



A PROPOSED MODEL FOR PEER ASSESSMENT IN THE DIGITAL AGE: LEVERAGING SOCIAL MEDIA PLATFORMS

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Abstract

Peer Assessment is a potentially promising pedagogical approach for enhancing the e-learning and supporting student self-regulated learning. The purpose of this paper is by reviewing the research on current trends on the use of ICT in Education, in particular on peer assessment in e-learning, to propose a new peer assessment methodology using the social media platforms in the digital environment. We conclude that a blended approach is more suitable as it is not possible to have a fully automatic peer assessment methodology. The proposed online model needs to be subject of particular careful monitoring and evaluation from teachers.

Keywords: *e-learning, peer assessment, social media, digital learning, software integration.*

Introduction

The issue of assessment is always a difficult one when we talk about University level education. Instructors have the traditional approach towards the evaluation of their students and most of these approaches exclude the opinion of the students' peers.

Peer assessment, on the other hand, has been studied by several scholars whose aim is to include peer assessment by instructors/professors. According to Freeman [1], the peer-assessed grade can be combined with a staff, meaning that two professors will be marking the final grade, thus the assessment by different staff members did not have a major difference in the marking.

The peer assessment that we would like to recommend in this paper is related to students as peers and not professors.

The motivation for this model of peer assessment is simply based on the emerging trends in technology and the use of digital means to conduct teaching & learning. In the digital age, we live in, the students are "spending" their time in social media platforms, which is considered to be the new "place" to deliver knowledge to the new generations.

Assessment methodologies

The standard two approaches in the assessment of students' learning are based either on Quantitative or Qualitative methodology. The Quantitative approaches to assessment are concerned with measurement in general and providing marking

where the numbers of ‘correct’ answers are the ones that determine the grade. In this sense, they might better be regarded as grading or marking. Where the qualitative ones are not marking, meaning that it is left to teachers’ opinion and sometimes discretion to provide the marking and grading.

In the era of technology innovations, the concept of “flipping the classroom” is being introduced as an alternative to traditional assessment methodologies. The core idea of this approach is to replace the traditional teaching model where the role of the teacher is to teach and the role of the students is to listen. Instead, this model advocates an approach where the classroom is flipped and as such students provide a lot of knowledge in the teaching process. According to Nwosisi et. al., [8], the flipped classroom model has shown to be positively accepted by students when compared to traditional models. Other research [9, 10, 11] shows that this model encourages active engagement of students during the teaching process.

Traditional assessment methodologies

One of the books that is dealing with explaining the traditional methods for assessment is the one written by Derek Rowntree [3] where, in Chapter 2, the author tries to explain that is not important only to handle the assessment just for the sake of assessment itself, but also get into the most important thing related to the use of the results. The same author in the book explores the purposes of assessment, and thus he identified six broad categories:

- (i) Selection
- (ii) Maintaining standards – or quality control
- (iii) Motivation of students
- (iv) Feedback to students
- (v) Feedback to teachers
- (vi) Preparation for life

The two of these categories are very important, the ones related to motivation of students and feedback to students. It is very hard to motivate students, especially when no feedback is provided.

In another paper that we reviewed [2], called the "Impact of Assessment", there is a significant finding in terms of finding the effects of alternative ways of assessing student learning through a number of case studies of assessment in practice.

This way, the main components of the assessment by both authors are about to be blended in our model: the feedback to students and teachers, the practical approach, the motivation of the students into one model. In addition, we include the students' peers as both motivation and feedback provider component

The importance of including student opinion and their ability to evaluate their own performance has also been researched in the past. In [14], in order to enhance learning and assessment process, students were asked to reflect on their own work as a method for self-assessing.

Online methodologies

On one hand, online technologies can assist teachers in doing a proper assessment using the technology. Online learning management platforms provide diverse tools that can be used for assessing students. In [13] the authors have analyzed various approaches and student preferences in regard to what they deem are more appropriate for being assessed. According to this research, even though there are many areas of assessment (Quizzes, Course content views, discussions, assignments etc), most students still prefer to be assessed through quizzes and assignments.

