IMPACT OF PEER ASSESSMENT INTERVENTION ON STUDENT MOTIVATION AND LEARNING IN COMPOSITION CLASSES

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Abstract: Purpose – This study sets out to investigate the impact of the peer assessment intervention on student motivation and learning given the numerous calls by stakeholders in higher education institutions to make assessment criteria more explicit. Methodology – The sample involved two groups of students, 65 in total, enrolled in a first-year writing course. The intervention group was subjected to a peer assessment workshop while the other served as the control group. A 45 item Likert scale questionnaire was administered on both groups subsequently. Findings – Results from independent sample T-tests and Pearson Chi-Square test of independence showed that increased levels of motivation and better learning strategies were reported by the intervention group compared to the control group except for one dimension of learning - peer learning. A moderate strength of association was reported between the peer review intervention and the dimensions of motivation whereas the strength of association between peer review intervention and the dimensions of learning strategies was weak. Significance – The study reinforces that socialization processes are pertinent and that instructors should bring their learners in as full partners for the meaningful transfer of tacit knowledge. Peer review has shown to provide students with the ability to take control of their own successes.

Keywords: Peer Assessment, Motivation, Learning Strategies, Freshman Composition

Introduction
There has been a significant shift in attention in the recent decade in studies related to assessment; the moving away from concentrating on the properties of restricted forms of tests to the interactions between assessment processes and student learning. Although many higher education institutions worldwide have started to make assessment processes more transparent to their students through clear articulation of assessment criteria, research by Freeman and Lewis (1998) and O’Donovan et al. (2001) have shown that the creation of such grids alone
is insufficient to enable the transfer of meaningful knowledge about the assessment process. This is because the assessment criteria are ‘subject to multiple interpretations’ by both, students and academics (O’Donovan et al., 2001). Thus, if instructors themselves are conflicted in the meaning to be interpreted by the set assessment criteria, how are novice students expected to understand and produce academic work that mirror these?

A study by Rust et al. (2003) suggests that the “explaining of assessment criteria includes the transfer of tacit knowledge and that this type of knowledge is impossible or at least extremely difficult to capture in an assessment grid” (Rust et al. 2003, pg.151). Several researchers have attempted to achieve this through the use of a variety of interventions; the most common being peer assessment. A variety of justifications and exhortations have been voiced in favor of student peer assessment, most of which are related to pedagogical concerns related to our basic but revised conception of learning drawn from the theory of social constructivism. Researchers such as Elwood & Klenowski (2002), Rust (2005) and Price et al. (2007) also draw on the notion of commuters of shared practice and a social constructivist theory of learning in recognizing that students only come to be absorbed into the culture of practice and thus learn about assessment through participation in the assessment process.

Despite the fact that peer review as an intervention has gained momentum over the past decades in composition classrooms, a review of literature continues to report conflicting outcomes with some studies hailing the approach while other studies deeming it a complete waste of time and effort. In writing courses in which peer review has shown to be advantageous; students have shown a clearer understanding of reader expectations by receiving feedback on what they have done well and on what remains unclear (Mittan, 1989; Hansen & Liu, 2005); have reported increased confidence and reduced apprehension by seeing peers’ strengths and weaknesses in writing (Leki, 1990); have taken an active role in their own learning (Hirvella, 1999), have developed critical thinking skills (McMahon, 2010, Mat Daud et al., 2013), have gained deep as opposed to surface knowledge (Cassidy, 2006) and become more proficient (Tsui & Ng, 2000; Plutsky & Wilson, 2004, Papinczak et al., 2007) and autonomous (Rolllinson, 2005; Maarof et al., 2011) writers. Peer response activities have also reported to build classroom communities (Ferris, 2003). Furthermore, reviewers too have shown improvement in their own writing (Lundstorm and Baker, 2009).

