

Transforming Learning Landscapes for Generation Y and Beyond

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Abstract—This paper addresses the calls for change in instructional delivery and course design to cater for the needs of a new generation of students who have a distinct set of values and preferences that are different from their predecessors. These gen Y students will increasingly dominate the workforce and redefine professional work ethics and values. As such, institutions for higher learning must redefine learning landscape for honing good values and habits, and to promote lifelong learning among this generation of students. The study contends that values and habits can be shaped through learning environment that promotes metacognitive thinking skills and a deep approach to learning. For this to happen, a change must take place where Gen Y's values and learning preferences are accommodated, and learning environment are tailored to meet the needs of a generation of learners who seek greater autonomy and connectivity as well as opportunities for socio-experiential learning. The study provided some empirical evidence of how thinking can be shaped and behaviors can be molded using an experimental study.

Keywords- *Generation Y, learning, metacognition, deep learning*

I. INTRODUCTION

Generation Y, or Gen Y, is the generation born in the mid-1980s and later. Gen Y (also known as the Millennials) is the fastest growing segment of today's workforce. This generation shares a few common traits that differentiate itself from the previous Generation X (or baby boomers). Generation Y is tech-savvy and relies on technology to perform better. Equipped with BlackBerrys, laptops, cellphones and other digital devices, Gen Y is plugged-in 24 hours a day, 7 days a week. This generation prefers to communicate through e-mail and text messaging rather than face-to-face contact and prefers webinars and online technology to traditional lecture-based presentations (Kane, 2010). Generation Y able to multitasks, and demand meaningful work and a solid learning curve.

Nurtured by parents, Gen Y is confident, ambitious and success-oriented. Gen Y students have high expectations from their teachers, and they seek out new challenges and are not afraid to question authority. They have a high tolerance for diversity, are optimistic, collaborative, open-minded and self-driven. They are also team-oriented, attention-craving, value teamwork and affirmation of others. Generation Y also

has a sense of entitlement and indispensability (Kane, 2010) and craves attention in the form of feedback and guidance. Gen Y's attention span is, however, short due to the advent of technology and desire for instant gratification.

II. WHAT GEN Y DESIRES?

Gen Y's values are certain and depart significantly from their predecessors. Illustrated in Table 1, the changes are a direct result of Gen Y and beyond being born into a fast paced and quickly changing world, and being raised in a sheltered manner. As such, the view is held that traditional ways of living and learning simply do not apply any more. Fundamental changes have been made to the education system and it is important to consider the values of this generation and how they impact learning and professional development choices.

TABLE I. GENERATIONAL VALUE

Tradition (valuing history and longevity)	Innovation (new and exciting, constantly changing and developing)
Reputation (Linked with tradition, history and longevity)	Recommendation (peer group influence)
Sit and listen (deferring to the knowledge of more experienced others)	Try and see (experimental and actively engaged)
Long term needs	Short term wants (a return on invested time)
Trust in authority	Trust in authenticity and substance
Valuing technical intelligence	Valuing relational intelligence

Source: SAMAG (2009) p. 1

Gen Y students want to be challenged intellectually. There is a need for them to exercise their creativity and higher order thinking skills. They want the opportunity to think strategically, and handle complex problems. Hence, Gen Y students require twenty-first-century learning skills that include the following: information and media literacy; critical thinking and systems thinking; problem identification, formulation, and solution; creativity and intellectual curiosity; interpersonal and collaborative skills and social responsibility (Oblinger 2005, cited in (McLoughlin and Lee, 2008). Carver and Cockburn (2006, cited in Hodgkinson and Percy, 2008), and Monaco and Martin (2007) provided the following perspective on Generation Y student learning styles and preferences as being:

Technology-driven – Gen Y students resemble digital natives. Being fluent in technology, they learn better with multi- and media-based interaction, and with materials anchored in their own experience. Online learning, for example, is attractive to them as it is more interactive, social and student centered.

Experimental and action-oriented – Gen Y students prefer active learning activities that encourage them to construct their own ‘learning by doing’, rather than being told. They prefer to focus on new experiences, trying things out, rather than “thinking out” or engage in reflective activities. A learning approach through discovery increases information retention and student participation which in a way reduces chances for being bored.

