Turkish Online Journal of Distance Education-TOJDE January 2011 ISSN 1302-6488 Volume: 12 Number: 1 Article 8

STUDENTS' DECISION STEPS IN META-COGNITIVE LEARNING IN FREE ONLINE GROUPS (METAL-FROG): A Case Study

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ABSTRACT

What prompts the students to respond in online dialogic discussion? Why some students chose to fall out? This case study through the lens of phenomenography observation attempts to explain the five decision steps of students to respond in Meta-cognitive Learning in Free Online Groups (MetaL-FrOG) discussion. It presents a part of a research project by the name of Triarchy Perspective on Meta-cognitive Learning in Free Online Groups. The research setting was online learner community on the platform of Free Online Group web intended for post-graduate students enrolled for the paper Psychology of Learning in Faculty of Education, University Malaya, Malaysia. Preliminary study revealed three factors contributed to MetaL-FrOG success: Motivation, Cognitive Resources and Pro-learning Behaviors.

This paper only presents a part of the findings under the Pro-Learning Behaviors Sub-theory. We found striking similarities between the model proposed by Latane & Darley (1971), Five Essential Steps to a Pro-social Response in an Emergency, and our research subject. The model which explains the course of a pro-social decision was borrowed and modified as surrogate theory to explain the online discussion response of the students. The insights help educators to better understand what holds students back from fruitful online peer diologic discussion.

Keywords: **social learning, online collaborative learning, community of leaning (CoP)**

INTRODUCTION

To engage students is the critical factor to ensure higher learning outcomes (Lim 2004; Herrington, Oliver & Reeves, 2003). Productive learning indicators such as discussion oriented, inquiry-focused collaborative environment are directly linked to impactful online dialogic learning (Huang, 2002). However, in reality, for over-committed adult learning community, estrangement, left-outs, disappointed students are inevitable (Mann, 2005). Technology and internet provide useful affordance to social-scaffolding, improved engagement and inter-personal interaction (Clark, Sampson, Weinberger & Erkens, 2007). But it is the human factor that determines the pace and dynamic of meaningful interaction. Life experience and age would provide ideas and maturity.

However, non-commitment and non-responsively would render compromised learning outcomes. It is thus crucial to examine motivation for online social learning. Waschauer (1997) investigated features of computer mediated collaborative (CMC) learning and compared the difference of online discussion with face-to face learning. He concluded the following:

- **text-based and computer-mediated interaction,**
- **many-to-many communication,**
- **time and space independence,**
- **long distance exchanges and**
- **hypermedia links.**

Previous study (Ng & Firuz, 2008) further identified the following advantages of online discussion: convenience freeware, asynchronized learning, continuous engagement, vicarious learning by observer participants, training in writing without intimidating formality, voluntary independent learning, multiplicity of ideas, fuidity of communication, no constraint of time and space, no stress from face-to-face interaction, social and values-loaded. Another study by Waldeck, Kearney, and Plax (2001), summarized the reasons for students interacting with teachers through emails:

- **to ascertain course materials and instruction,**
- **as a means of efficient communication, and**
- **for personal or social reasons.**

The study shared some similar findings with study by Ng and Hussin (2008). By and large these insights are observable and valid in the case study. coin has two faces, such convenience and advantages provided are not without avoidance, drop-outs, pretense and disguise from the end of learners. Hence, every successful trainer and educator should attempts to induce optimum if not maximum learner engagement in the training course. Three factors were identified to affect learning outcomes of Metal-FrOG: Motivation, Pro-learning behaviors and Cognitive resources (Ng & Hussin 2008). This paper examines students' social interaction in online learning in order to attain higher leaning engagement and fruitful dialogic argumentation. Dialogic discussion refers to "focuses on the interactions of individuals or groups attempting to convince one another of the acceptability and validity of alternative ideas (Clark et al, 2007, p.343)" The description fits our background well.