On the other hand, several studies have reported that students express greater preference for teacher feedback as they deem them more qualified (Tsui & Ng, 2000; Brammer & Rees, 2007). Instructors have also highlighted that the peer review process is less effective in lower proficiency classes than in higher proficiency courses mainly due to the differing abilities of the students in terms of language proficiency (Mc Alexander, 2000; Flores, 2004). A study by Storch (2005) stated that many peers merely comment on surface level errors i.e. language errors as opposed to the development of ideas i.e. content as a whole. Furthermore, Brammer and Rees (2007) reported that only one third of the cohort in the peer review intervention group from a freshman composition class stated that the intervention assisted them, the majority did not find the peer review process to be of much value. A recent study in an English as a Second Language class in a public university in Malaysia which used the peer review and tutor conferencing interventions showed that peer reviewing did not have any significant effect on student writing scores although tutor conferencing did (Mukundan & Nimethchisalem, 2011).

Given the many upsides reported in studies about the use of peer review in composition classes, the researchers chose this intervention in order to facilitate active engagement with the assessment criteria amongst students enrolled in a freshman composition writing course. As Rust et al. (2003) have discussed, peer assessment works best with motivated students. Student motivation is underpinned by a number of theoretical models and theories. One such long standing perspective on motivation is the expectancy value theory. Theorists in this tradition argue that people’s choice, persistence, and performance can be explained by their
beliefs about how well they will do on the activity and the extent to which they value the activity. Most common is the expectancy value model of motivation by Schunk and Zimmerman (1994). Bandura’s (1997) concept of self-efficacy as an individual’s confidence in his or her ability to organize and accomplish a task ties in well with the expectancy component of the expectancy-value theory. In addition, Eccles et al. (1983), states that expectancies and values are influenced by performance, persistence and task choice directly. Task value is the level of interest, importance, usefulness, relevance, effort demanded of the task. Although theories dealing with expectancy provide powerful explanations of individual’s performance, they do not attempt to provide the reasons individuals have for engaging in different achievement tasks - the most obvious being intrinsic and extrinsic motivation. When individuals are motivated intrinsically, individuals engage in an activity because they are interested in and enjoy the activity; when extrinsically motivated, individuals engage in activities for instructional reasons or for receiving a reward.

Furthermore, the framework for understanding the psychological basis of learning has gradually shifted from behaviorism to cognitivism to constructivism, whereby learners are to actively reorganize and reconstruct both their knowledge and their learning strategies and develop personal capabilities to become independent learners. Peer review has been reported to provide the much needed context for the development of critical thinking skills (Bostock, 2000). Also, given that “students learn a great deal by explaining their ideas to others and by participating in activities in which they can learn from their peers” (Boud, 2001), peer learning was another dimension that was identified for this study.

Therefore, the following study set out to investigate the influence of a peer review intervention workshop on four identified dimensions of motivation – intrinsic motivation, extrinsic motivation, self-efficacy and task value and two dimensions of learning strategies – critical thinking and peer learning. The hypotheses that inform the study are as follows:

H01: Peer review intervention had no statistically significant impact on motivation.
   H01a: There is no statistically significant difference in intrinsic motivation between the intervention group and the control group.
   H01b: There is no statistically significant difference in extrinsic motivation between the intervention group and the control group.
   H01c: There is no statistically significant difference in task value between the intervention group and the control group.
   H01d: There is no statistically significant difference in self-efficacy between the intervention group and the control group.
   H01e: Motivation is independent of peer review intervention.

H02: Peer review intervention had no statistically significant impact on learning strategies.
   H02a: There is no statistically significant difference in critical thinking between the intervention group and the control group.
   H02b: There is no statistically significant difference in peer learning between the intervention group and the control group.
   H02c: Learning strategies is independent of peer review intervention.

H03: There is no statistically significant correlation among the student scores in the intervention group for the learning strategies dimensions.