Structured and yet “real life” oriented – Gen Y are more easily stressed and look to authority or parents for guidance. They are used to highly scheduled/structured life where desires are easily and quickly met. Hence, they prefer a scaffold and structured teaching and learning environment. Learning materials must be ‘bite sized’, and step-by-step to make them more manageable. Additionally, feedback and guidance must regularly be given by instructors to satisfy their needs for support and motivation. Gen Y is achievement focused and more likely to resort to an achieving approach, rather than the deep approach to learning. However, they also possess greater potential for deep learning if allowed to study on their own terms as to time, place and pace, and if work given is authentic and meaningful.

Collegial and environmentally conscious – Gen Y embrace and accept diversity, and want to make a difference. They gravitate towards group activities, and are more likely to make decisions based on the collective experience of their peers rather than their teachers. Teamwork approaches will improve their relationships, social skills and psychological development as well as academic learning and retention, cognitive development and active engagement. It provides a platform for discussion in which conflicting perceptions arise, and are reconciled, criticized, resolved and reformulated by exposing and modifying inadequate reasoning and constructing new knowledge.

Rewarding – Gen Y students want to feel they are special. A contributing factor to this feeling is the unusually strong relationship that today’s students have with their parents. Receiving awards for participation in learning activities has enhanced these feelings of being special. Hence, it is normal for them to expect that they are “all winners” just for participating.

III. IMPLICATIONS ON INSTRUCTIONAL DESIGN AND LEARNING MATERIALS

New models of teaching and learning are required to meet the needs of a generation of learners who seek greater autonomy and connectivity as well as opportunities for socio-experiential learning. Many institutions for higher learning now offer opportunities to move away from the twentieth century’s highly centralized, industrial model of learning towards individual learner empowerment through designs that focus on collaborative, networked interaction

and provide tools that support knowledge sharing, peer-to-peer networking, and access to a global audience with socio-constructivist learning approaches to facilitate greater learner autonomy, agency, and personalization (McLoughlin and Lee, 2008).

Gen Y students enter college with a different expectation than past generations. They have become accustomed to being handheld through their previous educational experience and anticipate a similar environment in college and universities (Monaco and Martin, 2007). Hence, they need to be trained to develop independent thinking and decision-making skills. The teaching of meta-cognitive skills then, is particularly important to enable them to manage stress, make good decisions and take responsibility for their learning.

Gen Y students are achievement-focused and are finding academic success on tasks with little effort or time. Gen Y, is often used as a handy surrogate of other less complimentary phrases such as non-committal, unreliable, fickle, or lazy (SAMAG, 2009). Hence, learning materials and assessment methods must promote deep and active learning. Deep learning requires hard work and commitment. It is one of the pre-requisite for lifelong learning. Unless learning is meaningful, authentic and rewarding, and assessment methods encompass higher levels of Bloom’s Taxonomy, these students may resort to surface learning or use an achieving approach. Learning, then, is based on competition and ego-enhancement.

IV. THE STUDY

This study addresses the call for change to instructional and course design for Gen Y. It seeks to demonstrate that didactic teaching is no longer suitable for the new millennium and instructional delivery and courseware should be tailored to meet the needs of generation Y. The study will provide some empirical evidence to support the argument that the earning environment does matter, and it must reflect cognitive, social, behavioral, affective and developmental learning dimensions (Orange 1999).

The study also highlights the characteristics of Gen Y, and stresses the importance of improving metacognitive thinking skills, and encourages the use of deep approach to learning among Gen Y students.

A. Sample

The sample consisted of 77 Malaysian college students enrolled in a business diploma course. Students were randomly assembled into 2 groups: the Constructivists ($n = 38$) and the Traditionals ($n = 39$). The small sample size, however, may limit the generalization of the sample’s results. Students in the Constructivist group were taught in a self-regulated learning environment and using the constructivist teaching method, while those in the traditional group were taught in the traditional way where lectures are the dominant teaching method. Both groups had the same 3-hour contact hours for teaching and learning per week for duration of 14 weeks.

Meta-cognition and deep learning were used as variables for the study. Meta-cognition is an active, self-managing,

conscious act of thinking about thinking and learning (Paris & Winograd, 1990; Derry & Murphy, 1986). It refers to ‘thinking about thinking’. The central issue is that thinking about thinking makes students aware of their cognition, abilities, feelings, and motivations (Paris & Winograd, 1990). It helps to enable students to judge their strengths and weaknesses and to make effective use of their resources by recalling what they know and what they have experienced or anticipated. It reminds them that they have effective executive skills which they can use. Meta-cognitive regulation is sometimes referred to as ‘meta-cognition in action’ because it influences students to use strategies, and to monitor and revise their plans or strategies (Paris & Winograd, 1990, p17). Meta-cognition is important because it applies to ‘virtually any domain of problem solving’ in and out of learning institutions, and it helps students to interpret and adapt to learning experiences.