BACKGROUND OF THE CASE STUDY

Setting and participants: We examined students learning experience using Yahoo Groups a free online group web playfully coined FrOG (Hussin & Salleh, 2006). The course was conducted as a paper for Master's program in Instructional Technology, Faculty Education of a public university in Malaysia. However, we realize that our discussion can be generalized to other social learning context, both in physical or in the form of online collaborative learning. In the initial study by the name of the Triarchy Perspective on Meta-cognitive Learning in Free Online Groups (TriP on MetaL-FrOG) (Ng & Hussin, 2008), we analyzed email transactions for the cohort 2007, ranging from Entry 391 (14 July 2007) up until Entry 1103 (28 November 2007), totaling 712 email entries. For this follow-up effort, earlier entries from previous cohorts (cohort 2006 were also included (Entry 1 to 390). The messages referenced in this study were numbered exactly the same as in the FrOG website for easy referencing. The message numbering service in the FrOG enables automated documentation of all email transactions.

The first author was a voluntary external observer and participant who neither registered nor attended any course under the instructor. He had never met with the other FrOG participants in person, but only knew them as members of online virtual community. He participated moderately on the online discussion for the year 2007, and only involved marginally for the cohort year 2006. The second author was the instructor of the course; actively strategize best practice to enhance the learning outcomes in the MetaL-FrOG.

As an action-researcher who studied her own students and instructional approaches, the second author was the most concerned with non-participatory behaviors of some students on the MetaL-FrOG. Her unique role at the helm of and responsible for the course had limiting effect on this issue. The first author, who did not responded in the first cohort (2006) and turned somehow more active in the second cohort (2007), was asked of the same question in private mails nearing the end of the second cohort. He recalled to have deleted most of the MetaL-FrOG entries unattended during the first cohort. The discussions as to "Why some MetaL-FrOG members did not responded" led to the insights in this study. We found the work of Latane and Darley (1971) in explaining altruism and helpfulness behaviors, illuminated the question: what is constraining students' active engagement in the Metal-FrOG. Building up and modified from their conceptual framework, a similar model situated to the MetaL-FrOG is proposed. This is a phenomenology observation study (Creswell, 1998), which explains a phenomenon as the doers experienced it (as described in their email, for this "online observation").

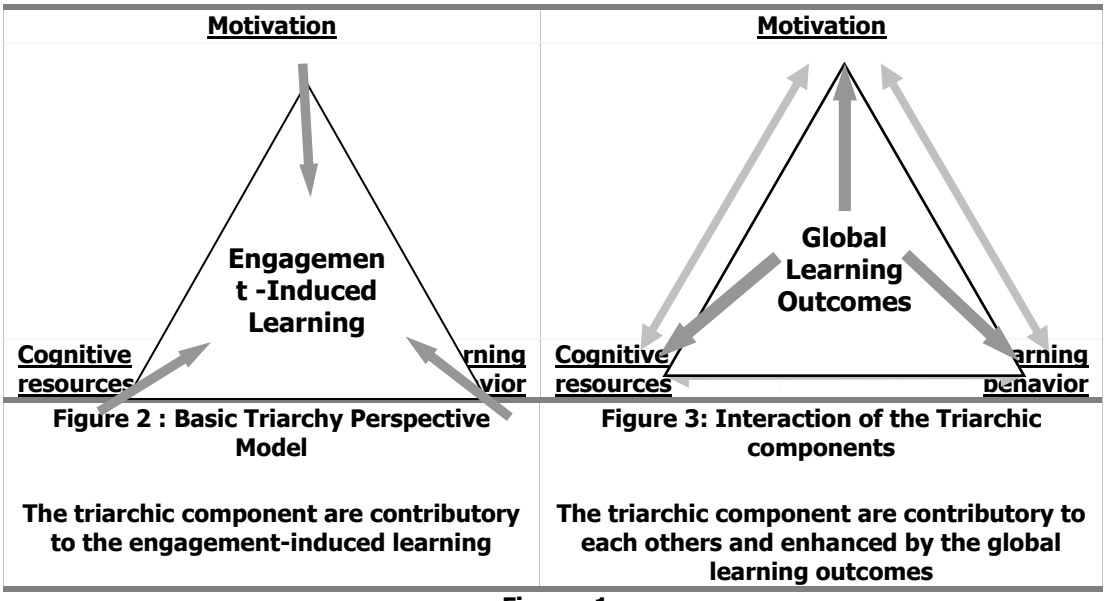

Figure 2 : Basic Triarchy Perspective Model

The triarchic component are contributory to the engagement-induced learning

Figure 3: Interaction of the Triarchic components

The triarchic component are contributory to each others and enhanced by the global learning outcomes