H04: There is no statistically significant correlation among the student scores in the control group for the learning strategies dimensions.
Methodology
The sample for this study comprised 65 tertiary students enrolled in a freshman composition course at a private higher education institution in Malaysia. The students were assigned to two sections as they enrolled into the program – section one, comprising 31 students (Intervention group) and section two, comprising 34 students (Control group). All students met the language enrolment criteria of an IELTS score of 6.5 and a TOEFL IBT score of 90. This is a fourteen week course which meets 3 hours a week.

The peer review process involved the following stages and was carried out over a period of 5 weeks (Week 3 to Week 7 of the semester):

Stage 1 (Week 3)
The objective of this stage was to orientate the students in both the groups (intervention and control) with the expectations of their first writing assignment. Each of the students in both groups was given a copy of the following two documents:-

i) An assignment task sheet which comprises the assignment question, audience and purpose and also details about format and important deadlines

ii) A criterion-referenced grading rubric developed by lecturers in consultation with each other. The grading rubric consisted of 10 identified criteria and three standards – strong, developing and needs work.

The lecturer then went on to explain and discuss in brief the assignment task sheet and grading rubric with the students.

Stage 2 (Week 6)
The objective of this stage was to subject the students in the intervention group to a peer review workshop. All 31 students were asked to bring a hardcopy of their first draft of the assignment to class in week 6 (one week before the submission deadline). A 90 minute peer review workshop ensued.

The peer review workshop involved the following steps:

i) Students were asked to form self-selecting pairs. Proponents of self-selected pairs have stated that students feel more comfortable and motivated when they choose their own pair. Besides, several studies have reported that students find this process to be fairer than other strategies.

ii) They were reminded that the main goal of the peer review was not the grade assigned to their peers’ work, but the constructive feedback they give in order to help their classmates achieve more favorable outcomes in their final written essay.

iii) Each pair was then given a copy of the criterion-referenced grid (similar to that in Stage 1), a peer assessment sheet which had the similar criteria as identified in the criterion-referenced grid (stage 1) and a copy of an exemplar (similar in genre, organization and format) that had been prepared by the lecturer.

iv) Each pair was given 20 minutes to read, discuss and grade the given exemplar. Students wrote comments on the peer assessment sheet and used the grading rubric to grade the exemplar.

v) A class discussion followed between the lecturer and students with the students sharing their comments and grades assigned to the exemplar (20 minutes).

vi) Students (in the same self-selecting pairs) were then asked to exchange the first drafts of the assignment that they had brought to class and to repeat step (iii). The drafts along with the peer review comments and grades that had been assigned on the criterion-referenced grid were then returned to the respective student.
**Stage 3 (Week 7)**

The final draft of the given assignment was collected from the students in both the control and intervention groups. The objective of this stage was to gauge the levels of motivation and learning strategies of the students in both, the intervention and control groups. The control group was to serve as a basis of comparison as it was not subjected to the peer review workshop. A measurement instrument in the form of a questionnaire was given to students in both groups. The dimensions and items that were used to inform the questionnaire of this study were adapted from the Motivation Strategies Learning Questionnaire developed by Pintrich et al. (1991). The questionnaire consisted of 45 closed items, each to be answered using a Likert scale of strongly agree to strongly disagree. The students were given 25 minutes to complete the questionnaire.

**Data Analysis**

The data obtained from the questionnaires completed by the 65 students from the intervention and control group were then entered, tabulated and analyzed using the Statistical Package for the Social Sciences (SPSS) version 24. Several statistical procedures were used on the data collected. Descriptive statistics on the two groups were computed, with the means and standard deviations reported. The independent variable of this study was the approach, i.e. students who were subjected to peer review workshop (intervention group) and students not subjected to the workshop (control group). The dependent variable was the scores on the numerically measurable questionnaire measured in 5-points Likert scale. The instruments yielded reliability coefficients of between 0.71 – 0.91 which indicates that the dependent measures were valid as the reliability coefficients obtained for all 6 dimensions were higher than the recommended level of 0.70. An independent sample t-test was then used to compare the mean scores for the intervention group and the control groups for the four dimensions of motivation and two dimensions of learning strategies to determine the effect of peer review intervention on students’ motivation and learning strategies. Pearson chi-square test of independence was performed to examine the relationship between the peer review intervention and motivation and peer review intervention and learning strategies. Finally, Pearson moment correlation test was used to determine if there was correlation in the scores of learning strategies among students in the intervention group as well as among students in the control group.