Deep learning involves an intrinsic motivation to learn thoroughly. It requires higher mental abstraction that is supported by the development of strategies like visualizing, discussing and explaining, questioning, pre-reading, seeking meaning, examining the logic of arguments and the plausibility of evidence, activating prior knowledge or experiences and reconstructing new ones. Deep learners, as explained by Spencer and Jordon (1999), and Biggs (1987a), personalise learning by relating new ideas to everyday experiences, particularly if tasks like understanding concepts, learning in context, elaborating knowledge, and examining evidence are required. Hence, deep learning is deliberate and is hard work. Unless learners recognise the value of learning, possess higher order thinking skills and have a positive self outlook it may be impossible to initiate, let alone sustain such effort.

B. Instrument

The abridged MSLQ containing 35 items taken from the MSLQ (Pintrich et al. 1991) and 5 filler items was used to measure intrinsic values, self-efficacy and metacognition variables. Students were instructed to respond to items on a 7-point Likert scale based on how well they perceived their learning abilities to be and how they assigned values to learning. Cronbach’s alphas for these scales reported by Pintrich and De Groot (1993) range from 0.69 to 0.93, indicating good internal consistencies. The MSLQ has good validity and reliability (Rao & Kong, 1999; Pintrich et al., 1993) and is used in Western and non-Western countries. It has been administered in the United States, Hong Kong, the Netherlands, Spain and Korea, and has also been translated into Chinese and Spanish and is used in other cross-cultural studies

The 42-item Study Process Questionnaire (Biggs, 1987b) uses a 5-point Likert scale to measure tertiary students’ approaches to learning by identifying the motives and strategies that underlie these approaches. It has 7 items to measure each of the six dimensions: surface motive, surface strategy, achieving motive, achieving strategy, deep motive and deep strategy. Only the Deep Approach to learning items are used for the study. Curry (1987, cited in Riding and Rayner 1998, p63) reports that the SPQ has good reliability

and fair validity, and Murray-Harvey (1994, cited in Riding and Rayner 1998, p63) confirms that the SPQ has been relatively stable over time.

C. Data Analyses

A split plot ANOVA or SPANOVA was used to determine whether a constructivist approach to instruction and assessment method promotes self-regulation, i.e. good thinking and deep learning. This statistical tool is a hybrid of ANOVA, consisting of repeated measures analyses with between-subjects and within subject analyses. It also allows for any interaction effects to be measured.

D. Course Redesign

This was the most difficult part of the study. A number of factors were considered. First, the background, learning styles, and preferences of students in this group had to be investigated. Second, transition processes to move them towards higher levels of self-regulated learning had to be carefully planned to reduce any sense of helplessness and frustration. One matter to consider was that students’ participation was voluntary so they could withdraw at anytime. Third, learning materials and activities to emphasize usage of Web 2 technologies, deep learning, higher order thinking, literacy and experiential learning were limited so they had to be carefully selected. Fourth, most teachers in the College were either taught to teach in a traditional setting or were not trained teachers, i.e. they did not have a certificate or diploma in teaching. Additionally, they were from an earlier generation (Gen X) and were not as tech-savvy as Gen Y. Most of them were familiar with tools like blogs, wikis, media-sharing applications, and social networking sites. Thus, the teacher involved in had to be selected carefully.

During the first teaching week (Week 2) the students in the Constructivist group were given a one-hour orientation session by the researcher to explain the nature and the benefits of self-regulated learning. The desirable characteristics and competencies of self-regulated learners were presented and reasons why these qualities are required in the workplace were explained. The students were informed that they would not be taught the traditional way so they needed to have an open-mind to accept an alternative method of teaching and learning. They were given an opportunity to clarify any queries they had about the course and the methods of teaching. They were also informed that in order to reap the benefits of constructivist teaching/learning they must:

- accept responsibility for their learning as didactic teaching was to be kept to its minimum (15-30 minutes). Students were expected to self-regulate and take control of their learning from a variety of sources.
- learn to listen.
- have an open mind by looking at things differently.
- be bold by interacting and communicating freely with peers and the teacher.
- feel comfortable in presenting their views or answers because very often there is no one solution to a problem

- and having a different answer does not necessarily mean that they have made a mistake.
- strengthen any dispositions that lead them to higher levels of self-regulation. Such dispositions include self-control, persistence, fair-mindedness and diligence.
 - work in teams and be free to select their team members
 - be allowed to use their laptops and be free to use other technologies and social software tools to enrich their learning. (Social software tools can be effectively integrated into both face-to-face and online environments; the most promising settings for a pedagogy that capitalizes on the capabilities of these tools are fully online or blended so that students can engage with peers, instructors, and the community in creating and sharing ideas)
 - work and learn on their own or with the help of their peers. Students were informed that lecturers would play the role of a facilitator and would give guidance and prompt feedback.

