presentation and you already condemn it. You should actually wait until we finished our presentation then you can give your own opinion, or what's lack in our presentation."

This teaching inquiry discloses my belief (and biases) showing me many facets and different dimensions of my teaching practice. With the aim to focus on student learning, I eventually (sometimes habitually) engrossed myself with teaching outcomes and not learning outcomes. Upon receiving feedback I did not react but rather reflected on what I did in class. For instance, in the incident where I interrupted a student's presentation and pointed out errors in figures and data collection, her email made me realize I needed to allow for genuine mistakes during student learning process. Correcting mistakes on the spot upon noticing them, a practice familiar to me, seemed to be an antithesis to cultivation of critical thinking. Prompt correction may have educated students, but it deceives the main objective to learn in a safe and sound environment. Once I realized my self-proclaimed role as a gatekeeper of 'correct information', I abandoned the habit in the next lecture, by not interrupting their presentation. However, the 'quality' of student presentation may be enhanced when presenters answered in Q&A session. I am not a gatekeeper but an observer of what happens in class, giving the space and time for students to participate in knowledge sharing, not eager to 'showcase' the truth, for the truth maybe unknown to me.

5. Appropriately public

Here I am presenting the case of my students but I'd like to keep them anonymous as they need to be rest assured that there shall be no repercussions. In this inquiry, I observed that about half of the students wrote critically about current issues. Students who showed strong interest in the course such as writing email to me commenting on content and delivery, raising questions in class, those who did not hesitate to voice out their opinion in real life, are the ones who read articles given with passion, submitting in-depth analysis. Despite their young age, contrary to what I used to believe, some students presented and defended highly critical argument such as questioning the existing system, suggesting alternatives in handling crisis etc.

Reflection on my Assumption, Belief, Values and Attitude

As I reflect, I learn that I failed to achieve the values I intended to impart. For example, I did not manage to convince students that they had the right to make mistakes. I was rather judgmental

when students presented unexamined facts and unsupported arguments. After that particular intervention by student, I refrained myself from giving feedback while students are presenting. It took me some time to adjust myself to be non-judgmental. But I was still very concerned when I saw students showed their disbelief and skepticism when presenters made 'obvious' mistakes – inaccurate information, inconsistencies, unprepared presentation, unstructured content etc. I was caught in dilemma whether I should risk losing the attention of audience or allowing for 'freedom of speech'? I believe I can strike the balance in coming semesters, reflecting on what would I re-do and what would I not do in class to enhance student learning.

Knowing that students did not have the basics in critical thinking skills, I only spoke about the importance of critical thinking in my first week lecture. I informed students about the requirement of critical writing, without even asking how much they have learnt prior to coming to my class. I, just like other lecturers, have taken for granted by assuming students would have learned or would be able to learn on their own. That is based on my sheer assumption that students who work hard would be able to gauge what critical thinking is all about. After all, their critical writing would be graded and they will be rewarded with good grades. How arrogant of me. The initial assumption was that I believed students must have their voices heard, since they didn't have the opportunity to be heard, but now I realise at the same time I also deny them of their voices. Oh NO!

This study is an attempt to reflect on the rationale and fairness of course requirement of a university course entitled Ethnic Relations. I told students that I would read and comment on their work, making sure they are safe and confidential, and so long as they write what they feel and think, followed by evidences, they will be able to do well. However, towards the end of the semester, I compiled all the assignments and distributed to all students to check their marks. Hence I didn't keep my promise and hence another "Oh NO!"

As online communication is capable of providing a sense of security to students who are by nature not outspoken or expressive, I must learn to use spectrum effectively otherwise students cannot reach out to me when they have questions and doubts when writing their essays. I would now look into the suggestions, i.e. by initiating group discussion, debate that challenge their usual thoughts or habits of mind, reassuring freedom after speech, providing scaffold to empower and protect the weaker students at the same time etc. For students who had no clue at all regarding critical review or essay, they should be given opportunity to speak or write more often. At least this course will give them the awareness of what is lacking in them.

At the end of this inquiry, I am still of the opinion that students do not have their voices heard in education reform and planning. Decision making process often ignore the fact that students are our stake holders, they are the consumers and the output and they know best what is useful to them even though they have not ventured into the working world, they should have a say in what they want, even if they do not necessarily getting what they want all the time.

Though I did not intend to measure the impact of my practice by introducing critical writing, but having read their feedback towards the end of the course (Week 13), I am now of the opinion that as teacher I should collect timely feedback for own improvement and not to wait till the end of semester. All the issues have given me opportunity to re-think my approach to instill critical

thinking. The next step for me would be to highlight my concerns and findings to other concerned lecturers so that each can take up partially the responsibility to “be able to entertain a thought without accepting it.” Changes are constant but how far do I want to change? That’s a question for me to answer in this semester break.

