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NEURO COGNITIVE TRACKING AND CORRECTIVE ACTION: A WAY FORWARD IN ACADEMIC PERFORMANCE

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ABSTRACT

The problem of a high performance gap among accounting students in the Faculty of Accountancy of the Universiti Teknologi MARA Pahang does exist. The findings indicated that 64% of diploma and 75% bachelor students have a Cumulative Grade Point Average (CGPA) of below 3.00 (the equivalent grade of B); a gap does exist if measured against the university academic quality standard. Few critical factors were identified, such as poor cognitive skills, lecturers' level of preparations and suitable teaching methods to influence students' academic performance. A creative and innovative teaching and learning method, Neuro Cognitive Tracking and Corrective Action (NCTCA) computerized system, has been introduced, implemented and tested. The results indicated that the number of students having GPA of below 3.00 was reduced to 34% and 35% for diploma and bachelor students respectively due to improved cognitive skills. Improvements in cognitive skills for diploma students were knowledge (68%), comprehension (71%), and application (68%) or an average performance gap of 31%, while the bachelor students' cognitive levels were comprehension (74%), application (70%) and analysis (69%), with an average of 29% as compared to the earlier non-NCTCA phase. This study concludes that when student cognitive skill acquisitions are high, this could result in better GPAs and ultimately decreases the performance gap.

Keywords: *performance gap, academic quality standard, cognitive skills, creative and innovative teaching method, neuro cognitive tracking and corrective action*

INTRODUCTION

Students' performance in classroom is depicted by their grade point average (GPA). It is an indicator of academic success not only to the students and the lecturers but also to organizations looking for desirable competent human capitals as they look forward to sustaining their competitiveness. GPA performance is significant in college education, but others contended that the value of an 'A' has declined at the present time (Campbel, 2010). As GPA is fundamental in educational measurement, academics are highly concerned when the majority of students' performance varies differently to a greater extent in classrooms.

Based on observations, students who have good thinking and reasoning skills normally obtain higher GPAs, but leaving behind their peers might lead to academic detriments. Good students always see a classroom as an opportunity to learn, get good grades and they hold on to the acquired knowledge for their future job (Rockler-Gladen, 2009). However, other less performing students who have less retention skills need some help and support from lecturers if the university aspires to produce skillful graduates and to achieve set standards. Therefore, the purpose of the present study is to utilize the GPA standing of students as a diagnostic tool to search for the causes of GPA differences among accounting students in classrooms and present a recommended solution as a way forward in conforming to the academic quality standard of having at least 50% of graduates with the CGPA of 3.00 and above.

LITERATURE REVIEW

In educational performance assessment, the GPA is an indicator of academic success (McAloom, 1994) and it correlates with critical thinking skills (Bowles, 2000; Cheung *et al.*, 2002). It has also been conceived as an indicator of motivation (Brown & Campion, 1994). A review indicated that Saudi Arabian management accounting students' performance was very weak; the percentage of failure was 50% and the majority of the students who passed the course obtained low grades of 'C' to 'D', while 60% had a GPA of lower than 2.50. This scenario slowly improved to a range of 45-50% in higher levels of accounting studies (Al-Twajry, 2010). A previous study revealed that the Faculty of Accountancy at Universiti Teknologi

MARA (UiTM) Pahang has a majority of their students achieving a GPA of 2.00 – 2.50 in core accounting subjects (Norlaila *et al.*, 2010).

Students' deficiency in writing and arithmetic skills and lower grades were contributed by the misuse of technology and this electronic distraction led to a decrease in student learning time (Campbel, 2010). Others found that the college culture is changing and an average college student now studies 14 hours a week, down from 24 hours in 1961 (Babcock & Marks, 2010 as cited in Campbel, 2010). Future accountants need to be equipped with a multitude of professional skills and broad knowledge to complete the needs of a more challenging business environment (French & Copping, 200, cited in Fatima *et al.*, 2007). Lecturers are to show enthusiasms in motivating students to learn through the lecturers' attitude, communication and motivational skills (Tootoonchi *et al.*, 2002).

