AAP-CARD: AN INNOVATIVE METHOD IN TEACHING AND CQI FOR LARGE CLASSES

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ABSTRACT

Delivering lectures in classes with large number of students is always a big challenge for the lecturers, especially for engineering classes. Checking the attendance, noise, attracting the attention, engaging and motivating students are only some challenges among many the lecturers face. Such challenges, if are not timely and properly addressed, may lead to low or poor quality of teaching and delivering the knowledge to the students. This paper shares an innovative method which addresses the above-mentioned challenges by introducing AAP-Card (Attendance-Attention-Preparation Card). At the beginning of each lecture session, the lecturer distributes AAP cards to all students. At the end of or sometimes during the lecture, the lecturer asks question and students answer it in the field of the card given for the answer. Another field is for the students to write their feedback about the lecture or any other comments. Finally, students need to sign as evidence of their attendance and return the card to the lecturer. Therefore, this card serves many purposes. It saves the time for checking the attendance especially classes with large number of students. It is a helpful tool to check the students' attention and understanding. Another important purpose is to encourage students to give comments, suggestions, or concern regarding the teaching, learning, facilities, etc. This continuous feedback, if timely and properly addressed, will greatly help in continual quality improvement of teaching and learning. AAP card also helps students to communicate effectively with the lecturer which results in good and friendly relationship with their lecturers.

KEYWORDS

Large classes, Teaching and Learning, Lecturing, CQI, CDIO Standards: 8,10

INTRODUCTION

The number of private and public colleges and universities is seeing a continual increase in the world, with a substantial increase in some countries. This is a natural reaction to the increasing number of students enrolling at tertiary level. In Malaysia, for example, the latest statistics according to MQA (Malaysian Qualifications Agency) show that 569 public and private institutions of higher learning are registered, of which 76% are private institutions (MQA, 2014). The statistics also show that the number of public institutions is not sufficient to meet the increasing demands for higher education. This opens the door for the private sector to contribute and compete with public institutions.

As a consequence of increased number of students, particularly at undergraduate level, many institutions find that increasing the size of the classes is the proper solution. The "Large classes" solution, however, creates a number of big challenges for both students and lecturers. Here also appears another important issue; quality of teaching and delivering the knowledge to the students. This in turn puts greater demands and pressures on institutions of higher education to provide a quality of undergraduate education. The quality assurance agencies in many countries set a number of performance goals and criteria for all higher educational institutions to meet in order to get the accreditation and be able to run programmes with accredited degree.

This is really a big challenge and the quality assurance is most of the time questionable if the delivery is lecturing in big-size classes. Despite these facts and challenges most of the institutions adopted and continue to adopt the "Large classes" solution. This solution with all its disadvantages actually opens the doors widely for researchers and academicians to study and analyse the challenges and issues relevant to the large classes and try to find solutions and innovative methods to address them.

This paper explores first the main challenges and the drawbacks of large classes, reviews and evaluates the available solutions and methods in some published literature. Next the paper proposes an innovative method which addresses a variety of challenges followed by discussing the application of the proposed method. The last part concludes the work and suggests some recommendations to improve the proposed method.

ISSUES WITH THE LARGE CLASSES

Although no consensus exists as to the exact size of a large class, the term generally applies to classes with more than 60 students. Some regard a large class as one with more than 100 students. Large classes may be a cost-effective solution to budget crises at some institutions, but they have been criticized by teachers and students (Ammon et al. 2006). And what encourage the institutions to adopt this solution is that no restrictions on the size of class are mentioned by the quality assurance and accreditation authorities as long as the delivery method is lecturing.

When teaching large lecture classes, check the attendance, noise, attract and keep students' attention, elicit questions, responses, feedback, engage and motivate students, interaction with the lecturer, are only some challenges among many more the lecturers face. This actually not only challenge the lecturers but the students as well.

One of the common issues is the interaction and exchanges between students and lecturers. Biggs (1999) found that increasing the class size can result in anonymity and passivity among students. Another consequence of feeling anonymous is that students often adopt a passive role in their large class and prefer not to ask questions or make contributions.

Mulryan-Kyne (2010) states that poor engagement of students with course content, less commitment to courses and low motivation are some of the significant effects of being taught in large groups. Low participation levels, social isolation and lack of adequate resources are among the problems for students identified in the context of large classes (Gibbs, 1992).

