

Reading Activity impact on the Engineering Management Learners' Efficiency in Research Presentation

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Abstract: *One of the activities that are almost used by instructors to assess the undergraduate learners (students) performances in the teaching and learning system is performing researches. It's most probably that learners prepare a presentation for the research, through which they conduct their ideas to the audiences (the instructor and their colleagues).*

Recently, a phenomenon was monitored regarding the research preparation process practiced by the learners, that the majority go directly to the websites, in which they could easily find tons of attractive and ready-made information that fill the gaps of their heavy homework gained from several courses. It's a convenient activity for learners to go through this easy path to fulfil their duties, but the issue is that the output of such path is so weak. The gained information in this case is so shallow, loose, and could easily be evaporated after a while.

There is a need to examine the impact of a missing skill in the current learners' generation: the reading practice. It's noticed that library visits to read books were strongly decreased compared with what was happening in the older generations, where the piece of information was hard to collect, but in the same time, is hard to be forgotten.

As a part of the teaching and learning process, and through a college of Engineering, this study will introduce results of the comparison between the outputs of the two methods of collecting information: through the web, and through the traditional book reading. This is to highlight the importance of reading through an experiment applied on one section of students who were asked to prepare a research from a certain chapter of their textbook, and compare that with a prior research they had prepared from the websites. The results were impressive and reflected the importance of the missed reading activity.

Keywords: *Rubrics – flipped classrooms – peer review – grading scheme – learners - STEM*

I. INTRODUCTION

As we start each semester, learners are supposed to be provided with the general description of their new course, introduced by the instructor. It's scheduled, most likely, at the first week of study, and including general information of the course like: pre/co-requisites (if any), credit hours and also the distribution of contact hours: lecture, territory, and laboratory, according to the nature of the course delivered. Other included course information is the detailed course description, objectives, planned learning outcomes, basic requirements (tools, instruments, etc.), textbook, and the general policies.

Syllabus and grading scheme are also two basic contents within the course information. The syllabus includes the distribution of the course materials upon the teaching weeks and also the scheduled quizzes, midterm, and other graded activities as shown in the following course as a case study in table (1).

On the other hand, the grading scheme is the other basic content in the course information. It includes the rubrics of assessment through the given activities and their schedule as shown in table (2) for the same case study course.

TABLE I
 COURSE SYLLABUS OF THE CASE STUDY COURSE
 SOURCE: B.SC. PROGRAM COURSE DESCRIPTION, EM 408 COURSE,
 SEMESTER 142

Week		Topic	Text book Chapters
Calendar	Lecture		
1	-	Introduction and syllabus distribution	
2	1	Engineering Design: Definitions	1, 2
3	2	Client Requirements and Objectives	3,4
4	3	Design Functions and Specifications	6
5	4	Conceptual Design; Establishing and Evaluating Alternatives	7, 8
6	5	Communicating Design Graphically	9
7, 8	-	Presentations	-
9	10	6	Communicating Design Orally and in Writing, Quiz-1
11	7	Math. & Phys. in Des. Process, Mid Term	12
12	8	Engineering Economics in Design, Quiz-2	13
13	9	Design for Production and Sustainability	14
14, 15	10-11	Design Management and Ethics, Flipped Classrooms	15-17
16	-	Flipped Classrooms	-

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TABLE II
THE GRADING SCHEME OF THE CASE STUDY COURSE

No.	Assessment Tasks	Week Due	% Final Assessment
1	Assignment & Presentation	Occasionally	10 %
2	Quizzes	10th, 12th weeks	5+5=10 %
3	Mid Term	11th week	20 %
4	Flipped Classroom	15, 16th week	20 %
5	Final Exam	As scheduled	40 %

SOURCE: B.SC. PROGRAM COURSE DESCRIPTION, EM 408 COURSE, SEMESTER 142

Following previous readings in the area of teaching and learning, added to some teaching techniques and pedagogical actions obtained by joining the HEA fellowship programme (Higher Education Academy-UK), the parts of syllabus and grading scheme were reallocated to achieve the basic target of that programme: continuing development for the teaching and learning process (Professional Values 3, UKPSF, HEA Fellowship Programme, Appendix, A-4).