Thus, by using online exams and quizzes, teachers are able to assess automatically the students' knowledge. Or, in the case of paper or report submission, the part of the assessment is done offline, whether the grading and marking are posted online.

Forums, on the other hand, provide very good platforms to initiate discussions and somehow share ideas for a given topic amongst the students. Extended versions of forums now include Social Media components which makes it even easier than before to share information and provide feedback.

2.3 How to do proper assessment?

The big questions that we are asking are:

1. Is grading enough? and
2. Can we leave assessment to the peers themselves?

Teachers know that it is very important to assess the learning outcomes of a given course by binding the teacher and the student with the Syllabus. Sometimes, teachers fail to assess the part of the student's understandings and applying the knowledge in various situations for a given lesson or topic.

Grading itself is enough from the perspective of the teacher because it allows the teacher to assess various components of the students' knowledge based on the book, material, and assignments. This way the teacher can apply (mainly) the quantitative method of evaluation and appoint grades. Nevertheless, the teachers do not trust enough students' peers to do the evaluation of their fellow.

Therefore, if there is a way to include peer assessment into the evaluation of students' performance if the whole process is transparent, is visible to all parties involved. And as always, the technology is a good facilitator.

Peer Assessment

“Peer and self-assessment are powerful assessment tools to add to the existing tutor-based methods of assessment and feedback” [4], is a citation from the book by Falchikov called “Improving assessment through student involvement” and represents a comprehensive guide to the methods and issues involved. The importance of including peer and self-assessment empathizes in this book.

For the higher education studies, that our paper aims to provide the new model, reconsidering the role of assessment feedback in student learning has been covered by Higgins and Hartley in their paper [5]. The whole idea relies on the fact on how can peers assess their peers through evaluation of their knowledge as well as offer feedback on their comments? Peer assessment in the digital age is pretty simple and straightforward. There are a lot of tools that enable this and that will be mentioned in the following part of the paper.

Technology as a facilitator for peer assessment

It was mentioned several times throughout the paper that technology is the facilitator of the new peer assessment methodology to be proposed and that it is becoming free and easy to use. Recent research confirms such findings. According to Maja Ćukušić [12], in courses where peer assessment is implemented, there is a positive correlation between exam pass rates and positive peer assessment.

As a matter of fact, Web 2.0 and the use of Social Media platform can facilitate these logics of ours that is proposed in the model below in the paper and this way make the part of the student involvement, both, as a consumer of feedback and as a provider of solution within the social media platform.

Proposed model for peer assessment

Let us start with a simple example in order to explain the whole idea of the peer assessment using the technology. Imagine the class discussion about a certain topic, any topic:

Students discuss, provide solutions on a topic that the teacher has initiated. At the end of the class, the best 4-5 students are being graded (vote if you like) for their performance in the class. Just like a game, who is the one that did win the today's discussion by providing the most valuable answers to the other students? Other students can agree on their peers' contribution.

Table 1 Calculating the coefficient of assessment by the peers

#	Student name	Votes	Answ. 1	Answ. 2	Answ. 3	Answ. 4	Answ. %	Normali- zation	Coef.
1	Student Name1	17	YES	YES	NO	YES	75%	$17/20 \times 0.75$	0.6375
2	Student Name2	13	YES	YES	YES	YES	100%	$13/20 \times 1$	0.65*
3	Student Name3	15	YES	NO	NO	NO	25%	$15/20 \times 0.25$	0.1875
4	Student Name4	20	NO	YES	YES	NO	50%	$20/20 \times 0.5$	0.5
5	Student Name5	12	YES	NO	NO	NO	25%	$12/20 \times 0.25$	0.15

As seen in Table 1, the votes provided by the peers do not necessarily mean that that student is evaluated as the best one. According to this peer assessment method, a combination of provided answers to a question/topic and the votes collected by the

peers will give the coefficient of the most successful student in the classroom. In this case #2 is being assessed as the best student by his peers.

In the next section will try to put this idea to be run by the technology.