**Results**

The hypotheses which were formulated to guide this research were then tested.

**The Influence of Peer Review Intervention on The Dimensions of Motivation**

An independent sample t-test was performed to compare the means of the intervention (int) and control (con) groups for the four dimensions of motivation. The following results are reported based on the statistics in Table 1.

**Table 1: Results Of t-tests Between the Intervention and Control Groups for The Four Dimensions of Motivation**

<table>
<thead>
<tr>
<th>Dimensions of Motivation</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic Motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>int</td>
<td>31</td>
<td>1.95</td>
<td>0.46</td>
<td>12.40</td>
<td>54.29</td>
</tr>
<tr>
<td>con</td>
<td>34</td>
<td>3.92</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic Motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>int</td>
<td>31</td>
<td>2.68</td>
<td>0.70</td>
<td>2.94</td>
<td>63</td>
</tr>
<tr>
<td>con</td>
<td>34</td>
<td>3.22</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>int</td>
<td>31</td>
<td>2.33</td>
<td>0.71</td>
<td>7.52</td>
<td>63</td>
</tr>
<tr>
<td>con</td>
<td>34</td>
<td>3.66</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self - Efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>int</td>
<td>31</td>
<td>2.13</td>
<td>0.43</td>
<td>11.81</td>
<td>56.41</td>
</tr>
<tr>
<td>con</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Testing of Null Hypothesis $H_{o1a}$
$H_{o1a}$: There is no statistically significant difference in intrinsic motivation between the intervention group and the control group.
For the dimension of Intrinsic Motivation, the null hypothesis $H_{o1a}$ was rejected in favor of the alternative. There is a statistically significant difference in the scores for the intervention group ($M=1.95$, $SD=0.46$) and the control group ($M=3.92$, $SD=0.79$); $t (54.29) =12.40$, $p=0.00$.

Testing of Null Hypothesis $H_{o1b}$
$H_{o1b}$: There is no statistically significant difference in extrinsic motivation between the intervention group and the control group.
For the dimension of Extrinsic Motivation, the null hypothesis $H_{o1b}$ was rejected in favor of the alternative. There is a statistically significant difference in the scores for the intervention group ($M=2.68$, $SD=0.70$) and the control group ($M=3.22$, $SD=0.78$); $t (63) =2.94$, $p=0.01$.

Testing of Null Hypothesis $H_{o1c}$
$H_{o1c}$: There is no statistically significant difference in task value between the intervention group and the control group.
For the dimension of Task Value, the null hypothesis $H_{o1c}$ was rejected in favor of the alternative. There is a statistically significant difference in the scores for the intervention group ($M=2.33$, $SD=0.71$) and the control group ($M=3.66$, $SD=0.70$); $t (63) =7.52$, $p=0.00$.

Testing of Null Hypothesis $H_{o1d}$
$H_{o1d}$: There is no statistically significant difference in self-efficacy between the intervention group and the control group.
For the dimension of Self-Efficacy, the null hypothesis $H_{o1d}$ was rejected in favor of the alternative. There is a statistically significant difference in the scores for the intervention group ($M=2.13$, $SD=0.43$) and the control group ($M=3.79$, $SD=0.68$); $t (56.41) =11.81$, $p=0.00$.

The Pearson chi-square test of independence was then performed to test the associated subsidiary null hypothesis $H_{o1e}$
$H_{o1e}$: Motivation is independent of peer review intervention.