Figure: 1
The overview of triarchy perspective on meta-cognitive learning in free online groups (TriP on MetaL-FrOG)

The findings of the research project *TriP on MetaL FrOG* are not readily linked with this sub-study yet critical to the readers' understanding to get a bird eyes' view of the picture. *TriP on MetaL FrOG* proposes that three interdependent and interacting components determine the success of MetaL-FrOG: Cognitive Resources, Motivation and Pro-Learning Behaviors (Figure. 2).

These three contributory factors that induced engagement learning is themselves the desired learning outcomes, illustrating a two way process (Figure: 3). Follow-up Sub-studies examined each of these components in-depth, and in relation to the other two components of the triarchy model. This study comes under the sub-study Pro-Learning Behaviors.

THE SOCIAL ENVIRONMENT OF METAL-FROG

Social interaction is the key to successful online learning experience; development in the domain of instruction technology and use of asynchronous computer-mediated communication has given rise to a new paradigm that greatly eliminates potential constraining factors such as time and space limitations.

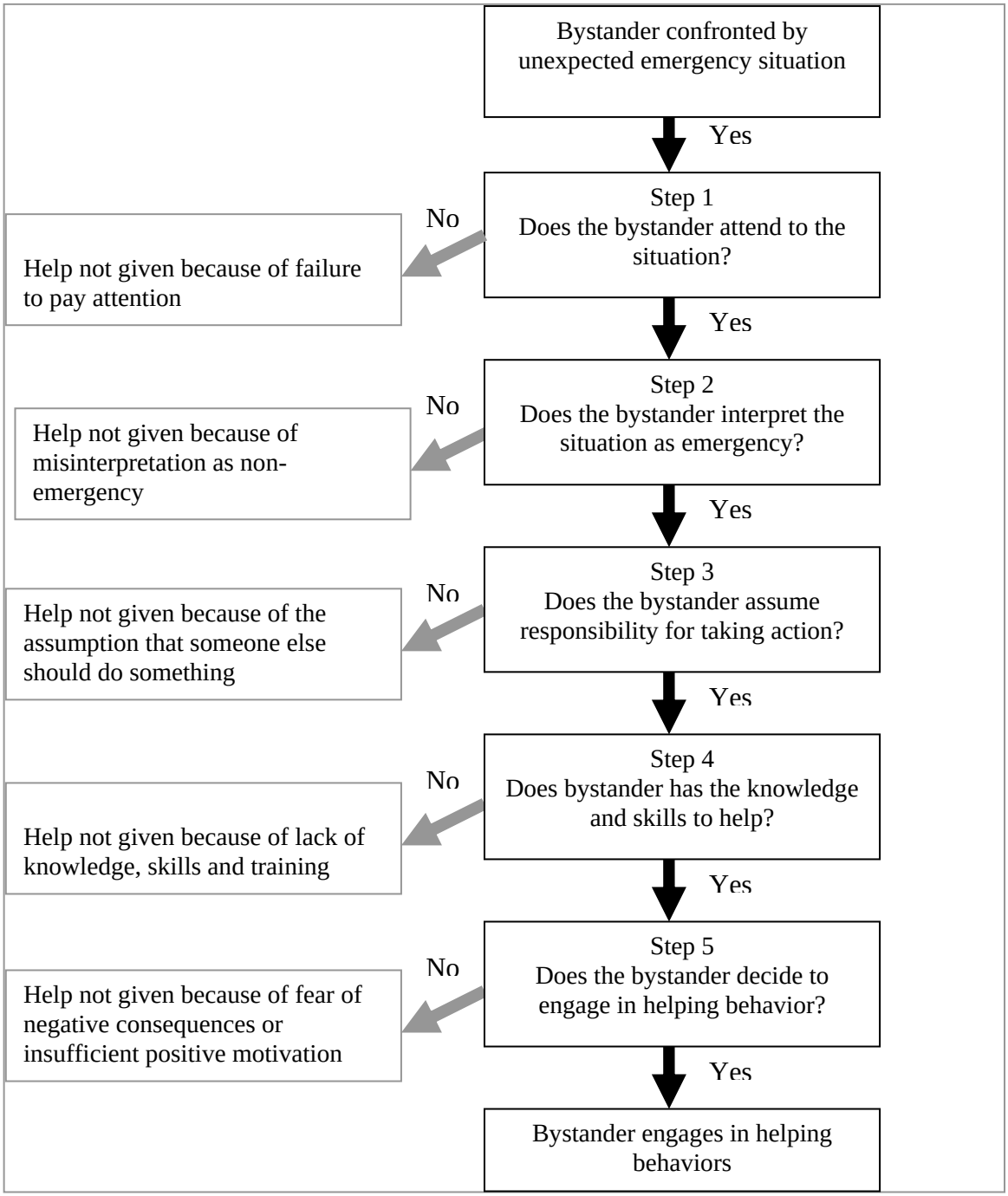

Figure: 2
Five Essential Steps to a Pro-social Response in an Emergency (Latane & Darley, 1971)

