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Managing students' grades and attendance records using google forms and google spreadsheets

Ahmad Zamri Mansor*

Centre for General Studies, Universiti Kebangsaan Malaysia

Abstract

Google Spreadsheet is a powerful tool to manage student record online. It is more than a Web 2.0 version of Microsoft Excel as it performs many functions that are not available in Excel. One of many uses of Google Spreadsheets that could be useful to lecturers is managing students' grades and attendance online. In this paper the author wishes to present his innovative ways of managing students' grades and attendance records using the wonder of Google Spreadsheet. In order to experiment with the Google way of doing things, the author embarked on a self-directed learning journey of discovering the functionality of the tools. By immersing himself with hundreds of syntax used to create functions in Google Spreadsheet, he managed to create a number of potential useful innovations, one of which is the management of students' grade and attendance record. In this paper, he wishes to share his recent experience of experimenting the innovation with a group of students in UKM. In conclusion, Google Forms and Spreadsheet not only offer the more innovative ways of managing students’ grades and attendance records but also provide a useful platform for exploring and experimenting with Google Spreadsheets’ functions.

Keywords: Attendance records; google docs; online form; online spreadsheet; spreadsheet programming; student grades

1. Introduction

For an academician, Google Form can be used to conduct online quizzes, survey on teaching effectiveness, collecting answers of open-ended question and so on. Agarwel (2009), for instance views that Google Forms as the best tool for online survey. The form can be easily published on the Web through special url generated by Google and can be embedded in blogs and websites.

Google Spreadsheet is an online equivalence of Microsoft Excel and can be used to store data collected from Google Forms. When a file is created in Google Forms, it is automatically connected to a spreadsheet with the same filename. The recorded data can be published either through generated url or embedded in a blog or website. The more interesting thing is the advanced features of Google Spreadsheet. It has formulas, conditional formatting and

* Corresponding author. Tel.: +6-03-8921-6891; fax: +6-03-8925-2976
E-mail address: azamri@ukm.my

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some other useful applications. Fransen, Kocher, and Kempf (2011), for example, use script editor within Google Spreadsheets to automate e-mail message to users who have filled the Google form.

One of the uses of Google Forms and Google Spreadsheets that I would like to explore is in managing student attendance and participation records. Using Google Forms for taking student attendance is also practiced by academicians such as Croxall (2011). My current initiative involves the use of two Google tools: Google Forms for collecting responses and Google Spreadsheets for hosting the students’ records.

2. Methods

Google Forms and Google Spreadsheets tools are reviewed in the paper to explore how it can be used collaboratively by lecturers in managing students’ grades and attendance records. To explore the use of tools, four methods were used, i.e. by: (1) reviewing guides provided by Google Forms and Spreadsheet, (2) reviewing YouTube tutorial videos on how to work with the tools, (3) reviewing literature of how the tools are used by lecturers and teachers, and (4) experimenting the use of the tools in managing Emotional Management and Decision Making Skills courses. In reviewing the application, two questions were put forward, (1) what are the steps needed to apply the tools, and (2) what are the possible limitations of the tools.

3. Steps in Managing Students’ Grades and Attendance Records

The steps involved in managing students' grades and attendance records are detailed in the following section.

Step 1 Create an Online Form

To create online form, you need to have a Gmail account. To create a Gmail account, just fill in the form available at http://www.gmail.com. You are ready to create a Google form when you have your username and password. To create a form, the first step you need to do is to sign in at http://docs.google.com as shown in the following figure:

![Google Docs sign in page](image)

Enter your username or Gmail ID and your password, and then click the blue ‘Sign in’ button. You are then directed to the ‘Home’ of Google Docs. To create a form, click the brown ‘Create’ button, and the drop-down menus appear as shown in the following figure:
From the drop down menu, select ‘Form’. You are then directed to an untitled form. The next step is to fill in the required information. By default, the filename given is ‘Untitled form’ but this can be changed to a new filename. Underneath the ‘Untitled form’ there is a large text box where you can write some information that help people filling in the form.