Table 2: Results of Pearson Chi-Square Test Between Peer Review Intervention and Motivation

<table>
<thead>
<tr>
<th>Significance (2-sided)</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>$7.107^a$</td>
<td>1</td>
<td>0.008</td>
</tr>
<tr>
<td>Phi</td>
<td>0.331</td>
<td></td>
<td>0.008</td>
</tr>
<tr>
<td>Cramer’s V</td>
<td>0.331</td>
<td></td>
<td>0.008</td>
</tr>
<tr>
<td>N of Valid</td>
<td>65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 4.29
2 cells have expected count less than 5 and the minimum expected count is 4.29. Thus the sample size requirement for the chi-square test of independence is satisfied. The null hypothesis that motivation is independent of peer review intervention is rejected in favor of
its alternative by this analysis ($\lambda^2=7.11$, df=1, p=0.01). The Phi and Cramer's V test values indicate that the strength of association between the two is moderate (0.33). Thus, the Pearson chi-square test indicates that there is a statistically significant association between peer review intervention and motivation.

Hence, combining the results from the independent sample t-test for each of the four dimensions of motivation and the Pearson independence test indicate that the null hypothesis $H_{o1}$ was rejected in favor of its alternative hypothesis, i.e. peer review intervention had statistically significant impact on motivation.

The Influence of Peer Review Intervention on The Dimensions of Learning Strategies

Independent sample t-test was also performed to compare the means of the intervention and control groups for the two dimensions of learning strategies and the following results are reported based on the statistics in Table 3.

<table>
<thead>
<tr>
<th>Dimensions of Learning Strategies</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>int</td>
<td>31</td>
<td>2.30</td>
<td>0.53</td>
<td>9.89</td>
<td>63</td>
<td>0.00</td>
</tr>
<tr>
<td>con</td>
<td>34</td>
<td>3.72</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>int</td>
<td>31</td>
<td>2.69</td>
<td>0.63</td>
<td>0.73</td>
<td>63</td>
<td>0.47</td>
</tr>
<tr>
<td>con</td>
<td>34</td>
<td>2.80</td>
<td>0.53</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Testing of Null Hypothesis $H_{o2a}$

$H_{o2a}$: There is no statistically significant difference in critical thinking between the intervention group and the control group.

For the dimension of Critical Thinking, the null hypothesis $H_{o2a}$ was rejected in favor of the alternative. There is a statistically significant difference in the scores for the intervention group ($M=2.30, SD=0.53$) and the control group ($M=3.72, SD=0.63$); $t(63)=9.89$, $p=0.00$.

Testing of Null Hypothesis $H_{o2b}$

$H_{o2b}$: There is no statistically significant difference in peer learning between the intervention group and the control group.

For the dimension of Peer Learning, the null hypothesis $H_{o2b}$ was supported, indicating that there is no statistically significant difference in the scores for the intervention group ($M=2.69, SD=0.63$) and the control group ($M=2.80, SD=0.53$); $t(63)=0.73$, $p=0.47$.

Thus, the independent sample t-test results indicate that while there is a significant difference between the intervention group and the control group for the dimension of critical thinking, however, there is no significant difference between the intervention group and the control group for the dimension of peer learning.

Pearson chi-square test of independence was again performed to test the second associated subsidiary null hypothesis $H_{o2c}$

$H_{o2c}$: Learning strategies is independent of peer review intervention.
Table 4: Results of Pearson Chi-Square Test Between Peer Review Intervention and Learning Strategies

<table>
<thead>
<tr>
<th>Significance (2-sided)</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>2.263</td>
<td>1</td>
<td>0.132</td>
</tr>
<tr>
<td>Phi</td>
<td>0.187</td>
<td></td>
<td>0.132</td>
</tr>
<tr>
<td>Cramer’s V</td>
<td>0.187</td>
<td></td>
<td>0.132</td>
</tr>
<tr>
<td>N of Valid</td>
<td>65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The null hypothesis that peer review intervention is independent of learning strategies is supported by this analysis ($\chi^2=2.26$, df=1, $p=0.13$). The Phi and Cramer’s V test values indicate that the strength of association between the two is weak (0.19). Thus, the Pearson chi-square test indicates that there is no statistically significant association between peer review intervention and learning strategies.