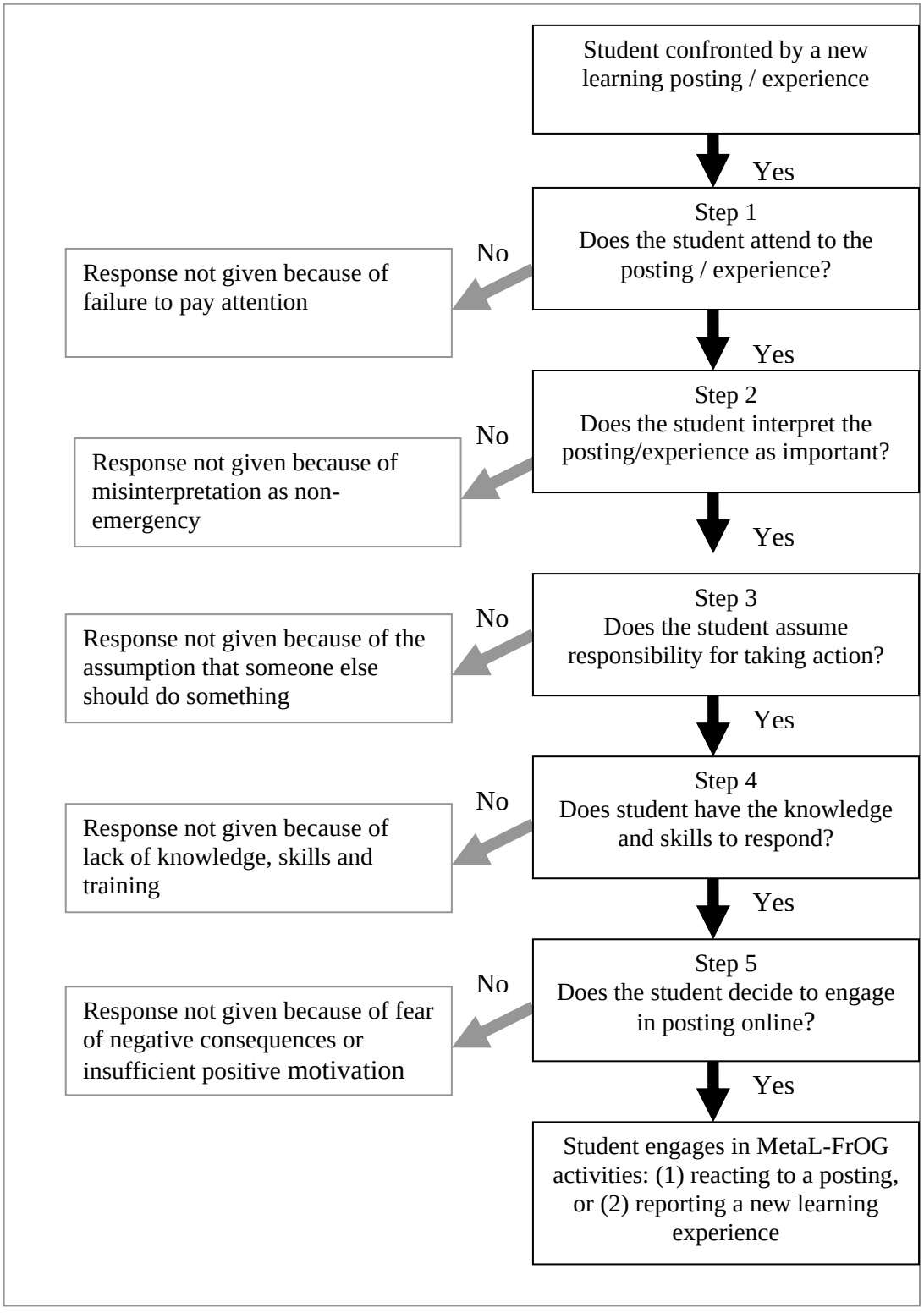

Figure: 3
latane & darley' model as a surrogate theory in the context of metal-frog:

However there are not less hurdles, pitfalls and inhibitive factors to conducive social learning environment, a question worth answered, assuming intensified social interaction means higer level of leaning (Bandura 1962; McLoughlin 2002; Ng & Hussin 2008). The online setting in our study necessarily complicates our direct observation (in the conventional meaning) on the subject students. We benefit from Latane and Darley's Pro-social model in explaining the mental barriers and contributing factors to richly response on educational issues discussed on Metal-FrOG.Latane and Darley conceptualized a series of five steps that lead toward either making a pro-social decision or chose not to help. At each step, the individual can choose either (1) no - do not help, or (2) yes - leading toward a helpful response as illustrated:

Latane and Darley's model is used to explain what drive students to respond in Metal Frog. The theoretical framework of what holds students back from engage in online learning will in turn lay the ground work to answer the question "how to engage students in online active learning?" Subsequently we explore the potential scaffolding strategies to scaffolding students' social leaning at each decision steps as a solution for future Metal-FrOG management.

The following breakdown analysis further examines each decision steps:

Step 1: Does the student attend to the posting / experience? **Protective factor: Sense of belonging** **Prohibitive factor: Preoccupation** **Scaffolding Strategy: Novel, creative learning experience to attract students' attention. Use of graphics and attention catching strategies. Management of emails**