The Accounting Education Change Commission (AECC) stresses that instructors are to be involved in the guidance and advising of students as one of the effective teaching methods utilized (Calderon, Gabbin & Green, 1996, cited in Fatima *et al.*, 2007). Enhanced performance among students is evident when teachers possess ample and up-to-date knowledge and are always ready to help students (Horngren, 1963). Improving the quality standards of university graduates through student motivation and self-regulated learning are relevant to academic work in classrooms (Corno & Mandinach, 1983; Pintrich, 1989; Meece *et al.*, 1988). Learning in classroom must be interesting and worth learning. Student skills are of the top priority to be successful in classrooms. Thus it is essential to integrate these components in the models of classroom learning (Blumenfeld *et al.*, 1982; Pintrich, 1989). Simultaneously, when students are able to reflect upon their needs for assistance, a help-tutor attains success through knowing what the students know or do not know. Focused learning and appropriate corrective action is imperative in the attainment of quality performance (Rol *et al.*, 2006).

RESEARCH METHODOLOGY

This section outlines the research design and approaches to accomplish the research objectives. The sample involved 598 students of the Faculty of Accountancy, UiTM Pahang where cognitive skills and GPA performance on core accounting subjects were diagnosed and improved. The data

were collected through the student records maintained in the Faculty and the Academic Affairs Division (AAD) where we were given access to. Each student's records for the academic year of 2009 were investigated and analyzed to identify the overall performance gap. The outcome was compared to the university's academic quality standard of having 50% of graduates obtaining a CGPA of 3.00 and above as the benchmark. The main causes of the gap were identified through investigations, analysis and survey questionnaire prior to suggested corrective solution and implementations in 2010. The resulting data were utilized as the fundamentals for designing the NCTCA system by an innovative and creative circle of the Faculty of Accountancy known as Reach, where the first author is the leader and the others are members. Several test runs on cognitive acquisitions and GPA outcomes were undertaken for all core accounting subjects and continuously monitored and assessed towards the attainment of the academic quality standards.

The records revealed that 64% of the diploma courses or subjects and 75% of the bachelor subjects failed to achieve the required GPA of 3.00 and above or a grade of 'B' (65 marks) and above. Other supporting data obtained from the AAD revealed that there were ten (10) core courses or subjects with a quantum of students having a GPA of below 3.00 (unfavorable), as shown in Table 1. The students from the diploma program had a lower GPA non-conformance rating against the academic standard as compared to the bachelor program, primarily due to the varied and diverse real life accounting extremities. The students failed to visualize, intertwine and recognize the principles within a limited time frame. The students need to apply not only the required principles, full understanding of the issues but also good analysis and reasoned judgment. Findings on the factors contributing to the performance gap are: firstly, regarding the lecturers, where the initial findings indicated that lecturers (54%) lacked working experience and utilized some of the twenty-one (21) types of teaching techniques adopted in the classrooms. Secondly, the students' cognitive level analysis, where various cognitive domains in teaching and learning were identified and analyses were undertaken by the researchers to observe the priorities adopted in the classroom and those cognitive domains assessed during the final examination. Cognitive domain frequencies on sample examination questions are shown in Table 2 for both the diploma and bachelor subjects. The discussions on the cognitive level analyses are included in the next section. Thirdly, students' attitudes and habits in the classroom influence

the performance gap. Thirteen (13) different habits were discovered from the 1621 samples. The data collected were analyzed and discussed in detail in the next section.

Table 1: Codes with Unfavorable GPAs

Subject	Program	Type	Percent
AUD 390	Diploma	NC	62
FAR 360	Diploma	C	65
FAR 250	Diploma	C	50
FAR 400	Bachelor	C	98
FAR 450	Bachelor	C	77
CRG 520	Bachelor	NC	75
MAF 420	Bachelor	C	65

C=calculative NC=non-calculative

Table 2: Cognitive Levels for Diploma and Bachelor Programs

No.	Cognitive Level	Diploma		Bachelor	
		N	Percent	N	Percent
1	Knowledge	51	26		
2	Comprehension	68	34	14	11
3	Application	59	30	39	39
4	Analysis	21	10	34	34
5	Evaluation			10	10
6	Synthesis			6	6
Total		179	100	103	100

THE SUGGESTED SOLUTION

Neuro Cognitive Tracking

The Neuro Cognitive Tracking (NCT) model, which was designed and developed by *Reach*, is a creative and innovative approach to teaching and learning. This model advocates that students need to think critically in classrooms as opposed to mere memorizing. Prior to its conception, a lengthy brainstorming was conducted on diversified improvement issues.