Examples of new added activities within the syllabus were presentations, and flipped classrooms, although it was used sometimes in earlier practices, the presentation activity became recently a permanent part in the new syllabus version. These two activities are performed entirely by learners after receiving the topics to be presented from the instructor. It was a kind of activity designed to apply the “Self-Determination” learning theory of motivation that addresses issues of extrinsic and intrinsic motivation, (Deci and Ryan 2013).

The topics that were used to provide learners with in order to design their activities were either related directly to the main programme or something has indirect relation to it. Although some parts of these activities were oriented in a direct way to the programme, but it was monitored that learners rarely make use of the textbook, added to any other written materials in external reference books.

The phenomenon was the great dependency on the websites that learners were having, in a generous way, a considerable amount of these kinds of references. Besides the added value for learners by performing these activities, like obtaining the required skills of successful presenters in terms of self-confidence and charismatic characters, it was necessary to emphasize on the gained knowledge and cognitive skills that seemed, by practice, to had less interest by learners.

From this point, it was the start of a certain experiment, which highlights the difference between the collected information through reading practice: books, e-books, and the information collected through the websites, and the reflection of each approach on the final product (research presentation).

II. LITERATURE REVIEW

"Books are the ladder of human progress", Gorky said. Generally speaking, reading is not only crucial for a person's self-cultivation, but also an important way for people to mould themselves, perfect their characters, elevate their minds, and gain wisdom. In terms of learning and education, the ability of reading is so important, that it is the key step of improving the ability of owning true knowledge, added to language.

The reality is that many learners run lack of reading interests nowadays. This attitude started from their childhood and lasted as they grow till being university learners. Here is an effective way to analyse this problem; “Fishbone Diagram” as shown in fig. (1). There are several matters that affect learners’ reading interests. Based on these factors, the solutions to improve their reading interests can be figured out more easily.

These days, we suffer from the learners’ poor ability to read. John Bean (1996), a generally optimistic voice, writes that, “Many of today’s students are poor readers, overwhelmed by the density of their college textbooks and baffled by the strangeness and complexity of primary sources and by their unfamiliarity with academic discourse” (p.133).

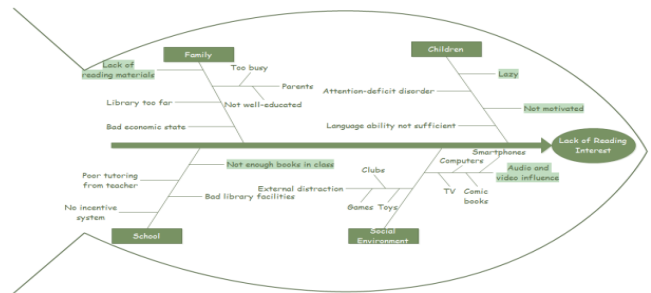


FIGURE I

Reasons of learners lack of reading interest

Reference: <https://www.edrawsoft.com/reading-interest-fishbone.php>

The study aims to add some correction to this fact, and encourage learners develop the reading practice to enhance the final product of research and presentation.

It's so important now to start resisting this unhealthy attitude (poor ability to read) by some strategies. This study tries to push learners to read through an oriented activity by a conditioned preparation of the research and presentation materials; the textbook reading as well as extra e-books, if any, added to collect data and graphs or photos from the websites as needed for refining and adding some extra aesthetics.

III. METHODS

Within the taught courses, it was decided to measure the impact of reading practice on learners’ true knowledge ownership, because it was discovered through the research and presentation activities that their backgrounds for most of the gained knowledge were shallow so they couldn't run an effective discussion with the audience if they were subjected to. The learners need to have a solid base of knowledge, which couldn't be achieved through just

gathering the ready-made information from the websites or through attending class lectures.