These results suggest that the null hypothesis $H_{o2}$ cannot be rejected. This implies that peer review intervention had no statistically significant impact on learning strategies.

Testing of Null Hypothesis $H_{o3}$

$H_{o3}$: There is no statistically significant correlation among the student scores in the intervention group for the learning strategies dimensions.

Table 5 shows the results of the Pearson product-moment correlation which was computed to assess correlation among the scores in the learning strategies dimensions for students in the intervention group. Results indicated that correlation between CT score and PL score was not statistically significant ($r=0.11$, n=31, $p=0.57$, two-tailed). Thus, null hypothesis $H_{o3}$ was supported indicating that there is no statistically significant correlation among the student scores in the intervention group for the learning strategies dimensions.

Table 5: Pearson Correlation Coefficients Among The Intervention Group’s Scores In The Learning Strategies Dimensions

<table>
<thead>
<tr>
<th>Critical Thinking Score Peer Learning Score</th>
<th>Pearson’s r</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Learning Score</td>
<td>1</td>
<td>0.107</td>
<td>31</td>
</tr>
<tr>
<td>Critical Thinking Score</td>
<td>Pearson’s r</td>
<td>0.107</td>
<td></td>
</tr>
<tr>
<td>0.566</td>
<td>n</td>
<td></td>
<td>31</td>
</tr>
</tbody>
</table>

Testing of Null Hypothesis $H_{o4}$

$H_{o4}$: There is no statistically significant correlation among the student scores in the control group for the learning strategies dimensions.

Table 6 shows the results of the Pearson product-moment correlation which was computed to assess correlation among the scores in the learning strategies dimensions for students in the control group. Results indicated that correlation between CT score and PL score was not statistically significant ($r=-0.15$, n=34, $p=0.41$, two-tailed). Thus, null hypothesis $H_{o4}$ was
supported indicating that there is no statistically significant correlation among the student scores in the control group for the learning strategies dimensions.

**Table 6: Pearson Correlation Coefficients Among the Control Group’s Scores in The Learning Strategies Dimensions**

<table>
<thead>
<tr>
<th></th>
<th>Peer Learning Score</th>
<th>Critical Thinking Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Learning Score</td>
<td>Pearson’s r 1</td>
<td>-0.146 (Sig. 0.411)</td>
</tr>
<tr>
<td>Sig. (2-tailed) n</td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

Descriptive statistics showed that students in the intervention group showed higher levels of motivation in all the four identified dimensions compared to students in the control group. Independent sample t-test and Pearson independence test revealed that peer review intervention had a statistically significant impact on motivation, influencing the intrinsic motivation, extrinsic motivation, task value and self-efficacy of the students.

The findings of this study are consistent with those from other studies that state that student motivation is usually enhanced when the purposes of assessment are explained and linked to learning objectives and outcomes and practitioners involve their students in the assessment process. This makes the students take more responsibility toward managing their own learning (Mendonca & Johnson, 1994). Moreover, student involvement in the assessment process in the form of a peer review exercise creates a sense of internal responsibility towards their work (Moore, 1986; Hirvela, 1999) and this makes them take responsibility toward developing their own sense of control over their learning achievement (Stiggins, 2005) and encourages a sense of ownership of the process. It would help students become more autonomous learners (Rollinson, 2005; Maarof et al., 2011), better able to recognize the strengths and weaknesses of their own work (Mittan, 1989; Hansen & Liu, 2005) - leading to greater motivation levels. Therefore the greater the responsibility a student feels towards his or her work, the stronger the motivation to put forth the effort needed to reach their learning goals. This reinforces the findings of previous studies that student engagement in assessment fuels the drive towards achievement (Mittan, 1989).