Step 2: Does the student interpret the posting / experience as important? **Protective factor: Meaningful learning** **Prohibitive factor: Misinterpretation as non-emergency** **Scaffolding Strategy: Lecturer gauges students' contents understanding based on online discussion as a part of assessment. Lecturer strikes a balance between the role of mediator as well as shows interest in the discussion as students look upon at her as an opinion leader.**
Step 3: Does the student assume responsibility for taking action? **Protective factor: Sense of responsibility** **Prohibitive factor: Bystander effect** **Scaffolding Strategy: To instill a culture of sharing and team work; creates confusion and disorderly conditions to encourage participants to take on leadership roles. Encourage commitment to learning and sharing.**
Step 4: Does student have the knowledge and skills to respond? **Protective factor: Cognitive resources** **Prohibitive factor: Lack of knowledge, skills and training** **Scaffolding Strategy: Participation of the tutors and external members,; association of the subject matters with the participants' personal experience such as using FrOG.**
Step 5: Does the student decide to engage in posting online? **Protective factor: Self-driven motivation** **Prohibitive factor: Fear of negative consequences or insufficient positive motivation** **Scaffolding Strategy: to foster acceptance and confidence in students.**

Metal-FrOG is based on personal emails, unsurprisingly; the demanding nature of adult education and the conflict of multiple roles pose a potential drawback to active

engagement: they do not pay attention to the posting. According to Brey (1988) & Porter (1997) in Huang (2002), adult learners face difficulties to have on-campus classes due to job demands and personal schedules. Further more the sheer volume of junk mail and FrOG posting itself can easily distract the participants to productive discussion.

