

Adoption of Google forms for Enhancing Collaborative Stakeholder Engagement in Higher Education

Sandhya S¹, Shaila H Koppad², S Anupama Kumar³, Andhe Dharani⁴, Uma B V⁵, K N Subramanya⁶

^{1,2,3,4} Department of MCA, ⁵Department of Electronics and Communication Engineering, ⁶Principal & Professor
RV College of Engineering, Bangalore-59

¹sandhyas@rvce.edu.in, ²shailahk@rvce.edu.in, ³anupamakumar@rvce.edu.in, ⁴andhedharani@rvce.edu.in

⁵umabv@rvce.edu.in, ⁶subramanyakn@rvce.edu.in

Abstract: Adopting Information and Communications Technology (ICT) in Education is essential in 21st century to support, enhance, and optimise the delivery of information. ICT tools makes the education simpler and vibrant to all parts of the nation. Higher Education involves various stakeholders with multiple roles due to which collecting and analysing the responses is challenging task for the coordinators. Google Forms as part of ICT tools are used in data collection for various course registration/responses by the organizations. These collective help in authenticity, visualization and official timestamp. This paper highlights role of Google Forms used for conducting various surveys at RV College of Engineering. The process was enhanced using ICT for data collection from various stakeholders with the concept of anytime, anywhere. It was made flexible and streamlined through google forms by importing the responses from google forms in required file format for analysis and provide overall insights to all stakeholders in higher education.

Keywords: Google Forms, Education, Survey, Data Collection

1. Introduction

Higher Education is one of the promising domains which involves different stakeholders such as students, faculty, organizations, parent, alumni, industry experts, project mentors and government. Education system in India can be categorized as Formal Education, Non-Formal Education and In-formal Education. Education should be made mandatory for every individual which helps in improving the society and country.

In the current state of affairs, Information and Communications Technology (ICT) is playing major role in Education for enhanced Teaching Learning Process (TLP) and its evaluation. The recent approaches and techniques in ICT tools ranges from Googlesites, Wordpress, Moodle learning management system, Youtube, Canvas, Thinglink, Screencastomatic, Videonot, Google Forms, Flubaroo, Ed Ted, Plickers app, Jeopardy Game Voice Threading and many others. These tools help the tutors to make education

simpler and lively to all knowledge seekers who hail from various parts of the nation.

Google Forms plays a vibrant role in data collection by making the process accessible – anywhere-anytime and easier to respond. These forms can be created for the following purposes:

- Surveys
- Registrations
- Feedbacks
- Quizzes
- Invitations
- Check pre-requisite knowledge of the students etc.

The application of Google forms ranges from collecting data from various stakeholders and to evaluate the student's performance and receptiveness towards the educational system. It can also be used to understand the stakeholder's behaviour and make modifications in system.

This paper gives an insight into the various applications of google forms in higher education system. Forms were created to analyse the students' performance in courses, collect course end survey and feedback on workshops/seminars, feedback form from various stakeholders including Alumni, Employer, Industry Experts and Parents. The outcome of the analysis helped for the betterment of education.

2. Literature Survey

Education sector plays a pivotal role in the economy of any nation. It employs many people directly and indirectly. The nature of the sector lends itself to more stakeholders both internal and external. The huge number of stakeholders presents a challenge in engaging with them in a collaborative manner [1].

Sorensen et al. [2], discussed about innovation in the Public Sector space and ways to advance collaborative innovation. This paper further talks about the collaborative innovation is supported by social theories. We can understand from

this paper that a good collaboration among all the stake holders can lead to better innovation.

Wright et al. [3], talk about why there is a need for creative and innovative methods to facilitate stakeholder engagement. They also talk about how each of Academia, community and the industry impact the learning environment. So, it has become imperative for enhancing the collaboration with all Stakeholder be fine tuning the engagement methods.

Cristobal et al. [4], in the book discuss how data collection modes have been changing and the limitations lie in understanding and interpreting the data correctly. They also talk about the huge amount of data that is generated. Any tool that is selected for Collaboration and analysis should be able to handle and analyse a very large amount of data.