Prototype proposal and technology overview

In the digital age that we leave today, we can leverage the social media for the purpose of peer assessment.

The main concern of teachers nowadays is that sometimes we cannot bring students to the classroom. Therefore we can send the classroom where the students are hanging around: the social media.

The proposal is to create an integrated platform that enables Facebook Group features in the classroom for discussion and peer assessment on one hand, and Google Classroom for evaluation and content delivery on the other hand.

This way, the features that Google Classroom misses should be substituted by Facebook Groups. The features itself are not the only reason, the main reason relies on the fact that majority of young people are on Facebook. For instance, from 1.65 billion monthly users (as of March 2016)¹ and around 82% of young adults ages 18-29 are on Facebook (Figure 1 – Facebook facts).

¹ <https://blog.hootsuite.com/facebook-demographics/>

Facebook users

Among online adults, the % who use Facebook

	2013	2014
All internet users	71%	71%
Men	66	66
Women	76	77
White, Non-Hispanic	71	71
Black, Non-Hispanic	76	67
Hispanic	73	73
18-29	84	87
30-49	79	73
50-64	60	63
65+	45	56*
High school grad or less	71	70
Some college	75	71
College+ (n= 685)	68	74*
Less than \$30,000/yr	76	77
\$30,000-\$49,999	76	69
\$50,000-\$74,999	68	74
\$75,000+	69	72
Urban	75	71
Suburban	69	72
Rural	71	69

Figure 4 Facebook users demographics by PEW Research Center [7]

According to Phillips [6], there are 7 Ways Educators Can Use Facebook, and those are:

1. Help develop and follow your school's policy about Facebook.
2. Encourage students to follow Facebook's guidelines.
3. Stay up to date about safety and privacy settings on Facebook.
4. Promote good citizenship in the digital world.
5. Use Facebook's pages and groups features to communicate with students and parents.
6. Embrace the digital, social, mobile, and "always-on" learning styles of 21st Century students.
7. Use Facebook as a professional development resource.

Since our idea relies on improving student learning by implementing new technologies and enhancing their skills, points discussed in Phillips [6], specifically cover the part that we are interested in, mainly points 5, 6 and 7.

Google classroom, on the other hand, is a free web service for schools offered and hosted by Google, which allows teachers to create courses, add assignments and get cumulative grading scheme at the end on Google Sheets.

The combination of both these features can benefit the advancements of peer-learning and peer-assessment in the digital age.

Architecture and Technology

The prototype discussed in this paper proposes that an integrated platform in a form of the Facebook app needs to be developed for the purpose of communicating with Facebook Group where the questions are posted and answers are posted and thus pushing the results on Google assignment as in Figure 6 (Google assignment results).

An overview of the architecture and technology to be used for this purpose is shown in the diagram below (Figure 2) which clearly shows several components integrated together for the purpose of peer-learning and peer-evaluation. Majority of the tools exists and they are available to be integrated with the back-end that we propose for the purpose of data movement, data integration, and data processing.

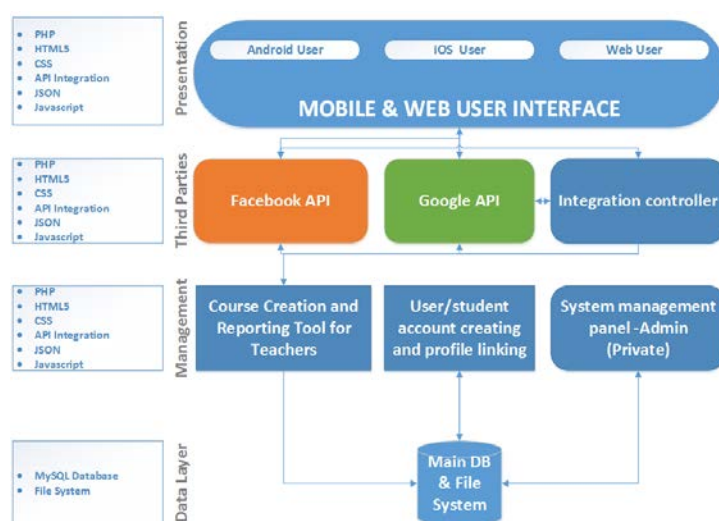


Figure 5 An architectural and technical overview of the system for peer-evaluation

Most of the technology offered is with the intention to be compatible both with Google and Facebook APIs. Therefore it is recommended that the system uses PHP & Laravel for the purpose of generating APIs whose job will be data processing and pushing the same data to the corresponding end-points.