Attendance is another problem often experienced by lecturers dealing with large numbers of students entering and exiting the lecture room, which often results in teaching sessions starting late, dealing with noise levels during in-class tasks and dealing with the large volume of marking and student feedback (Ward and Jenkins, 1992). Also taking the attendance by

reading the names in large classes can be time-consuming. Passing the attendance list to the students to sign sometimes result with some students write some comments or drawing something, or even sign in for other students who are absent.

Another issue with large classes is that not all lecturers even the experienced ones can cope well with large-class teaching. The main problems relate to difficulties in being able to relate as individuals to students and the challenge of responding to the large number of demands being made on them. Large-group teaching makes it difficult for teachers to elicit student answers and to know if students understand course content (Gibbs 1992). Another important problem is the pressure on staff to publish, undertake consultancy, supervise, or do some administrative work in addition to their teaching role. This can easily overwhelm the staff and resort to traditional teaching and assessment methods which may lead to poor quality of knowledge delivery and lack of feedback.

There are definitely more large-classes drawbacks which can be summerised by the following keywords; attendance, engagement, motivation, interaction, anonymity, feedback, experience of the lecturers, quality, assessment, space, etc.

METHODS AND TECNIQUES TO ADDRESS ISSUES WITH THE LARGE CLASSES

Having all these problems and issues efforts and innovative methods have been tried to address the disadvantages and attempts to make the teaching and learning successful in large-size classes. Also several well-known techniques have been developed to address some these issues, such as clickers, colored cards, one-minute papers, muddiest-point cards, etc. Some of these methods and techniques are briefly outlined below.

Exeter et al. (2010) investigate student engagement from the teachers' perspective, to identify current practices in teaching, learning and assessment designed to promote student engagement in courses with more than 1000 students enrolled at the University of Auckland, New Zealand. Active learning approaches have the potential to promote student engagement with lectures, but this becomes more challenging as class sizes increase. The results demonstrate that teaching techniques commonly associated with small-class teaching can be used to engage students in very large classes.

Schreyer Institute for Teaching Excellence (2007) provides excellent online strategies for improving lecturing techniques as well as methods for getting students more actively involved in a large lecture. The proposed strategies will allow lecturers to break up the lecture, assess students' understanding, and engage them in learning.

Active learning is recommended as one of the successful approaches which may address a number of large-classes drawbacks. In this approach the lecturer gives student opportunity to have active role in the teaching-learning process. Much of the literature on innovative approaches to large-group college teaching, and active teaching methods in this context, focus on adapting lectures to involve students more directly in the teaching-learning process (e.g., Michelson et al. 1997 and Millis and Cottell 1998) . The main concern in this method is the time needed to engage the students. Researchers suggested a number of approaches in the context of active learning which include brainstorming, short writing activities followed by class discussion, quick surveys, think-pair-share, formative quizzes, debate, role playing and student presentations (Bonwell and Eison, 1991, Chickering and Gamson, 1987, Cooper and Mueck, 1990, Millis and Cottell 1998, Weimer, 1992).

O'Moore and Baldock (2007) reported the development of innovative assessment sessions within two core technical courses in Civil Engineering at the University of Queensland. Peer Assessment Learning Sessions (PALS) facilitate a student's peer assessment of a colleague's problem-based learning assignment or tutorial within a 'traditional' whole-class setting, under guidance from the lecturer. Feedback is very positive and demonstrated through the presentation of anonymous survey results. PALS address the challenge of providing frequent, efficient and timely assessment for large classes of 100–200+ students while simultaneously enabling and providing high quality formative feedback.

Attendance and disruption issues in the large classes also attract some researchers to find solutions. The author believes that the best solution is the attitude and behavior of the lecturers and his/her teaching method. It is well known that, the lecturers who make his/her class interesting and fun with activities aiming to engage students, solve most of these problems.

Some traditional techniques are in use for checking the attendance like calling the names, have students sign in at the door, assign students numbered seats, using clickers, etc. Some instructors take attendance at the end of the session rather than at the beginning, so as to discourage students from signing in or being signed in and then leaving (Schreyer Institute for Teaching Excellence, 2007).

Among the recent modern solutions to address the large-classes issues, CDIO initiative offers a comprehensive teaching and learning platform which aims producing engineers with firm theoretical and practical skills (Crawley, 2001). Many innovative approaches, projects and syllabi in many institutions overall the world are based on CDIO initiative. Some examples of the successful implementation of the CDIO initiative can be found in CDIO curriculum for mechanical engineering undergraduate course (Al-Atabi and Al-Obaidi, 2011), multidisciplinary projects (Al-Obaidi et al. 2013 and Shamel and Al-Atabi, 2013), and the use of industrial visits to enhance learning at engineering courses (Al-Atabi et al. 2013).