The manner of engagement has also been moving towards the online mode. With the world getting lot of more connected nowadays, there is no need for physical movement of resources from one place to another for the purpose of data collection.

Granello & Wheaton [5], the authors discuss the benefits and limitations of online data collection. The authors give some guidelines to manage limitations with respect data creation using surveys and other online tools. So, it is important understand the all modes of data collection have advantages and disadvantages.

Peter et al. [6], the authors did an exploratory study of the Paper/Pencil Versus online data collection. Advantages of online data collection like access to larger population and less cost have been documented. One of the major learning from that study was that the participants thought that the online mode of completing questionnaires protected their anonymity better.

Considering the learnings from the above, online method of data collection and collaboration is needed to improve the level stakeholder engagement. We will now look at some of the existing tools that are available in area of online data collection.

A lot of tools are available today to do online data collection by sitting in front of a computer or using your mobile phone. The following are some of the types of tools available

- Surveys
- Specialized search tools/Engines
- Queries from Database and Data Store

Out of these three varieties of data collection tools, surveys / forms are one of the important type of data collection tool. The important education related data would always be in the databases. Outside of that the other data collection type

that is needed is to take and collate data using surveys and Forms.

There are stakeholders who are outside the college/university who need to be contacted and survey are the best way of reaching out and getting response from them. There are lot of tools which can help survey taking and form making which can be used for engagement with stakeholders. Some examples are Survey Monkey, Poll Daddy, Google forms and so on.

Rami J. Haddad and Youakim Kalaan [7] provides details the advantages and limitations of google forms. According to the author, Google forms stand out in this list because of the following advantages:

- There is no upper limit on the number of forms that can be created
- Incorporate logic in the survey
- Sharing results is made easy
- Notification is spot on
- Can be viewed very well in mobile devices also
- Supports Google Apps Script

The following are the current limitations of Google Forms:

- Internet is required for usage
- Limitations on text size up to 500 Kb and images up to 2 Mb

Google forms has about 13 percent of the online form builder market according to datanyze [8]. This is based on the number of adds in the past month. This coupled with the integration with other google products like email and drive storage makes this a very potent tool. Not every educational organization can spend money in reaching out and collecting information from many stake holders. So, this being a free tool makes it the top choice for the Collaborative stakeholder engagement in higher education. The following figure gives an idea about the usage of google forms across industry verticals.

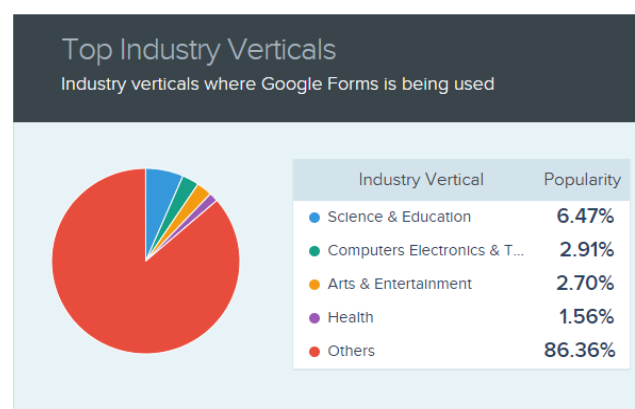


Fig. 1 Usage of Google Forms by Industry Verticals
[Source: similartech] [9]

It is apparent from the Fig. 1 that the education industry is one of the top users of google forms along with the science industry. We have given some additional advantages of Google Forms as perceived from the point of view of an implementing organization in the educational domain:

- Custom forms can be created very easily
- Questionnaires can be created quickly and efficiently
- Real-time collaboration during the results analysis phase
- Sync the data whenever you come online
- Authentication of responders can be done easily
- The response can be given from any device
- Role based Access restrictions available

3. Implementation Process

In traditional system used for information gathering involves the following activities:

Initially, the forms are designed with pre-set responses and multiple copies of the form are printed for circulation among participants. The participant has to physically receive the form and fill the details. The coordinator collects back the forms and documents them which is later scrutinized question-by-question for responses or non-responses. For analysing the collected data, data entry of the responses in a spreadsheet or similar software formats is carried out which may be prone to typo errors as shown in Fig. 2.