From former practices, the learners were given assignments in the form of presentations by either been provided with some topics or from previous lectures they had attended. Most of learners go directly to the web for collecting the well dressed materials, making the life easy and taking most of their time refining the presentations' interface getting them colourful, attractive, rich of illustrations and photos, etc. which means that they go primarily for the aesthetics rather than the knowledge wise.

Opening a discussion after the learners' presentations could easily discover this phenomenon. In spite of the narrow experience of the audience from other learners, but some of their simple and direct questions to their colleagues, as presenters, were enough to discover the lack of knowledge depth. This case was documented by asking some indirect and deep questions that lead to the same result.

Other documentation was taken from a peer-reviewer feedback, who was invited to attend and evaluate this practice. The benchmarking of the gained results was the previous practices of similar presentations performed by learners through giving them topics and limiting the ways of collecting the required information to be within the textbook or external e-books, which will push them practicing traditional reading. This practice also considered as an application of the "Operant Conditioning" learning theory that is considered a behaviourist theory based on the fundamental idea that behaviors that are reinforced will tend to continue, while behaviors that are punished will eventually end (Skinner).

As a result of the limited sources of the presentations, similar questions by learners were generated because they felt that they would reach the same outputs and almost perform the same presentations, but the instructor told them a little story of himself. He ran a similar practice when he was an Architectural learner, and between more than (100) colleagues, the learners that time were asked in the "Architectural Design" course to design a certain project with the same contents listed in it's programme, and the outputs from learners designs were considerably different, due to each learner concept and vision. The learners were persuaded that they would perform a variety of presentations according to each one's perspective and way to deliver the collected materials.

It was also announced that the evaluation would consider how deep is their knowledge, which could be gained through the perfect readings and concentration. They were advised, in order to achieve better results, that they should be honest in their search, and concentrating on understanding the delivered information included in the textbook even by adding extra sources from the web like videos, photos, illustrations, and written materials.

IV. WORK PLAN

As a case study, and after performing several sessions of discussion with a peer, It was decided to ask learners to

prepare presentations as they practiced before, but this time the source was specified to be a certain chapter of their textbook, and they could include extra information from external references, but substantially they have to consider the tiny details and information found in the textbook. There was a peer-reviewer who also contributed the design of activity within the areas and subjects that were assessed by the researcher.

The given instructions included the need for concentration on the collected information from the textbook at the specified parts so as presenters could act properly during their practice. It was also clarified that depending on extra resources is permitted for including more examples and evidences. The emphasis should be on the textbook, as an official source, and using the outsourcing is just to enhance the presentation's interface and to facilitate delivering materials.

The learners were informed that our discussion well go beyond what they adopted in former presentations, that it will include indirect questions and measure accurately how deep did they go through their direct reading and outsourcing. This procedure pushed learners to concentrate their efforts in the right way, so they could pass this practice safely.

The peer-reviewer, as planned, attended one of the classes that was scheduled for this research activity, as well as the previous presentation activity that he attended earlier. The activity included a number of presentations to be evaluated according to the new criteria: comparison between the learners' performances in this activity and the others in former presentations before orienting them to practice this kind of reading. Eventually, the respected part of the peer-review form was filled through him, as he was assigned for this mission, and the researcher (Instructor) part within the same form was filled concurrently.

V. WHAT HAPPENED

The learners felt limited to perform the activity that they used to do according to their own way because, as mentioned earlier, the other options of collecting information were much easier and provided lovely results in a less time. In spite of this specific difficulty, the learners couldn't find an escape from practicing reading in an intensive and different way of what they practiced before; learners would be subject to a real test which was the discussion that included deep and indirect questions which needs from the activity performer to practice the traditional reading, using the extra resources for supporting the main given information. This consequence helped having more concentration on the main topics included in the given part within the textbook, resulting in enhancing the presenters' cognitive skills and their overall performances.