Mulryan-Kyne (2010) concludes in her research that tertiary level teachers need to move beyond the 'traditional' lecture to more active forms of teaching and learning if the quality of education is to be provided in large classes. Serious attention needs to be given to finding creative ways of dealing with some of the specific challenges, especially those related to levels of interaction and feedback. Change, including the adaptation of teaching approaches in the context of large class sizes at college level, is challenging and difficult. This is not only because of the change in mindset and additional work that is likely to be needed, but also because of the discomfort and anxiety that is often associated with change, the lack of incentives for change and the self-perceptions of staff and their definition of their roles.

ATTENTION-ATTENDANCE-PREPARATION CARD (AAP-CARD) APPROACH

Why AAP Card?

Engineering Mathematics and Thermodynamics & Heat Transfer are two core subjects taught at the School of Engineering/Taylor's University, Malaysia. All undergraduate students (Year 1 and Year 2) should take these subjects. Classes for Engineering Mathematics usually consists on average 120 students, while classes for Thermodynamics & Heat Transfer consist on average 70-80 students. The delivery methods are lecturing, tutorials and

experimental lab. Each lecture usually lasts 2 hours in a week and it is delivered in big lecture theaters; 100 and 200 pax.

These classes are categorized as large classes and the author (hereinafter referred to as "Lecturer") is used to face all the above-mentioned issues in each lecture; attendance, late arriving students, noise, day-dreaming students, few students ask, students shy to ask, non-lecturing consumed time, students who do not pay attention, etc. The lecturer also noticed that some students, especially who are sitting in the first row want to understand but they are distracting by the noise from other students and they therefore complain. Other students want to understand but they need the lecturer to repeat. Some students complain that the lecturer goes very fast. Some they claim the class is very boring, while some say the class is very interesting. Actually, some students when they feel, they are very far behind, will stop having interest in the subject and start to skip the classes which reflects very badly on their performance and eventually fail.

All these issues are just examples among many. Sometimes the lecturer is only aware about these issues when he reads the course evaluation form. Not only that, the students who need special care are not easily identified in the early weeks of the semester and thus they do not receive special attention and care from the lecturer.

AAP Card as a Tool for Improving Teaching-Learning Process

Having all these issues and based on the observations, course evaluation, feedback from students, and the end-of-the-semester CQI sessions, the lecturer comes out with the idea of Attention-Attendance-Preparation Card (AAP-Card) as a tool to help him overcome some of the issues associated with large-classes teaching and eventually improve the teaching-learning process and its quality.

AAP-Card is designed to serve four main purposes;
1. checks the attention and understanding of the students,
2. helps to check the attendance and all issues related to it,
3. checks the preparation of the students for the lecture,
4. and most important purpose is to get a continuous and timely feedback from the students.

Figures 1 and 2 show samples of early and latest versions of AAP-Cards respectively (The actual A4-size and appearance of these samples have been modified to fit one page).The early version, Figure 1, which is used in Academic Years 2011 and 2012 consists of fields to be filled by students, like the name, student No., Discipline, Week No., Date, and a field where the students sign in their attendance. After some feedback from students and to include and encourage feedback, the latest version (Figure 2), which looks more user-friendly, is released and used in Year 2013 where two columns are added one for the student's Answer and one for the student's feedback. Also to overcome the issue with anonymity, one more information is added "Preferred Name" in the latest version to address the importance of knowing student's name.

How does the AAP-Card Work?

Every week, in the beginning of each lecture session, students collect their AAP cards. AAP-Cards for each discipline (ME, CE, and EE) have different color. At the end of the lecture or sometimes during the lecture, the lecturer asks a question and students answer it in the field

Taylor's University - School of Engineering
September 2011 Intake
Engineering Mathematics I (ENG1113)
Attendance/Attention/Preparation Card (AAP Card)

Student Name: Student No.:   Discipline:

Week	Date	Group	Solution/Comment
Signature:			

Week	Date	Group	Solution/Comment
Signature:			

Week	Date	Group	Solution/Comment
Signature:			

Week	Date	Group	Solution/Comment
Signature:			

Figure 1. Attendance-Attention-Preparation Card (AAP-Card) - Early version

Taylor's University - School of Engineering
September 2013 Intake
Thermodynamics and Heat Transfer (ENG1213)
Student's AAP* Card for Continual Feedback and CQI.