The issues were arranged in clusters, through a mind map to view all potentialities. The researchers acknowledged that students learn by means of various styles and strategies that suit them best. Few alternative solutions had been tested on the effectiveness of improving GPA achievements and reducing the performance gap. Trial run findings indicated that NCTCA offered the highest potentials. The NCT system has the philosophy of linking the lecturers and students at post class hours and it assists students to be more engaged with academic matters to increase learning time. This is in consonance with the help-tutor initiative by Rol *et al.* (2006), and attaining academic success by McAloom (1994). *Figure 1* illustrates the modus operandi of NCT which begins with the teaching-learning process and reflects cognitive disabilities. The contents are patterned on various topics covered in the syllabus and the lesson plan. It is intended not only to match the different learning styles of students but also emphasize on the students' cognitive acquisitions. The students are required to provide feedback to reflect on their acquired cognitive skills. Initial reports indicated that many topics in the syllabus had high incidence of cognitive misfits that required the lecturers to perform corrective actions (CA) to complete the cycle and lead the students to possess multiple knowledge and skills in line with the discovery of French and Coppage (2000). Failing to do so might indicate that the university graduates are academically ill-equipped.

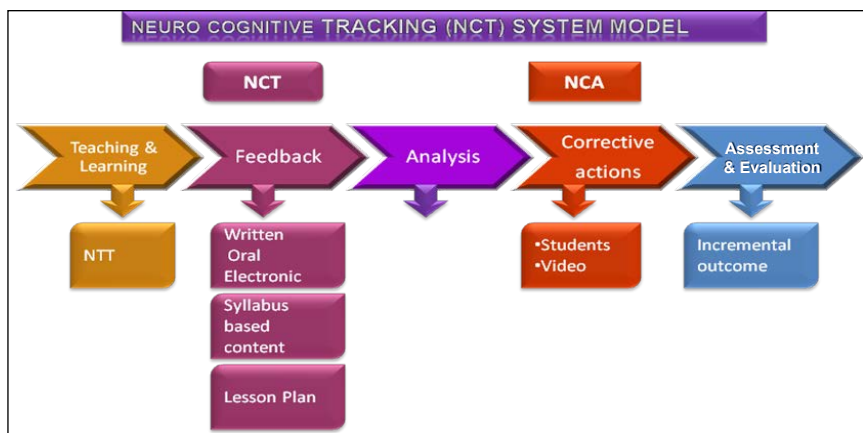


Figure 1: NCTCA System Model

NCT was undertaken manually at the initial stage. Tracking forms were issued to students to reflect and monitor their cognitive skill acquisitions in class. Unfortunately, since the manual implementation had bottlenecks; computerized trackings were implemented for greater efficiency, with features of becoming virtually personalized, having alert signals and the printing of analysis reports to provide timely corrective actions. It affords the lecturer to track a student's progress on a weekly basis. The alert system gives out signals once feedbacks are received. The lecturers then print out the progressive analysis of feedback and suggest appropriate corrective actions. As NCT affords virtual communication between lecturers and students (making it accessible at any time), detecting and correcting cognitive disparities among students are added values. Prompt corrective actions could be taken by lecturers at the early stage of learning. Creativity and innovativeness in teaching would result in greater enthusiasm among students which in turn would lead to higher academic ratings. This is in line with the faculty's key performance indicator (KPI). This methodology is in coterminous with the study conducted by Tootoonchi *et al.* (2002).

NEURO CORRECTIVE ACTION (CA)

The CA, as shown in Figure 1, is a support activity to the NCT system. The philosophy is to take a remedial learning process and enable the students to concentrate on the remedy of cognitive dysfunctional skills. Taking remedial actions, coupled with students' initiatives to improve their achievements would reduce the gaps. Based on students' feedback, the system requires lecturers to take corrective actions, either by oral, written or electronic mediums. For instance, improving the students' comprehension level, coupled with diverse teaching methods encourages students' involvement and participation in the classroom. Electronic-based teaching and learning techniques such as NCTCA stimulate students' interest and attention. This technique together with simple explanations for clarity and regular practices of concepts on the various taxonomies are strategies that offer greater challenges in students' thinking.