Finally, my special thanks go to students who are always there to provide opportunities for me to be a good listener, an effective facilitator, a more passionate educator and a better human.

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Appendix A: Questionnaire

Dear Students,

Thank you for showing interest in my survey entitled "Critical Thinking Skills of UM Students". This questionnaire examines how first year students develop and/or polish their critical thinking skills. The outcome of this study will help me and other lecturers improve our approach to enhance students' critical writing skills in future. Your written feedback on this matter is much appreciated.

*Kindly highlight or check (V) in the appropriate boxes, or type out your answers.

*Send the saved MS document file to drmeng@um.edu.my by 3 June 2014 (Tuesday).

THANK YOU!

Dr. Ngeow Yeok Meng
Your Lecturer for Hubungan Etnik

A. Learner's Demography

1. Age ☐ 18-19 ☐ 20-21 ☐ 22-23
2. Faculty _____
3. Year of Study ☐ 1st Year ☐ 2nd Year ☐ 3rd Year ☐ Final Year

B. Learner's Traits

4. How do you perceive your own thinking skills? Use the 1 to 10 scale to rate your thinking skills:

	0	1	2	3	4	5	6	7	8	9	10
	Not Acquired				Average					Fully Acquired	
Accurate	0	1	2	3	4	5	6	7	8	9	10
Analytical	0	1	2	3	4	5	6	7	8	9	10
Broad	0	1	2	3	4	5	6	7	8	9	10
Clear	0	1	2	3	4	5	6	7	8	9	10
Creative	0	1	2	3	4	5	6	7	8	9	10
Critical	0	1	2	3	4	5	6	7	8	9	10
Deep	0	1	2	3	4	5	6	7	8	9	10
Inquisitive	0	1	2	3	4	5	6	7	8	9	10
Interesting	0	1	2	3	4	5	6	7	8	9	10
Logical	0	1	2	3	4	5	6	7	8	9	10
Precise	0	1	2	3	4	5	6	7	8	9	10
Relevant	0	1	2	3	4	5	6	7	8	9	10
Systematic	0	1	2	3	4	5	6	7	8	9	10
Truth-seeking	0	1	2	3	4	5	6	7	8	9	10

5. Examine your high scores (>8). Who influenced you most in acquiring high level thinking skills? Why?

C. Learner's Experience

6. In your pre-university studies, i.e. primary school, secondary school and college, have you ever come across subject/lesson that taught you critical thinking skills?

☐ Yes (Please specify the subject)

☐ No

a. _____
b. _____

7. At UM, in your current department/faculty, are there any courses that prompt you to think critically?

☐ Yes (Please specify the course title)

☐ No

a. _____
b. _____

8. Which of the following influenced you in terms of thinking skills? (Choose as many items)

	0	1	2	3	4	5	6	7	8	9	10
	Zero Contribution				Average					Highest Contribution	
Books	0	1	2	3	4	5	6	7	8	9	10
Lessons	0	1	2	3	4	5	6	7	8	9	10
Conversations	0	1	2	3	4	5	6	7	8	9	10
Examination	0	1	2	3	4	5	6	7	8	9	10
Close Friend(s)	0	1	2	3	4	5	6	7	8	9	10
Group Projects	0	1	2	3	4	5	6	7	8	9	10
Internet	0	1	2	3	4	5	6	7	8	9	10
Movies	0	1	2	3	4	5	6	7	8	9	10
Parent(s)	0	1	2	3	4	5	6	7	8	9	10
Reading Habit	0	1	2	3	4	5	6	7	8	9	10
Siblings	0	1	2	3	4	5	6	7	8	9	10
Social Media	0	1	2	3	4	5	6	7	8	9	10
Syllabi	0	1	2	3	4	5	6	7	8	9	10
Teacher(s)	0	1	2	3	4	5	6	7	8	9	10
Tuition	0	1	2	3	4	5	6	7	8	9	10
*Others	0	1	2	3	4	5	6	7	8	9	10
(Please specify) _____											

9. Have you ever been **rewarded** for being critical? If yes, briefly describe the incident.

☐ Yes (Please briefly describe the incident)

☐ No

10. Have you ever been **punished/penalised** for being critical? If yes, briefly describe the incident.

☐ Yes (Please briefly describe the incident)

☐ No

Finally, kindly suggest one or more ways for lecturers to promote critical thinking skills during lecture.

~ Thank You ~