Student Name: Student No.:   Preferred Name: Discipline: ME

Week No.	Student's Answer	Student's feedback	Student's Signature	Lecturer's Signature
1 Date				
2 Date				
3 Date				
4 Date				
5 Date				
6 Date				
7 Date				

*Legend: AAP: Attendance/Attention/Preparation,   CQI: Continual Quality Improvement,   CE/ME: Chemical/Mechanical Engineering

Figure 2. Attendance-Attention-Preparation Card (AAP-Card) – Latest version

of the card given for the answer. Another field of the card is for the feedback, where the students write their feedback about the lecture or any other comments. Finally, students need to sign in as evidence of their attendance for that lecture session and return the card to the lecturer.

During the lecture the lecturer reminds the students to write comments, suggestions, or concern regarding the teaching, learning, facilities, etc. Not only this, the lecturer in fact encourages his students to write the negative feedback. At the end of the class the lecturer has sometimes some cards which are not collected, so those belong to the student(s) who miss the class. The most important part of this method is the lecturer's role to close the loop. It is very vital to sustain the effectiveness of this method and to benefit both parties; students and the lecturer, the lecturer should spare time to check students' solution (identify weak students), to very carefully read students' comments (CQI) and address them by writing comments to students and later do an action to address these comments, if required.

IMPLEMENTATION AND DISCUSSION

The AAP-Card method has been used for the last three years for first and second year undergraduate engineering students. The implementation of this method helped the lecturer to overcome most of the issues and problems associated with large classes.

Due to the large number of the samples of AAP-Cards for all three years, the author summarises the content of some samples of students' AAP–Cards. These samples are carefully selected to show the effectiveness of the AAP-Card as tool for feedback and addressing the big-size class issues. Although some AAP-Cards contain positive comments about teaching, the author for the purpose of evaluating the effectiveness and usefulness of the adopted method, shows AAP-Cards with negative feedbacks only.

The selected students' feedbacks are summarised in Tables 1 to 3. The feedbacks are categorized into three groups; Teaching and Lecturing (Table 1), Students' understanding and other related issues (Table 2) and Facilities issues (Table 3). There is a quite very large number of similar and more comments which are not shown here due to the space limitation.

Teaching and Lecturing Issues

Table 1 shows some samples of students' feedbacks on the teaching and lecturing collected from the AAP-Cards. This table clearly shows that students have constructive and useful ideas to improve the teaching to help them learn better. In big-size class one of the issues is that in most of the times lecturing goes traditional. This has bad impact on the student's understanding. One student wrote "*Continuously lecturing for one hour is really torturing. Suggestion: Do more questions* ". Some students learn slowly that's why they comment "*fast*" or "*I feel it would be helpful when it comes to mathematical questions. It is solved on the board rather than reading from the slides*". One more evidence to not use the traditional lecturing in big classes when student says "*Use more other idea of example to improve the understanding on certain topic instead of keep talking*" or "*More animations, More action (physical action), Ask the students more, such as what are the mistake made, what will an engineer think*". On the other hand some students find that certain topic is easy and want more challenging questions "*Class is ok. Need more examples of difficult questions*".

Table 1. Teaching and Lecturing

Students' comments	Lecturer's reply/action
Continuously lecturing for one hour is really torturing. Suggestion: Do more questions	
I feel it would be helpful when it comes to mathematical questions. It is solved on the board rather than reading from the slides.	ok
Use more other idea of example to improve the understanding on certain topic instead of keep talking	thanks
Font for certain slides is a bit too small	
More animations, More action (physical action), Ask the students more, such as what are the mistake made, what will an engineer, think	
Ask more question for student to think during lecture.	Yes, thanks
Kareem will it be okay for you to upload more solutions for the tutorials as you only provide some solutions and just answers for the rest. Maybe you can upload it after 1 week or so, provided that we try all tutorial questions	Ok, I will. But I want you to come and see me when you don't know how to solve, yes?

For the AAP-Card approach to be successful, the lecturer's response and action are of vital importance. When students see that action has been taken and the lecturing is improved, this will help them to have more confidence with what they learn and most important they feel they contribute in the teaching-learning process. The feedback also helps the lecturer to identify the students who needs help. Example the lecturer replies "*Ok, I will. But I want you to come and see me when you don't know how to solve, yes*?"