FINDINGS AND DISCUSSIONS

Cognitive Level Usage

There were six (6) cognitive level samples being applied, comprising knowledge, comprehension, application, synthesis, and evaluation. The findings, as shown in Table 2, indicated that the most frequently used cognitive domain for the April 2010 diploma final examination was comprehension (34%) while the bachelor final examination were application (39%) and analysis (34%). The variation in cognitive level was not primarily due to the wider scope of accounting knowledge and skills built-up expectations among bachelor students but also their critical thinking abilities. However, the introduction of a new code, FAR360 brought some slight incremental shift on the cognitive domain in the diploma program.

The bachelor program, meanwhile, concentrated on a wider scope of cognitive domains encompassing comprehension (11%), application (39%), analysis (34%), evaluation (6%) and synthesis (10%) as shown in Table 2. It is a manifestation of the university's concern for greater students' skill acquisitions, making them able to perform a wider spectrum of accounting related job opportunities in the industry.

Another dimension considered in this study was the students' cognitive skill performance as measured against the allocated examination marks. The findings indicated the existence of performance gaps at all levels of the cognitive domains in both programs as shown in Table 3. For instance, the diploma program's knowledge domain had an actual result of 56% against the expected benchmark of 100%. A similar pattern was observed in comprehension (58%), application (60%), analysis (56%) and synthesis (54%). On the other hand, the bachelor program had different sets of gaps where the actual results showed comprehension (49%), application (52%), analysis (51%), synthesis (63%) and evaluation (69%). It can be deduced that the accounting students' level of cognitive skills improved as they progressed to a higher level of their studies, resulting in narrowing performance gaps. This is relative to the findings of Al-Twajry (2010).

Table 3: Diploma Cognitive Domain Gap

No.	Cognitive Level	Diploma	Bachelor
1	Knowledge	56	
2	Comprehension	58	49
3	Application	60	52
4	Analysis	56	51
5	Evaluation	54	63
6	Synthesis		69

STUDENT LEARNING DISABILITIES

The survey findings identified sixteen (16) student learning disabilities, such as failure to study before coming to class (97%), lack of competition in the classroom (82%), excessive dependence on lecturers’ guidance (58%), having poor syntax (50%), lack of focus in class (41%), poor reasoning ability (36%) and late submission of assignments (4%) as shown in Table 4. Leaving these disabilities unresolved would heighten the gap. Further investigations revealed that students did not study before attending classes due to behaviors such as engagement in electronic games (96%), informal discussions with peers at colleges (96%), giving-up studying when topic becomes difficult (96%) and indolence at night (100%). All these resulted in a smaller number of students conforming to the academic quality standards of the university. Campbel (2010) highlighted the detriments of today’s technological progress to the populace. The current findings support the said study as the cohorts are less disciplined in overcoming electronic distractions. Severe consequences on academic performance might occur if such scenarios prevail among the students.

Table 4: Student Learning Disabilities in Classroom

No.	Disabilities	N	Percent
1	Poor reasoning ability	596	36
2	Fail to understand	489	29
3	Do not prepare assignments	349	21
4	Late submission of assignments	72	4
5	Late to class	375	22
6	Less attentive in class	677	41
7	Lack participation in class	383	23
8	Less proficient in English	637	38
9	Poor syntax	832	50
10	Absenteeism	243	15
11	High dependence on lecturer guidance	966	58
12	Fear of having criticized	540	32
13	Fail to study before coming to class	1621	97
14	Limited references	60	10
15	Poor note taking skills	64	11
16	Lack of competition in class	2445	82

The Pareto Chart in Figure 2 shows the main causes of the performance gap in classrooms, arranged from the highest occurrences to the lowest; namely, students coming to class unprepared due to electronic games (96%), heavily engaged in peer informal discussions (96%), giving up easily when topic is difficult (96%), laziness (100%), failure to study regularly (100%), studying 3 or 4 days before a test (76%) and studying a day before a test (24%). Thus, the team concluded that the major and controllable contributing factor to non-conformance to the academic standards was the failure to study before coming to class. The NCTCA was primarily designed and developed to bring about improvements and changes to these behaviors that are detrimental to academic excellence.