The learners went through the steps of preparation for their activity, and most of them were keen on taking the Instructor's feedback occasionally, either by sending their partial work to evaluate their progress, or by face-to-face sessions during office hours. It was intended to keep these

steps elective where it could be made mandatory, and this action was primarily to decrease the psychological load they were subjected to. I believed that after applying a new, hard to accept, practice for the learners, some other legal, renunciations, were essential.

The designed action went in a smooth way till the due time, but the learners felt uncomfortable when they reached this point. It was like the person who spent a considerable effort to best prepare himself for a new valuable practice, because it was graded 20% of the total marks, and the time for evaluation was due. Everyone was trying to postpone his presentation according to the learners' list, and the order was left to their agreement. Some of learners felt ready to start, which was a great psychologically support for the others. At the end, the activity was completed as scheduled after a chain of constraints, but the learners felt satisfied, whereas they wished not to repeat this activity in future.

VI. RESULTS

The planned action was a challenge considering the regular habits of the learners who, in general, run a lack of reading practice that made this experiment hard to perform. I faced a considerable resistance from most of learners, because they were wishing to prepare the activity, as usual, in just a working night, submit it and that's all. They found themselves in a new situation that they couldn't benchmark, and were worrying about the results, added to the hard work they would handle.

What helped, is a few number of learners who were keen to develop their performance and show much respect to their instructor. Those learners responded in a perfect manner and started their preparation just after receiving the job order. The repeatedly sessions between myself and the mentioned learners in order to monitor their progress in preparing this activity and check the steps performed to reach the final result, were monitored by their colleagues who were resisting this activity which put them in a critical position because some learners responded in a different positive way. By time and my insistence, the whole learners responded in an accepted way, and the activity was successfully performed.

Gradually, I had individual sessions with the most of learners either after the scheduled lectures or during my announced office hours, or sometimes, through the corridor discussions. In the due date and time, Learners were ready to present their work as planned, and because I felt that this practice was hard for learners to accept for the reasons mentioned earlier, I left the task of arranging the order of presentations to them according to their convenience, although the regular action was delivering presentations following the learners' list order.

For the purpose of documenting the results of this event, and the need of having a feedback from another perspective from professionals, I invited one of my colleagues to attend a part from these presentations as a peer-reviewer, and it was also one of the HEA programme requirements in the action research activity. After the

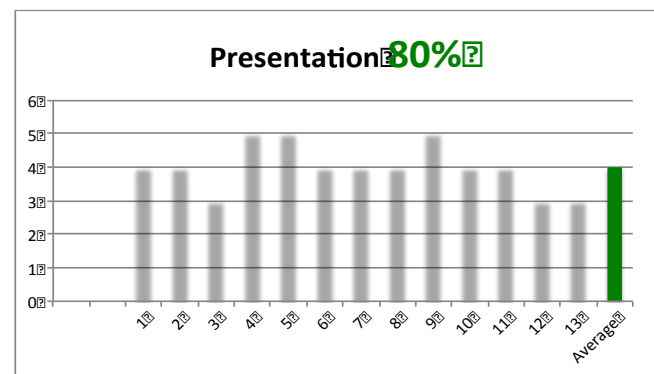
activity was performed entirely by the learners, and their presentations were graded, it was the time for declaring some statistics regarding the activity, either from the learners' perspective, the peer-reviewer, or myself.

At first, I was considering this action as just a case study that, maybe, result in a slightly difference or nothing, but I was amazed with the action outcomes. The learners as presenters performed as professional practitioners, handled the discussions in a perfect way, answering most of the indirect questions easily and correctly. The peer-review feedback was almost the same of mine, and the learners themselves discovered some hidden abilities of their own that they weren't familiar with before, but they still feel that it was hard to perform and wish they wouldn't be subjected to such experiment in future. From my own perspective, I think if it was a regular and required activity listed in the learners' schedules and were implemented within the whole other courses, it would become much easier to be accepted by learners, but at the moment, I feel satisfied for what was achieved so far, and plan to list this kind of activity as a permanent part of the future syllabi. My enthusiasm went beyond my personal achievement, which encouraged me to persuade my colleagues to try the same activity within their courses to become a regular action.