The results of the t-tests that were conducted to compare the means of the 2 groups (intervention and control) for the two dimensions of learning strategies report a significant difference in the critical thinking dimension; but however, no significant difference is reported in the peer learning dimension. Descriptive statistics also showed that students in the intervention group have higher levels of critical thinking compared to students in the control group but there was not much difference in scores between the two groups in the dimension of peer learning. Pearson independence test revealed that there is no statistically significant association between peer review intervention and learning strategies. Therefore, in the case of learning strategies, the results support the dimension of critical thinking but do not support the dimension of peer learning.
Research evidence is consistent with the findings that the peer review intervention enables students to develop critical thinking skills (Mat Daud et al., 2013). This could be because the majority of students are predisposed to use their critical thinking skills almost intuitively and are not wholly aware of the critical thinking process. The peer review exercise hence, provides students with an opportunity to identify, discuss - ‘think aloud’ and indirectly become more aware of the essential critical thinking skills involved to complete the assigned task – leading to enhance their critical thinking abilities which in turn empower them to analyze and revise their own writing (Leki, 1990). The peer review workshop however, failed to build a classroom community of learners as mentioned in other studies by Ferris (2003) and Hirvela (1999). This could be because this is the first semester for all the 65 students who undertook this course. They are from varied schooling systems and backgrounds and are in an unfamiliar context i.e. a private university setting with ‘new’ peers. Given the context, they may not have had enough opportunities to foster close ties with their peers, some may even feel uncomfortable to critique their peer’s work thus may hold back on providing genuine feedback. Moreover, this intervention was conducted over a five week duration which is deemed to be indeed a short one to observe the creation of a classroom community of learners. As learning strategies generally involve metacognition whereby students should be aware of how they learn and be conscious of the thought processes and steps involved in one’s learning, these abilities take much time and exposure to develop. As stated by Kuhn (1991), practice is essential to develop such skills. The limitation on time and a one off peer review workshop could be the reasons as to why this intervention did not have a significant impact on the learning strategies of students involved. However, if this intervention was pursued for a second and third round with the same group on subsequent course assignments, the results may prove to be more promising. With practice, students would be able to increase their critical thinking skills considerably and over the prescribed time, form better bonds with their peers and take opportunity to learn from one another.

To further probe the results reported for the dimension on learning strategies i.e. peer review did not have a significant impact on this dimension, the researchers conducted a Pearson correlation to assess correlation among students’ critical thinking scores and peer learning scores for both groups of students. Results from the Pearson’s correlation showed that students’ critical thinking scores and peer learning scores were not statistically correlated for both groups of students. This could possibly be because generally students who exhibit better critical thinking abilities would probably be better predisposed to work independently to complete their assigned tasks. They may not have the need or see the value in collaborating with peers as they are more than capable of completing their tasks by themselves.

**Conclusion and Implications of The Study**

The continued emphasis on explicit articulation of assessment criteria and standards alone is insufficient to develop a shared understanding of ‘meaningful knowledge’ between the practitioner and the student. This study shows that socialization processes are necessary for tacit knowledge transfer to occur. Hence, institutions and practitioners wanting to ensure greater transparency in the assessment process should adopt interventions- such as the peer review workshop in this study, in order to ensure a more complete and meaningful transfer of both explicit and tacit knowledge. This is because a more structured approach to the sharing of knowledge on assessment standards and requirements, in which a carefully considered combination of transfer methods is selected from along a spectrum of explicit/tacit options, will yield greater motivation levels and learning strategies amongst students as opposed to a single-minded pursuit of a totally precise and explicit assessment rubric. Teachers should therefore attempt to bring students into their learning as full partners, teaching them how to gauge their level of performance. As practitioners begin to implement such interventions in order to make the assessment process more transparent, they will recognize the ability of
students to take control of their own success and accept responsibility for their own learning. These empowering feelings will inspire and motivate students toward greater achievement. Clearly it is thus, worthwhile to invest the time and academic rigor in the consideration of the transfer processes of assessment knowledge that we currently invest in the formulation of assessment tasks.

References