As it is clearly shown the AAP-Card addresses one of the main issues of the large classes, i.e., ensuring the quality of the teaching using the CQI. As compared with other existing techniques, for example Clickers, this cannot be achieved as in the Clickers technique there is a number of pre-defined questions and students can only select from a number of available answers. This may not necessarily reflect or express what students really feel or want.

Students' understanding and other related issues

Sample of this category are shown in Tables 2. Reading this table shows that AAP-Cards help students to speak out and share openly their concern with the lecturer. In big classes this is difficult to achieve, once because the limitation of time, second because students sometimes are shy to ask or fear to say something foolish.

"*Felt sad for my test! No idea how to do it*", "*I don't know how to use the table clearly. Maybe sir you can teach us again how to use? Thank you*", "*Sorry sir I did not do well for the test. I admit that I did not prepare well for it. I am truly sorry. I will try my best to do well in the retest.*" Such comments students won't dare to tell in front of their peers. AAP-Card here is used as a channel of communication with students which is sometimes not possible in large classes.

Interestingly, the AAP-Card can be also used to enhance student's understanding. One of the difficult terms to understand in thermodynamics is the "*Entropy*". Funny comments about the entropy and the lectures' reply help students to understand entropy on real-life example. Students commented "*what's entropy?*" or "*Very interesting, entropy is dangerous*" and lecturer replies "*Your entropy is very high because you didn't understand what I explained about the entropy*?"

Table 2 Students' Understanding and Other Issues

Students' comments	Lecturer's reply/action
A bit confuse, if got more example, maybe it will be clear	Yes, agree I will do
Felt sad for my test! No idea how to do it	Don't worry, you can improve
Yes, I understand. But you realize how noisy it is right compare to the small hall. Just my opinion.	
What' Entropy?	Your entropy is very high because you didn't understand what I explained about the entropy?
Very interesting, entropy is dangerous	
I don't know how to use the table clearly. Maybe sir you can teach us again how to use? Thank you	No issue come and see me
I think I need help with mathematics, help me please	Please come and see me will have some discussion to see where your problem in math is! thanks
Very challenging example given. Really enjoyed the discussion with lecturer and friends. Still need more info on implicit. Will work hard sir!	Thank you Ivan
Sorry sir I did not do well for the test. I admit that I did not prepare well for it. I am truly sorry. I will try my best to do well in the retest.	Thank you Ivan. I really appreciate that you know your mistake and why you did not do well in the test and I'm pretty sure that you can make it, believe me ☺
The lecture is good especially the explanation of the function, it helped me a lot. I have to switch place to the back because my view was blocked by someone in front of me. I hope sir can understand.	Sure I do. Thanks Janice.
Class was interesting, late comers should be fined/ punished. I find it distracting every time they walk in late	Thanks Shan, I agree with you. We must find a solution for this situation.
Class was fun today. However, I think that those who come late should be punished or fined because they interrupt class and it is very distracting. Especially those who come late every week.	Noted and thanks.

Actually, the comments from the students can be explained from different points of view. Students even identify their weakness *"Sorry sir I did not do well for the test. I admit that I did not prepare well for it. I am truly sorry. I will try my best to do well in the retest."* And because of the good relationship with their lecturer and the encouragement "*Thank you Ivan. I really appreciate that you know your mistake and why you did not do well in the test and I'm pretty sure that you can make it, believe me ☺*", they want to improve their performance.

What is the important here that students can feel that somebody takes care of all their comments, addresses them personally, and encourages them to perform better. As compared with other techniques, like one-minute papers, again the students have to answer a set of instructor-posed questions, which might not give students liberty to express what they want and on what issue they like to comment.

Facilities issues

Facilities such as timetable, classrooms, labs, library, school management office, etc., play very important role in the successful teaching-learning process. Getting feedback from

students about the facilities and how the students satisfy with other services can reflect positively in improving the teaching-learning process. Implementation of AAP-Card method can help to address issues regarding the facilities and the students' satisfaction. Table 3 shows some samples of the students' comments and feedback related to the facilities.

One student expresses his dissatisfaction about the time table "*Sorry, but I'm really not happy about that our timetable is not done yet. If timetable can be done before our 1st day of schooling, we not need to confuse about it.*" Again here if the lecturer does not respond to these comments, the AAP-Card loses its meaning and effectiveness. The lecturer replied "*I agree with you. Everything will be fine. No worries*" and as an action the lecturer raised this issue to the school management to check on this matter.