Further, the higher age group of adult students can potentially impede the new paradigm of active online "discussion" as they probably need the visual reassurance of face-to-face communication can provide (Clift, 2001) as illustrated by the following posting: *"face-to-face class/mentoring to survive the duration of the course, taking note that most of us our learning curve is not steep." [Entry 1067].*

One of the participant opined that the online discussion participation to be closely tied to writing/language ability, as some members express themselves better in written form and thus appear to be more "social". In view of this issue, postings should be encouraged over writing barriers and English proficiency. Mann (2005) also warned of the consequence of overly emphasizing the cultures of core members at the expense of the minority members. He contends, "It ignores the effect of unequal power relations within such communities, the conformity required to reach consensus on belonging to a community, and a consequent homogenization of difference (p.45).

The analysis point to the fact that Metal-FrOG should emphasis supporting dialogue and understanding within the "learning environment" which can be compromised by over-emphasis on the socialization process. Mann (2001, 2005) argued that the facilitator's role should be placed on scaffolding such intellectual intercourse rather than seeking to establish belonging in a learning community. Fully aware of such unseen "assumed code of behaviors", the first author (Ng) consciously broke rules in the online discussion, to the point of refuting Hussin's ideas, the instructor (leader) in the community while Hussin refrained from overt expression of personal ideas in the name of "social democratization".

Metal-FrOG as an interacting online leaning forum, can potentially entails estrangement, left-outs, imbalanced of power which resultant in disappointed learners. Mann (2005) illustrated the situation with the following scenario:

> ***"Feel unable to engage or contribute in ways which are meaningful and productive for the realization of their own potential and learning requirements. This may include the experience of feeling held back, blocked, inhibited, estranged or isolated from what they are learning, and the study practices and learning processes, both individual and social, which are part of their particular learning context. (p.43)***

Overall students were observed to be reserved in argumentative posting in parallel with the Malaysia culture that emphasizes "bersopan" and "polite" in rejecting other's ideas, typical of the culture in the East (Williams, 1970). The following entry illustrates a conflict following idea rejection that echoes with Mann's (2005) observation:

> ***"Your idea is not wrong to use Kolb's Learning Styles Model but why you mentioned that you do not agree with mine. Please critique [criticize] mine and give a concrete solution and justify it why THE LECTURE DEMONSTRATION IS NOT APPLICABLE TO BANDURA'S SOCIAL LEANING. Dear team please gives your views too [smiley of crying] [Entry 697]***

We observed a dearth of independence both at social and intelligence level, as students do not tolerate well of being "different", corresponding with avoidance behaviors of facing perceived "conflicts" or communication breakdown. Further, the role of instructor as an absolute observer can be defeated by the students' expectation to seek verification, approval and recognition. The over-emphasis to social inclusion and group commonness consistent with this "peace-loving and polite" culture however, can be oppressive to personal uniqueness and alternative views. We can positively conclude that some members conceal their "personal views" inconsistent with the mainstream core members, and reduced to a minority, on top of language and cultural differences; mirrored by a tendency not able to sustain a topic in-depth as one member observed: *"Online discussion thread – unexplored unless prompted. Many initiators but no pick-up momentum. No readiness for intellectual discourse." [Entry 820]*