Gen Y students are easily stressed (Monaco and Martin, 2007). An orientation session was given to make sure that students in the Constructivist group were psychologically prepared for the transition to higher levels of independent learning. Three problems that could impede the success of the intervention were identified. First, deep learning is hard work so poorly motivated students may choose not to deep learn. Second, Malaysian students are accustomed to a passive mode of learning and prefer highly structured educational settings. Thus, they had to be willing to accept a new method of teaching which required extra effort from them to learn. Some students may not like the idea of interactive teaching/learning; they prefer or are conditioned to sit passively and receive knowledge. Likewise, introverted students may feel uneasy in speaking up as it requires them to move from their comfort zone. Helping such shifts can be a challenge in itself. Third, participation was voluntary and no incentives were given for participating. Additionally, these students were randomly grouped so they could not choose their preferred learning environment. Therefore, given no choice it was likely that they would not participate actively or withdraw at anytime.

E. Selecting Learning Materials

Since Malaysian students prefer clear organized and well-structured programs, learning materials like study guides, learning prompts, self-instruction and self-evaluation materials were included to assist them in making the transition towards independent learning that requires high levels of conceptualisation. Garrison (1995, p138) cautioned against ‘naive constructivism’, i.e. having blind faith in students’ ability to construct meaningful knowledge for themselves especially if they were not trained to do so. Hence, learning activities and materials for this study were carefully planned to provide students with the necessary tools to enable them to: (1) to build confidence in constructing personal meaning; (2) to take responsibility for their learning; (3) to reduce anxiety and a sense of helplessness; and (4) to take remedial action if they made

mistakes. Using self-instruction and self-evaluations, for instance, improves students’ ability to control anxiety by intentionally deflecting attention from themselves to the task in hand.

The learning materials and classroom activities were chosen according to the principles of constructive teaching and the attributes of self-regulated learning. Course content and assignments were carefully selected to reflect authenticity and to simulate “real life” scenarios as far as possible and infused with blended learning materials using web technologies and computerized software whenever possible.

V. RESULTS

The final sample sizes were 37 for both groups but usable questionnaires were 37 for the Traditionals and 36 for the Constructivists. Students who did not participate fully in the experimental study were excluded from the analysis. Due to the small sample size, some variables were slightly skewed but on the whole they showed reasonable normality. Box plots, stem-and-leaf plots, and kurtosis of these variables revealed no extreme outliers. Frequency histograms and statistics for skewness and kurtosis showed that these variables were reasonably normal, and their scatter plots showed reasonable linear relationships. Cronbach’s alphas for the MSLQ, and the SPQ ranged between 0.74 and 0.88. Results of the pre-test (used to determine whether the differences between the Constructivists and the Traditionals were different in their thinking and learning behaviours at the beginning) were not significant.

Figure 1 shows the means for metacognition for periods 1 (pre-tests) and 2 (post-tests). The means for both groups increased over time. The Constructivist have a steeper gradient than the Traditionals, meaning that the metacognition of the former increased at a higher rate.

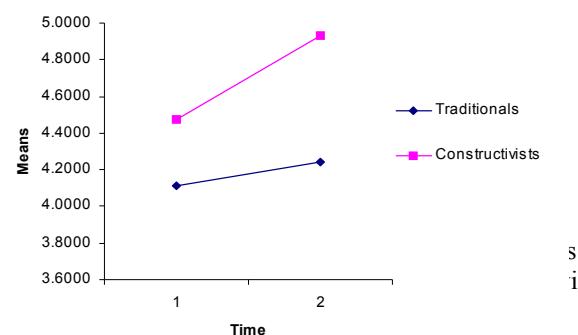


Figure 1. Means for Metacognition

The effect of time was significant ($F = 7.455$; $df = 1$; $p = 0.008$). Meta-cognition increased significantly over time from pre-test to post-test for both groups. The interaction effect was not significant ($F = 2.528$, $df = 1$; $p = 0.116$), meaning that there were no significant differential changes in meta-cognition scores for either group. The main effect for

the teaching intervention, however, was significant ($F = 7.109$, $df = 1$, $p = 0.009$) meaning that Constructivists fared better in meta-cognition than Traditionals. It is concluded that the self-regulated learning environment is more effective in improving metacognition than a traditional learning environment.