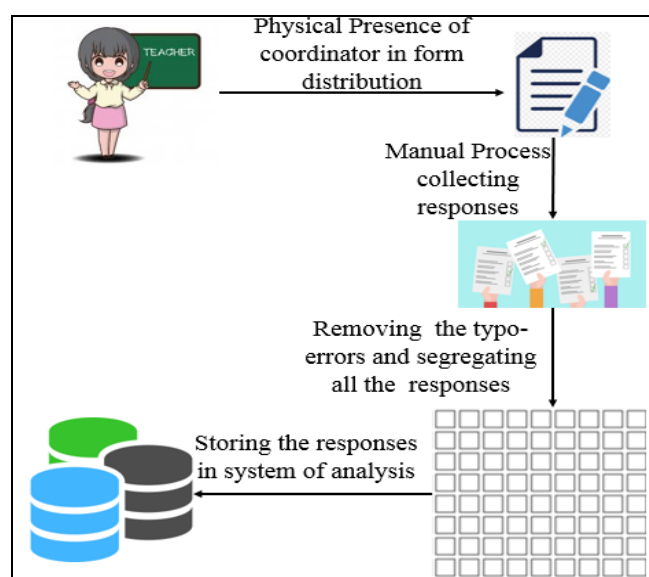


Fig.2 Traditional process of response collection

In the google forms based data collection, the forms content and design itself can involve more than one collaborator who is not required to be physically present at the same location. Once the target sub-group is identified, the forms can be mailed to the participant's email and responses can be instantaneously collected. The summary of the responses

are available in visual format and further may be stored in the form of spreadsheets or comma separated values or PDFs for future reference as in Fig. 3.

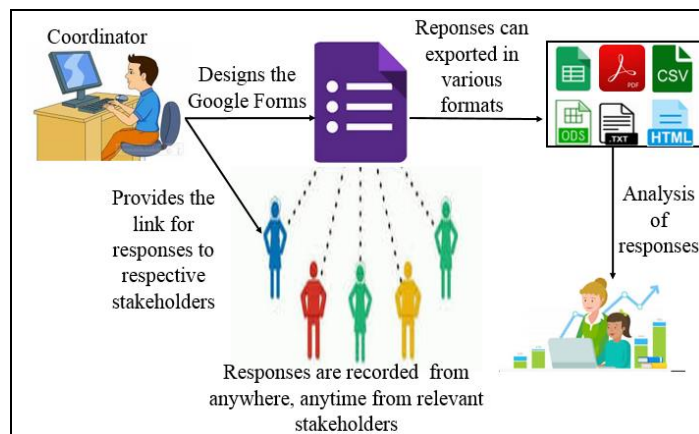


Fig.3 Usage of Google Forms for response collection

The analysis can be easily carried out since google forms provide us with various chart facilities for visualization.

Education domain involves learners of various levels and hence propelling the usage of standards in context, content and design are important factors in receiving responses.

The following section discuss about the challenges in the data collection method and its outcomes.

3.1 Challenges in Data Collection

The challenges in data collection begins with maintaining the latest contact information of the stakeholders, appropriate time of sending the forms and provision for the responses to be auto-saved between pre-defined time periods. The participant can resume the responses from where it was paused previously and Google Forms provides scope for multiple submissions which can be linked with a time stamp based auto-save option. Final submission of the responses may be prompted through an explicit submit option or can be time-based. Apart from these strategies, the following sub-section describes the role of participants, regulations in data collection and suggestions for keeping the data collection process secure which are also major challenges to be considered in the Google Forms based data collection:

A. Role of Participants

In Education domain, the same stakeholder may play more than one role which can influence their individual responses. This has a major impact when a huge target group is sub-divided into groups such as industry-experts, project mentor, alumni, parent, or similar stakeholders. A few of the possible cases are as below:

- *Scenario 1:* An alumni may also be an industry expert as well as project reporting manager, who

mentors the interns and provides feedback as part of academic curriculum requirements

- *Scenario 2:* Parent may also be an industry expert or a government employee, who may be associated with the education domain as a stakeholder

Questions may have the following combinations of features:

- Significant fields to be marked as required
- Time based
- Usage of regular expressions
- Multiple responses

B. Regulations in the online data collection

India presently does not have any express legislation governing data protection or privacy. However, the relevant laws in India dealing with data protection are the Information Technology Act, 2000 and the (Indian) Contract Act, 1872. A codified law about data protection is likely to be introduced in India in the near future.