Candid admission of personal problems and other support-seeking signals are not uncommon; Metal-FrOG thus provides an avenue for the lecturer to have a peek to the students' inner feeling otherwise not possible to understand in conventional lecture-hall learning: *"Everyone else is (moving) so fast – I didn't understand what they were analyzed(ing) at all." [Entry 975] "I know you don't accept excuses, I've tried to overcome some of the "excuses". Hopefully I can (be) actively involved in the discussion though my comment could be very "surface". [Entry 465] "Really hope that we can work together and help each other to the through the course… now I am skeptical to towards my own capacity… but really don't want to drop the course… Please help me." [Entry 400]*

Entry 400 clearly shows that the demanding nature of the course serves as a uniting force to the students, consistent with previous analysis that collaborative-learning instead of competition-learning is the key here. Engagement in dialogic argumentation is useful to enhance advanced conceptual understanding (Andriessen, Baker & Suthers 2003; Clark 2007; Driver & Osborne 2000; Hogan, Nastasi & Pressley 2000). However, in this context, unrestrained and contentious discussion can be counter-productive to certain students for fear of perceived pain-inflicting reaction from others. Meanwhile, such emotional expression of "learning grief" necessitates other participants to reflect on their effect on others. For example, associating an existing idea with personal experience shows both recognition and attention to previous posting.

However, a coin has two sides, as we study the FrOG entries posted by our subject students (mostly practicing teachers), we received generally positive feedbacks accompanied by explanatory notes related to the subject matters of the course (educational psychology): *"Psychology of Learning… Very interesting subject. I am applying what I have learnt in my job now!!!" [Entry 1071] It is a student-centered learning. I learned by observing my course mates' messages (social learning), solve my own problems (when I'm doing my task 2, it is a self-regulated and discovery learning." [Entry 966]*

We are contemplating the issue of "shared purpose" in the face of collaborating learning, was it collaboration or competition? The open/non-structured nature of Metal-FrOG lends itself to many productive ideas both experimental and investigational but can potentially lead to communication chaos as the goal of Metal-FrOG was not predefined and made clear.

We recognize the fact that the motivation not to be outdone and social inclusion is an inseparable factor to Metal-FrOG success:

I would like to add more. When I see the new discussion postings, I become more motivated to post my ideas on the forum.' [Entry 419]; "It made me nerous to see so many interesting discussions in progress." [Entry 421].

Conversely, it will be interesting to challenge the students to arouse the interest of the instructor or external participants with creative ideas too; consistent with our idea that Metal-FrOG should be non-structured, open-ended and tolerant to experimental ideas.

CONCLUSION

"COACHING is an intensive form of instruction, one which relies on inter-personal and guided-intra-personal skills to steer learners to reach personal and colletive goals." [Entry 947]

It is not possible to observe the students motivation, and motives especially those feel uneasy for his / her inability to contribute for FrOG discussion as our transcription only recorded entries posted on the FrOG. Online education in its' various forms, can be criticized as impersonal, negligence of "learning' and over-emphasize on the dissemination and acquisition of information (Browers, 1999; Noble, 1998; Woody, 1999). We contend that high-impact, meaningful learning environment is social-driven and the Metal-FrOG program strives to achieve meaningful, long-lasting learning effect by targeting at the social aspects. In fact, many of Metal-FrOG entries revolved around issues of personal learning and "lives", or also known as "intimacy" (Waldeck et al, 2001). Latane and Darley's model helps to understand students' reaction to online postings as new form of teaching calls for innovative tool for action researchers to understand the otherwise obscure psychological and motivational factors that influence students' feedbacks. The model suggests a sequential order that lead to a desirable act (online responding) from students and helps educators to better scaffold students' social leaning in the face of this ICT era, which permeates every aspect of teaching and learning activities nowadays. The model also sensitizes educationist to online "emotions and gestures" such as complaints, sign of grief, stress, frustrations, inferiority, seeking emotional supports and other social signals often overlooked in conventional adult education and further reinforce responsive and pro-learning behaviors in Metal-FrOG as indicated in this post: *I especially like the posting by XYZ, who started a landslide dialogue on semantics (although I am NOT sure if that is the most appropriate theory on refer to for the case)" [Entry 507]*

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