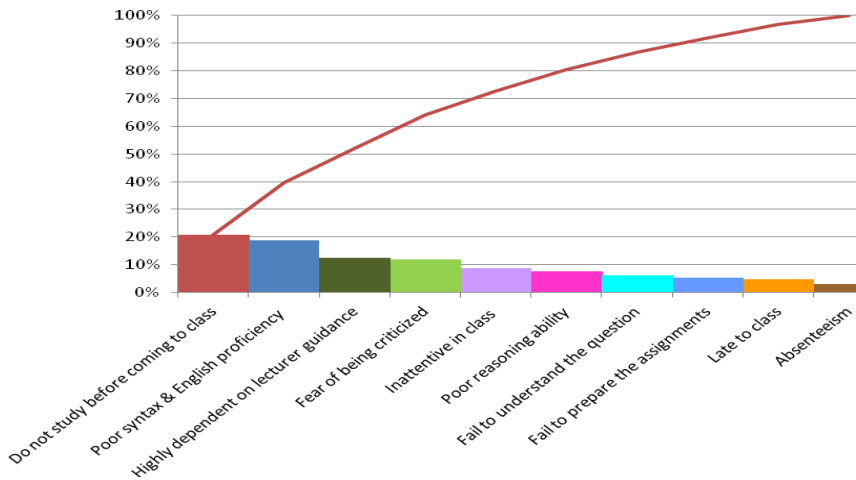


Figure 2: Pareto Chart for Main Causes of Students' Problems

NCTCA IMPLEMENTATION

Prior to a pretest of NCTCA, the students enrolled in *Strategic Management* (MAF 640) course had 51% of performance gaps on the required cognitive skills or a mean of 2.53 in a Likert Scale of 5. A pretest had been implemented to a cohort of 19 bachelor students. The findings revealed that the students' performance has improved from 2.53 to 3.88; an improvement by 1.35 or 27%. This indicates that NCTCA has the ability to reduce performance gaps as shown in Table 5. Unfortunately, students had the least improvement in identifying the attributes of a strategic leader; this scenario is common to beginners who have minimal acquaintances with strategic leaders. Thus, lecturers' guidance is paramount in making students identify those traits. The suggestion of Calderon *et al.* (1996) that lecturers be required to advise and guide students for effective learning is highly supported by the findings of this study.

Table 5: Comparative Comprehension' Performance Results

No.	Question	Before	After	Increase (%)
1	I can explain the importance of strategic management.	2.67	3.90	46
2	I can explain the strategic management processes.	2.72	3.90	43
3	I can explain how to obtain the above average returns through the Industrial Organization Model.	2.27	3.58	58
4	I can explain how to achieve the above average returns through the Resource Based Model.	2.33	3.74	61
5	I can explain the importance of the organization's vision and mission.	2.56	4.21	39
6	I can detect the attributes of a strategic leader.	2.61	3.95	34

NCTCA was implemented and tested in all core accounting subjects for both the diploma and bachelor programs. Continuous monitoring was undertaken to ascertain that NCT was supported by a CA. The results indicated that bachelor students showed varied levels of cognitive skill achievements ranging from 59% to 80% while diploma students had 54% to 72% as shown in Table 6. Analysis revealed that the diploma students had a higher performance gap (38%) as opposed to bachelor students (32%) primarily due to broader performance gaps in the lower cognitive echelon. For example, the students' cognitive skills on knowledge (46%) and comprehension (40%) were evident. It denoted that 46% of diploma students had lesser knowledge acquisitions on a given topic as compared to bachelor students (20%). Analysis revealed that improvements in comprehension, application and analytical skills were mandatory in both programs. It can be concluded that the findings of this study was in agreement with the work of Al-Twajry (2010) that specified the notion that cognitive skills of students would gradually progress upon reaching the higher academic echelon of their studies. The present study discovered that diploma students have an average cognitive performance gap of 38% as against bachelor students of 32%.