Graphical presentation of the means illustrated in Figure 2 shows that deep learning improved over time for both groups. The Constructivist had a sharper increase in their deep learning scores. The main effect for time was significant ($F = 7.455$; $df = 1$; $p = 0.008$). Deep learning changed significantly over time for both groups. However, the interaction effect was not significant ($F = 2.528$, $df = 1$, $p = 0.116$), meaning that there were significant differential changes in deep learning scores for both groups. The main effect for the teaching intervention was significant ($F = 6.636$, $df = 1$, $p = 0.012$) and therefore Constructivists perceived that they deep learn more than the Traditionals

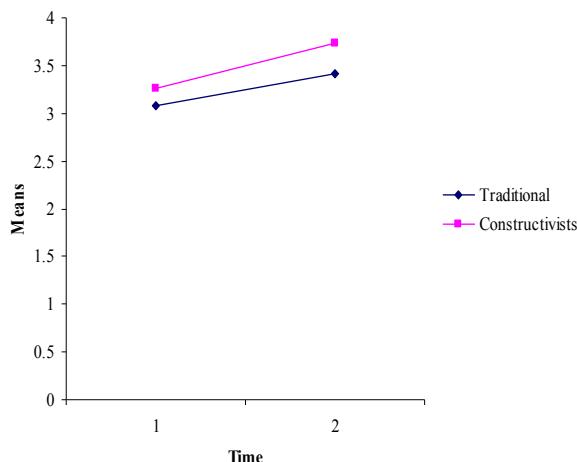


Figure 2. Means for Deep Learning

VI. DISCUSSION AND IMPLICATIONS

The study discussed the emergence of a new generation of learners, Gen Y that comes to colleges and universities with a new set of characteristics and values. These students will make up a significant part of the future workforce and a more dominant social group. The changes in values that they bring will unequivocally create a significant change across all society. This emerging generation, being sheltered and nurtured from young, is increasingly calling for a greater say in how society functions, and how important is it to have their voices heard and accounted for. The study contends that institutions of higher learning play a significant role in transforming a learning landscape that could positively and finely hone the values that Gen Y embraces, and lay the foundation for developing individuals of outstanding performance. As such, fundamental changes have to be made to the education system.

The results of the study support the view that a self-regulated learning environment that adopts the constructivist

method of teaching improves meta-cognitive thinking skills and deep learning. The Constructivist showed that they had higher meta-cognitive abilities and used a deeper approach to learning than the Traditionals.

In conclusion, what are the implications of this paper? First, teachers must cede control to give students an active role in their learning. Becoming a constructivist teacher will be difficult since most teachers use the traditional, objectivist approach. Teachers must allow students to take a center-stage in learning, and be willing to abandon familiar practices and adopt new ones (Brooks and Brooks 1993, cited in Teague 2000). Teachers must be subject matter experts, use creative teaching pedagogy and follow a non-standardised curriculum. Their curriculum planning role requires them to promote curricula customized to students' prior knowledge and values that the new generation embraces. Their teaching role requires them to know what students know, how they learn, and how their knowledge and skills can be extended. Teaching strategies must therefore be tailored to students' responses. The focus must be on creating experiences, on triggering curiosity about the world and about how things work. The learning tasks must also be rich, sustainable and complex to provide opportunities for students to develop the desired thinking skills and dispositions.

Second, reforms present critical challenges. These challenges may be costly as they necessitate new training requirement, resources, creativity and rapid decisive action. Teachers and administrators must recognize that training and resources are essential expenditures if teaching Gen Y's thinking is to be effective. Teachers, themselves must be willing to unlearn and relearn, and to provide an arena for engagement and discovery that trespass beyond printed text and "chalk and talk". They must implement and monitor strategies that enable them to effectively discharge their responsibilities.

In summary, the transformation that these reforms entail will not be an easy one, and will require an investment of time and resources that should not be underestimated. However, the return on this investment is potentially great. As Gen Y, and the generations beyond it increase their share of the workforce, the professional characteristics and work ethics will be redefined. Hence, it is imperative that learning institutions must first redefine the learning landscape for Gen

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