One more evidence shows that students are not feeling happy and comfortable with the classroom "*Overall the class is okay, but I think we need a bigger classroom. The room hardly fits all of us ME and CE.*" The lecturer as a response announced in the class that he will check with the Scheduling and Academic Resource to change the venue. The issue is solved and the venue was changed "*Really glad that the issue of our venue was solved instantly. Thank you* ", but one student later commented "*Big lecture hall, hard to concentrate, easy feel sleepy*". This shows that the lecturer sometimes needs not to respond to each comment.

Sometimes the lecturer faces some technical problems when he wanted to start the lecture. This causes some delay in starting the lecture. A student shares his concern about the lecture time "*I hope that technical problems will reduce next time*". The lecturer responded "*Yes, I apologise for this*" and later he checks with the facilities management to make sure the lecture theater is ready before starting the lecture.

Table 3 Facility and Other Related Issues.

Students' comments	Lecturer's reply/act
Sorry, but I'm really not happy about that our timetable is not done yet. If timetable can be done <u>before our 1st day of schooling</u>, we not need to confuse about it.	I agree with you. Everything will be fine. No worries
Overall the class is okay, but I think we need a bigger classroom. The room hardly fits all of us ME and CE.	
Really glad that the issue of our venue was solved instantly. Thank you	
Big lecture hall, hard to concentrate, easy feel sleepy.	
Classroom too small, classroom too big	?
Too hot, Air-conditioning is bad	Yes, I will check
I hope that technical problems will reduce next time	Yes, I apologise for this

These examples clearly shows that AAP-Card helps in improving the non-teaching issues which shows one more advantage of implementing the AAP-Card technique. This is definitely much better and more effective than waiting until the end of the semester to check the students' evaluation form. Such issues if not addressed timely and properly they can negatively affect the students' performance and their satisfaction.

It is true to say that some existing techniques, like clickers, one-minute papers, colored cards, muddiest-point cards, etc., are successfully implemented to address some of the issues of

the big-size classes. However, the AAP-Card technique offers a more comprehensive solution to the most important issues of such classes.

Drawbacks of AAP-Card Method

Implementation of the AAP-Card method helps to address and effectively solve many issues and problems related to the large classes. The successful implementation of this method depends mainly on the lecturer's response and how he/she reacts to address the students' feedback and comments. The implementation of this method also shows that it requires some improvement due to some drawbacks:

1. It consumes a considerable amount of the lecturer's time.
2. Some students are not willing to write comments.
3. Some students are not answering the questions which make difficult for the lecturer to know whether they do not understand or they are lazy to write the answers.
4. The lecturer might be not well familiar with the students' names.

Some of these drawbacks (2 and 3) can be solved for example by encouraging students to write comments or the lecturer meets the students who did not write the answers. For example writing the correct answer can be awarded by given marks and this should be clearly communicated with students in prior.

The issue about the students' names (4) is actually addressed in the latest version of the AAP-Card but the lecturer found that this is not enough. The lecturer needs to get familiar with the students' names and one method to address this issue is by asking students to give themselves special or even funny names.

Now the drawback (1) with the lecturer's time depends mainly on the size of the class. But this really depends on the lecturer, because if she/he as educator has the willingness, the passion, the friendship with students, and patience then this is not a drawback any more, in fact it might be a very big advantage.

CONCLUSION

The large-classes phenomenon is to stay here and to continue adopted by the academic institutions. With all its disadvantages, the quality of teaching and learning has to be maintained, sustained and improved. The role of continual quality improvement is important for this purpose. The higher education institutions, lecturers and researchers continue to improve the teaching and learning by overcoming many issues and problems associated with large classes.

AAP card is a novel and innovative method which is used as a successful tool to address a number of big-classes issues. The AAP card serves many purposes; checks the student's attention, attendance, understanding, and preparation. It enables a continuous and timely feedback and identification of weak students. Students also found that AAP card helps them to communicate effectively with the lecturer and this resulted in good and friendly relationship with their lecturer. This method can be used as a tool for improving and enhancing the teaching and

learning in the academic institutions which adopt the 12 CDIO standards; in particular Standards 8 and 10, Active Learning and Enhancement of Faculty Teaching Skills respectively.

The AAP-Card method has some drawbacks which are important to address to make this method even more efficient and thus serves successfully the purpose of improving the quality of teaching-learning process.

As for future the author sets a plan to conduct survey at the end of the semester to have some statistics about how the students see this method and if they have some comments, suggestions, etc., to improve this method. In addition to that the time consumed by the lecturer to check the student feedback needs to be measured and evaluated.

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