Table 6: NCTCA Cognitive Level Results in Percent

No.	Cognitive Level	Diploma (1)	Bachelor (2)	Gap (1)	Gap (2)
1	Knowledge	54	80	46	20
2	Comprehension	60	59	40	41
3	Application	72	72	28	28
4	Analysis	61	60	39	40
	Average	62	68	38	32

In terms of GPA performance, findings indicated that the number of bachelor students with a GPA of 3.00 and above increased by 100% (from 25% to 50%), leaving an incremental change in students' GPA of below 3.00 by 33% (from 75% to 50%) as shown in Table 7. On the other hand, the number of diploma students having a GPA score (64%) of below 3.00 was reduced to 39% and this led to an improvement in the percentage of students with GPA of below 3.00 (from 36% to 61%). These GPA results revealed that both programs achieved the academic quality standards. The results prove the ability of this model to lessen the performance gap in classrooms and therefore conform to the university's KPI requirement of having 50% of students obtaining a GPA of 3.00 and above. It is further proven that improving students' cognitive skills would ultimately improve the students GPA performance. These discoveries signify the benefits of using the NCTCA system through early tracking and correcting of students possessing below average cognitive reflections. These strategies enable students to be committed and focused, as they afforded virtual and accessible communication tools at anytime and anywhere. In addition, the system builds closer ties between lecturers and students. It could be deduced that cognitive skill improvements could lead to improvement in students' GPA standing.

Table 7: NCTCA GPA Results in Percent

No.	GPA	Diploma		Bachelor		Improvement	
		Before	After	Before	After	Diploma	Bachelor
1	≥ 3.00	36	61	25	50	69	100
2	≤ 3.00	64	39	75	50	39	33

The standardization phase which allowed consistency in the NCTCA usage among lecturers of the faculty has been implemented for all subjects offered for the September until October 2010 semester upon approval of the head of the faculty. In an undisclosed data, the system gathered promising feedback where it tracked almost 45-60% of all students' learning disabilities in the classroom. Monitoring and data collections had been observed and undertaken. The findings, as shown in Table 8, indicated an incremental performance improvement in students' GPA of 3.00 and above by the bachelor students (67%) and the diploma students (65%), resulting in not only a decline in GPA of below 3.00 but also in improving students' cognitive skills, more so when timely and continued monitoring practices were in place. Surprisingly, the GPA scores of 3.00 and above by bachelor students have improved by 168%, as more students managed to improve their GPA achievements. Simultaneously, the number of students having GPA of below 3.00 has declined to 33%.

Table 8: NCTCA GPA Standardization Results in Percent

No.	GPA	Diploma		Bachelor		Improvement	
		Before	After	Before	After	Diploma	Bachelor
1	≥ 3.00	36	65	25	67	81	168
2	≤ 3.00	64	35	75	33	45	56

Table 9 shows the new cognitive skills of diploma and bachelor students. The diploma students' cognitive skills have progressed to a range of 68% to 71% and for the bachelors from 69% to 74% based on a target of 100% as the full score. The new average gap for the bachelor students was 29% while for the diploma students, it was 31%. The new cognitive skill achievements for the diploma students were knowledge (68%), comprehension (71%) and application (68%) resulting in incremental reduction in the cognitive gap from 38%, as per Table 6, to 31%, thus narrowing the gap by 7%. On the other hand, as in Table 6, the bachelor students have a reduction in the cognitive gap by 3%, from 32% to 29%. This shows that as the students progressed into higher levels of their studies, they gained better cognitive skills that led to reduction in the academic performance gap.

Table 9: Comparative Cognitive Domain Gap in Percent

No	Cognitive Level	Diploma (1)	Bachelor (2)	Gap (1)	Gap (2)
1	Knowledge	68		32	
2	Comprehension	71	74	29	26
3	Application	68	70	32	30
4	Analysis		69		31
5	Evaluation				
	Average	69	71	31	29

Overall, the cognitive skills for both diploma and bachelor students showed improvements after the implementation of the system as depicted in Table 9. Improvement in cognitive skills in the classroom has great impact on the GPA performance of students as indicated earlier. The findings supported earlier studies on GPA performance as an indicator in educational achievement (McAloom, 2000; Norlaila *et al.*, 2010); students obtaining higher GPA performance possessed greater skills and critical thinking abilities (Bowles *et al.*, 2000). These in a way bring competence, employability and prestige to the university. However, this study did not test on the employability of the graduates.