Statistics were issued according to the grades, learners' survey, and peer-reviewer report as shown in the next section (Total classwork evaluation: 60%, Appendix, A-2).

TABLE III
learners' grades via the "Presentations"
Source: Semester 142, EM 408 Grades

No	ID	Pres 5%	Flipped Classroom		Total from 5% / 60%
			12%	8%	
1	209210004	4			4
2	210110076	4			4
3	210110106	3			3
4	211110046	5			5
5	211110247	5			5
6	211110317	4			4
7	211110320	4			4
8	211110330	4			4
9	211110485	5			5
10	211210006	4			4
11	211210042	4			4
12	212110145	3			3
13	212110947	3			3

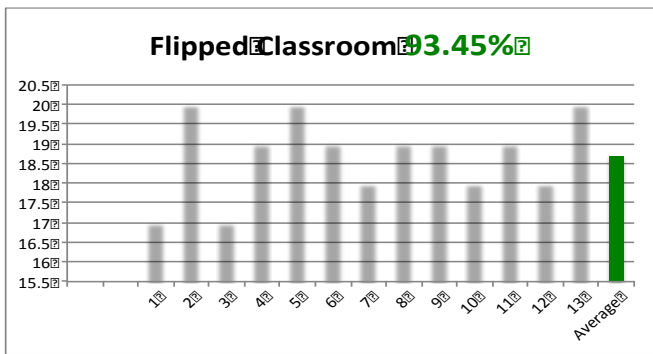


PART-1-B: learners' grades via the "Flipped Classrooms" activity are shown in table (4), after practicing the reading activity

B- Learners who unwelcomed the idea

TABLE IV
learners' grades via the "flipped classrooms"
Source: Semester 142, EM 408 Grades

No.	ID	Pres5%	Flipped Classroom		Total from 20% / 60%
			12%	8%	
1	209210004		11	6	17
2	210110076		12	8	20
3	210110106		11	6	17
4	211110046		12	7	19
5	211110247		12	8	20
6	211110317		12	7	19
7	211110320		11	7	18
8	211110330		12	7	19
9	211110485		12	7	19
10	211210006		11	7	18
11	211210042		11	8	19
12	212110145		11	7	18
13	212110947		12	8	20



PART-2: learners' survey after practicing the two activities

A sum of (24) questions within an official survey was filled by learners to evaluate the course from different aspects (Students' number: 13, Appendix, A-3). It's a regular procedure done for each course at the end of the semester. Through this survey, (2) groups of questions addressed where learners more/less likely accepted the idea. Following, the study shows collections of selected questions from the whole set: (5) questions for "more likely", and (10) questions for "less likely".

A- Learners who accepted the idea

There were (5) questions that reflect the learners' acceptance for the idea. Table (5) and the correspondent graph show the statistics of this group.