Prototype

Mockup for the students

The prototype for students foresees using Facebook as the only platform to submit their responses. As seen in Figure 3, the access to the Group Classroom gives the students the right to see the questions and responses of their peers, as well as “vote” by liking the answer that is the most appropriate one according to their knowledge.

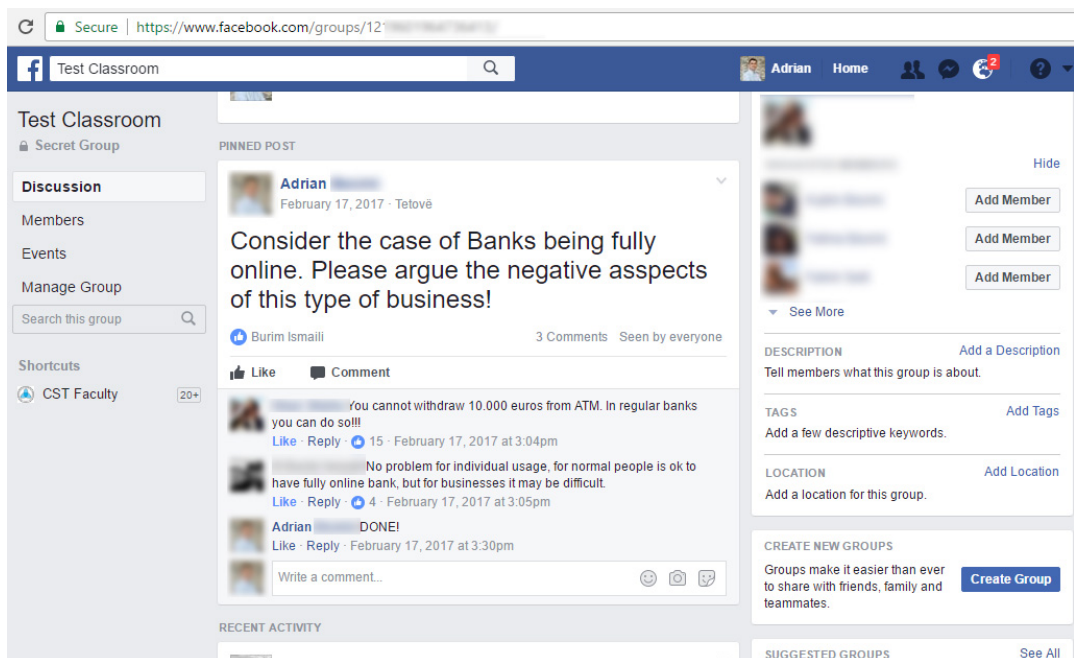


Figure 6 Student Mock-up, discussion, and evaluation on Facebook

Mockup for the dashboard of the admin (teacher)

The teacher's job will be to create the questions on Facebook for the purpose of initiating peer discussion and peer-evaluation at the same time. For instance, Figure 3, shows clearly the idea behind the discussion and evaluation. After the discussion is completed, the teacher closes it by adding a special keyword, in this case, "DONE!". After this comment, no more data will be calculated further on.

In addition to the Facebook Group Classroom, the teacher needs to create a Google Classroom assignment Figure 4 for the same purpose of linking both systems. The results that will be processed by the Integration controller, as in Figure 2 and posted in Google classroom assignment results, as in Figure 5.