After filling in the form, save the document by clicking the ‘Save’ button.
Step 2 Publishing The Form

The next step is to publish the form so that students would be able to fill it in. There are several options for this. First is to notify your students through e-mail. To do this, you just have to click ‘Email this form’ button as in the top right of your form as in Figure 5. You can also copy the direct url link at the bottom of the page as in Figure 5. If you click the link, the form may look like this:
The second option is to embed the form in your blog or website. To do this you need to insert the url in the inline frame code. However, for those using Google Site, you just need to select the form from the document list. The embedded form may look like this:

Step 3 Collecting Responses

Responses from students are automatically stored in Google Spreadsheets. Example of the data stored is as in the following figure:
The students have to fill in the form once a week. Each of the columns in the spreadsheet records the responses collected through the online form and corresponds to the questions asked in the form. The entries are arranged according to chronological order except for the first column which records the time and date for each of the entries.

**Step 4 Display Data**

To display the data as a way to confirm that the response has been recorded, a new sheet is added. The new sheet is to copy the data and arranged according to reverse chronological order as in the following figure:

When the published page is embedded in a blog and website, it looks better as in the following figure:
To add functionality to the display page, concatenate function is inserted to the top of the page to display the most recent entry to the spreadsheet. With this functionality, once a student enters his or her response in a form, the name and time of the entry are captured and displayed at the top of the page. After submitting the form, the student is able to view the confirmation page by clicking the page or go to the website that embed the page. The spreadsheet functions used are shown in the following figure:

In the above figure, I have used two spreadsheet functions: (1) the concatenate function to capture name, date and time for each entry, (2) the array formula function to indicate which data from the first sheet to be copied to the new sheet.
**Step 5 Retrieving Attendance And Participation Score**

There are two ways to do this. First is to download the file and save in Microsoft Excel format. From there you can sort the data according to student ID and use auto sum function to total up the score.

The second option would be to add a new sheet, copy the formula and sort according to student ID’s numerical order which looks something like this:

![Image](https://sites.google.com/site/t2253/senmak-semak-semak-maklumat)

Figure 12. The data sorted according to student ID

To total up the score, a new sheet in Google Spreadsheets has to be created. Scores for each student are calculated using VLOOKUP and SUM functions.

4. Possible Limitations

There are two possible limitations to the system. The first is the time taken to record the data depends very much on the internet connection. If the internet connection is slow, the time to record the responses is much longer.

The second one has to do with the duplicate entries of the responses. When a user submits his response to the form, he expects the data is recorded right away. When the user thinks that the first entry is not recorded, he resubmits the form. When this happens, the Google Spreadsheets records each of the entries. An example of multiple entry is shown in the following figure:

![Table](https://example.com/table.png)

Figure 13. Example of a user’s multiple entries

In the above example, Amir and Wong each has multiple entries because they were uncertain if their responses have been recorded in the spreadsheet. The duplicates can be eliminated by using unique function which returns only the unique values from the source array.
5. Concluding Notes

The usefulness of Google Forms and Google Spreadsheets can be seen from both, lecturer’s and student’s perspectives. From the lecturer’s perspective, the tools are helpful in terms of managing students’ grades and attendance records and motivating students in participating in learning activities. In managing grades and attendance records, the lecturer does not have to enter the data manually. What he or she has to do is to keep note of names of students who participated in the learning activities. He or she only has to validate the score that students have chosen based on the actual participation in the class. At the end of semester, using Google Spreadsheets functions, the lecturer is able to calculate total score and grade for each student.

From a student’s perspective, the usefulness is inclined towards the availability of the web-based self-scoring system. The system’s availability on the Web means that the student does not have to physically see the lecturer in order to have his or mark recorded in lecturer’s score sheet. Another thing is the student has the ‘choice’ how to perform in learning activities in the class. If he or she chooses to get maximum score, then the student has to actively participate so that he or she can ‘choose’ the maximum mark in the self-scoring system.

The successful application of the system is very much depends on the availability of good and stable internet connection. With internet connection especially in lecture rooms, the tools can be fully utilized by both lecturers and students. With the absence of a good and stable internet connection, lecturers and students do not have the interest to utilize the tools. The emotional cost due to frustration over the failure to use the system cannot be undermined no matter how good the tools are.

Google Spreadsheets offers an opportunity to develop useful tools to manage student learning. In this regard Grossman (2007) held an interesting view, that Google Spreadsheets is not an application, but rather a programming language where applications can be developed. Spreadsheets programming is widely used and it is possible for a user to be a spreadsheets programmer without any training in programming, unlike other programming languages (Abraham, Burnett, and Erwig, 2009).

References