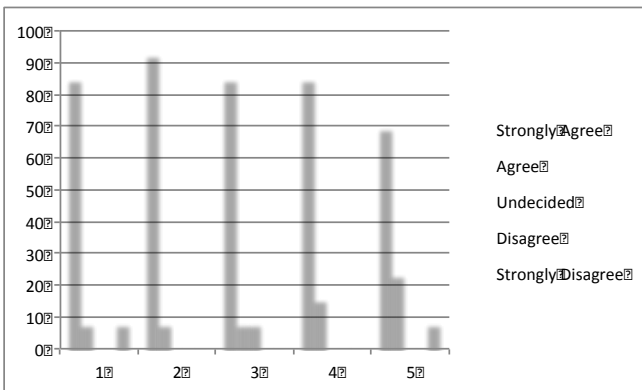


TABLE V
Learners' evaluation that reflects their acceptance for the idea

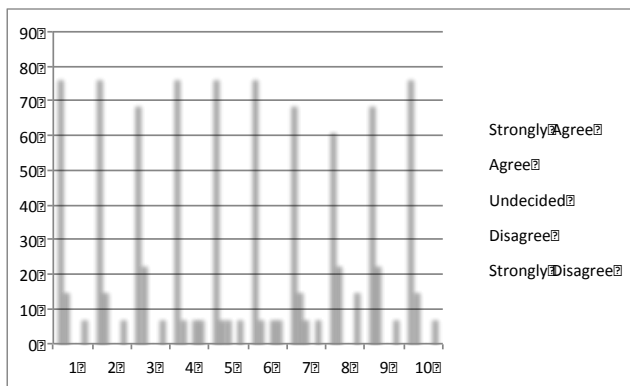
S	Questions	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	1. The course outline/syllabus was made clear to me. This included course content and objectives.	84.6	7.7	0	0	7.7
2	2. Assessment tasks and their criteria were made clear to me.	92.3	7.7	0	0	0
3	3. During the course, sources of help were made clear to me. This included reference material.	84.6	7.7	7.7	0	0
4	4. The course conduct and assignments were consistent with the course outline/syllabus.	84.6	15.4	0	0	0
5	21. This course helped me to improve my ability to think and solve problems rather than just memorize information.	69.2	23.1	0	0	7.7

There were (10) questions that reflect the learners' concerns about the idea. Table (6) and the correspondent graph show the statistics of this group.

TABLE VI
Learners' evaluation that reflects their concerns about the idea
Source: Students' evaluation, EM 408, Semester 142, 2015

S	Questions	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	10. Course materials (texts, handouts, references etc.) were up-to-date and useful.	76.9	15.4	0	0	7.7
2	11. The resources needed for the course (textbooks, library, computers etc.) were available when I needed them.	76.9	15.4	0	0	7.7
3	13. The instructor encouraged me to ask questions and develop my own ideas.	69.2	23.1	0	0	7.7
4	14. The instructor inspired me to do my best work.	76.9	7.7	0	7.7	7.7
5	15. Class activities, assignments, laboratories etc. helped me acquire the knowledge and skills intended by the course.	76.9	7.7	7.7	0	7.7
6	16. The amount of work I had to do	76.9	7.7	0	7.7	7.7

	in this course was reasonable for the credit hours allocated.					
7	18. Grading of my tests and assignments was fair and reasonable.	69.2	15.4	7.7	0	7.7
8	20. What I learned in this course is important and will be useful to me.	61.5	23.1	0	0	15.4
9	22. This course helped me to develop my skills in working as a team member.	69.2	23.1	0	0	7.7
10	23. This course improved my ability to communicate effectively.	76.9	15.4	0	0	7.7



VII. DISCUSSION

The reading action was rarely practiced by learners, and It may be referred to the current technological development in the communication facilities, which affected most of the traditional practices negatively, substituting them with more enhanced facilities that are much easier to use and providing attractive results, but unfortunately, drawn practitioners away from having the true and healthy knowledge.

Considering the quote “Easy Come Easy Go”, the facilitated information obtained from most of Internet resources are hardly be memorized by researchers, and following the same line, the hardest way to collect information would lead to form a mind-sticky knowledge that is hardly evaporates.

Comparing with the Internet resources, the traditional readings (books, or e-books) are considered the hardest information resources, and theoretically, would help to build the ideal sophisticated personalities.

Although pushing learners to perform the reading activity was not easy considering the general trend of web-gathering information; less effort for more shiny results, but using some strategies with learners like reallocating the grading scheme to evaluate this practice as a substantial activity, encouraged learners to work harder in the sake of achieving higher scores.

On the level of the Instructor’s grading, the second activity “Flipped Classroom” that included the learners’ reading practice, achieved 93.45% (table-5 chart), whereas the first activity “Presentation” that excluded the reading practice, achieved 80% (table-4 chart), which indicates a progress of 13.45% as a gained value.

On the level of the peer-reviewer, the attached form, part-1 (Appendix) indicates that there was a significant progress regarding the learners’ average level of performance in the second activity compared to his previous observation for the first activity.

Reading is important because it develops the mind and imagination; it is how we discover new things. Finally, reading - spoken and written - are the building blocks of life.

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