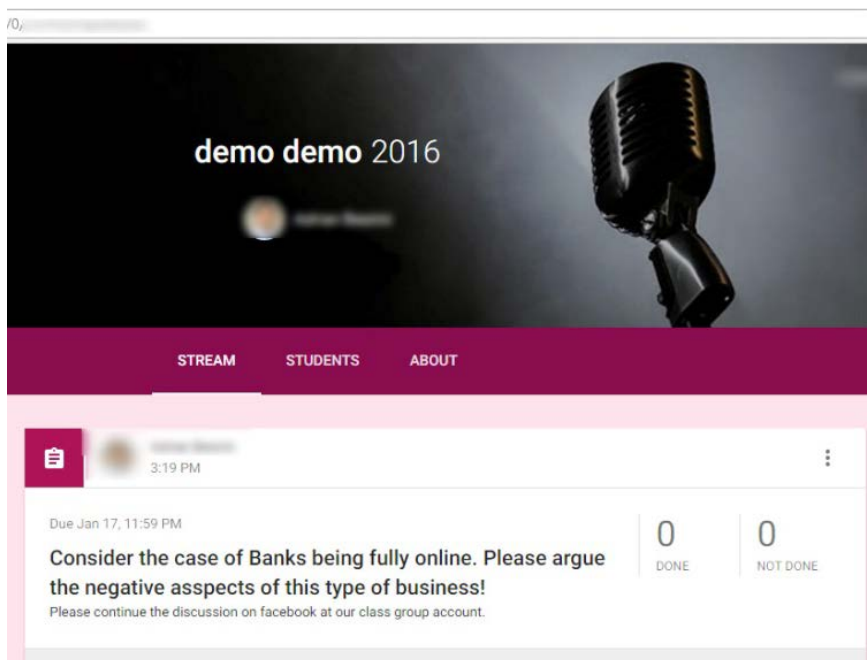


Figure 7 Google Classroom Assignment that is linked to Facebook

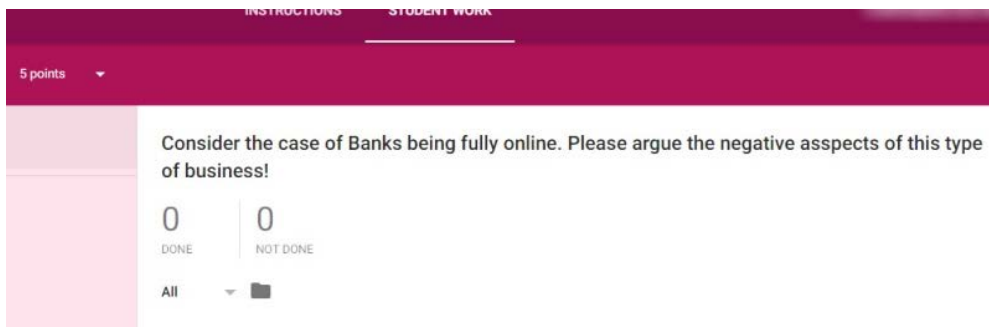


Figure 8 Google Classroom Assignment Results

The Integration controller, as in Figure 2, is to be developed as Facebook App that will handle the communication between a Facebook page and Google Classroom. The security of the system is left entirely to Facebook and Google, both from the perspective of authentication and authorization and from the perspective of access control list.

Conclusions

As it was discussed in this paper and supported by many scholars, the Peer Assessment is a potentially promising pedagogical approach for enhancing the e-learning and supporting student self-regulated learning.

The peer assessment methodology that we recommended in section 3 and 4 in this paper is based on the emerging trends in technology and the use of digital means to conduct teaching & learning. The modern students are “spending” their time on social media platforms, which is considered to be the new “place” to deliver knowledge to the new generations.

This approach both in methodology and technology solution aims at the end to increase student engagement in education, both in learning and in the evaluation of their peers in a transparent way.

Developing reflective skills provides students with the ability to consider their own performance and to identify their strengths, weaknesses, and areas that require improvement. It is good idea to consider peer assessment as a teaching and learning exercise, as much as an assessment method and its inclusion within a course provides your students with the opportunity to develop a core lifelong learning skill. But, developing effective peer assessment takes time and effort and needs careful planning. So, peer assessment procedures should be subject to particularly careful monitoring and evaluation from the teachers' and students' point of view.

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