Subsequently, the NCTCA monitoring in October 2010 showed continued progress in the GPA performance by the diploma students (66%) and the bachelor students (65%), as depicted in Table 10. This finding seems to contradict a similar study in Saudi Arabia. Al-Twajjry (2000) discovers that accounting students' performance in Saudi Arabia had high failure rate of 50%, and the passing scores of 'C' and 'D' were marginal, resulting in the majority of the students having a GPA of 2.50. The dissimilarities of the findings, between the present study and the previous one, were mainly due to the different direction and focus of the study. The present research centers on improving the cognitive skills and academic performance of students using the NCTCA system; a model uniquely designed and developed for the purpose, while the other study was on getting to know the academic standing of students with no new teaching and learning model implementation. Thus, both studies had varied results and thus incomparable. In addition, this finding contradicted an earlier study in 2010. Norlaila *et al.* (2010) found that there was high concentration of students with a GPA of below 3.00 in the faculty. The shift in the students' GPA to 3.00 and above is emerging with the introduction of the NCTCA system. The new evolution in GPA achievements among students is evident.

After several tests and monitoring cycles, some favorable feedback from students and peers were received. Students have recognized the need for innovative and creative tools in learning to reflect on problems 24 hours a day; 7 days a week via the Internet. They found it user friendly, as their names were not immediately known and they were able to seek guidance from lecturers virtually. Also, the majority of the lecturers were appreciative of conducting virtual monitoring of students as a continuous improvement in the teaching and learning process. Above all, the NCTCA system has encouraged students to think critically in classrooms, as opposed to just memorizing. These were the creative and innovative features of the system.

In appraising the cost-benefit of this project, five (5) concerned parties have been analyzed and evaluated. First, the students have gained some benefits, among others, improvement in their GPAs, cognitive skills and the spirit of competitiveness in the classroom. Second, the lecturers closely monitored their students at the beginning of the semester, became more creative and innovative in the delivery of the subject matter, detected students' academic related problems at an early stage and built good ties, reputation and received good assessment from students. With the computerized system in place, lecturers would have more time for additional administrative tasks. The researchers, as lecturers, have spent enormous time in driving competitiveness among students and they have developed tools to link students with lecturers at anytime and anywhere. In addition, the lecturers were able to check on the students' understanding of each topic discussed in the classroom. Third, the Faculty of Accountancy has been freed from years of high failure rates and now reaping good passing rates on core subjects. This is a vital KPI achievement with minimal incremental cost incurred. Fourth, UiTM Pahang has spent MYR20,000 on training programs in return for improvement in students' GPAs, which ultimately improves its KPI. Fifth, the team has accumulated not only some points in innovation and research work but also shared their core competencies, showed their commitments and sensitivity to the students' learning disabilities and provided mutual care and cooperation among peers. In total, more than 2,160 hours or MYR216, 000 has been incurred to deliver better teaching and learning techniques to afford commonality in classrooms.

In terms of value creation, the project has created a total of MYR1.38 million, measured based on student incremental GPA performance and subsidy granted by the government on a per semester basis. In terms of non-financial value creation, UiTM has continuously provided excellence

in its academic mission, maintained confidence and trust of its stakeholders for continued financial support. Likewise, the university would be able to uphold sustainable excellence in developing human capitals for the accounting community while the academics have proven their roles in moulding students as intellectual capitals of the industry. Ultimately, parents and other stakeholders would be happy to extend supports, grants and subsidies towards balancing the graduates' competitiveness in the accounting community.

CONCLUSION

In this study we developed an academic performance monitoring model, the NCTCA system, designed to improve the cognitive skills and the GPA performance of students in the Faculty of Accountancy. By so doing, commonality in classroom performance is attained. The contents of the monitoring system were based on the syllabus and lesson plan. The purpose is to oblige students to reflect on their learning problems so that lecturers would be able to apply timely remedial measures. The findings of this study indicated that students' acquisition of the various cognitive skills as required in the syllabus has been met. This enabled the diploma (66%) and bachelor (65%) students to achieve a GPA of 3.00 and above. This has diminished the non-conformity with the academic quality standards as all the 589 students participated in the study showed higher performance outcomes. The NCTCA system has been improved not only from manual to computerization for more efficient and effective trackings. It is concluded that the NCTCA system has brought high impact on students' cognitive skills and GPA performance, resulting in conformance with the academic quality standards of having 50% of students graduating with a GPA of 3.00 and above. In line with the findings of McAloom (1994) and Rockler-Gladden (2009), it is deduced that accounting graduates with a higher cumulative GPAs might have better skills and competitiveness at the workplace. By this, the graduates serve as ambassadors of goodwill of the university and the community at large.

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