The Information Technology Act, 2000 ("IT Act") is an act to provide legal recognition for transactions carried out by means of electronic data interchange and other means of electronic communication, commonly referred to as "electronic commerce", which involve the use of alternative to paper-based methods of communication and storage of information to facilitate electronic filing of documents with the Government agencies.

Goel and Shivam [10], the authors explain the most salient of the IT Act, 2000 and in depth about Section 79 of the act. They also explain the responsibilities and the liabilities of the intermediaries.

Singh Priya et al. [11], the authors explain in detail about Cyber Crime and its aspects under IT Act, 2000. They also detail the complexity involved in gathering evidences regarding these crimes. They also discuss the importance of a good security practice that should be documented and sent to all the people involved

Google Forms responses are stored in a worksheet that can only be accessed through a Google account login. The transmission of data uses SSL to encrypt the data during transport. The data is as secure as most other systems which take survey data and store it

C. Suggestions for keeping the data collection secure

- If there is any question that is related to private data, it needs to be optional
- Privacy policy document needs to be created and added as a link to the beginning of the form

- Use more factors for the authentication as much as possible. The recommended option is to at least go for a two-factor authentication

Arlene Fink [12], the author guides the readers through the process of creating their own surveys, how to evaluate the overall quality of the survey and how to evaluate if the survey was a success or not.

Fiedler & Schwarz [13], authors explain the challenges involved in correctly interpreting the survey data. They also detail the procedures that can help in understanding and interpreting the survey results in the right way.

The authors explain the concept of Behaviour based user categorization, the benefits of categorizing user behaviour and how the same can be applied to questionnaire creation [14].

The features of Google Forms enables instantaneous review of visualization for analysis. It is a best practice to make this entire data collection process perennial with a stipulated interval of one year to gauge the pulse of the industry and to maintain institutional standards for implementing sustainable changes at grass root levels.

3.2 Findings and Outcomes

This section discusses about the actual implementation of Google Forms for data collection at Department of MCA, RV College of Engineering, Bengaluru for compliance related activities which involved stakeholders spread geographically.

The forms were sent to the final year students of a particular course regarding the overall feedback about the course and filled by them before their exit the course.

The Forms were designed keeping the following criteria: number of questions, type of questions (open ended or closed ended), order of questions, (standards) based on the sub-group of respondents.

The mails were sent from one point of contact to maintain uniformity in communications. Questions were prepared to collect the overall feedback about their academic activities co-curricular and extra-curricular activities in the institution, the facilities provided to them, teaching learning process etc.

The Fig. 4 discuss about Google Form which was created to record the responses for Exit Feed Back of the programme. The form contains college email id, USN, Name, Phone No, Personal mail id, Employer, Scheme and syllabus, Examination and Evaluation, New facilities Generated for Labs and resources, Course Evaluation, Class Room Evaluation etc., were added in the form with responses types.

Fig.4 Design of Google Form for Exit Feedback of the programme

In this exit feedback total 139 responses were recorded. With the details of the student like Email, USN, Name, as show in Fig. 5.

Fig.5 View of responses provide by the stakeholder

Fig. 6 discuss about the responses recorded and exported in the csv file format.

	A	B	C	D	E	F	G
Timestamp	Email Address	USN	NAME	PHONE NO	PERSONAL MAIL ID	EMPLOYER	
5/10/2019 7:26:42	mmju74@gmail.com	1RV1MCA24	Vijayalakshmi M N	9886218145	mmju74@gmail.com		
5/10/2019 7:27:53	mahipalsingh.mca16@nvc.1R216MCA36		Mahipal Singh	9108069098	mahipalhangar5414@gmail.com	Diara Solutions	
5/10/2019 7:27:55	sureshk.mca17@nvc.edu.1RV17MCA30		Suresh K S	9401108479	shreyas60@gmail.com	Diara Solutions	
5/10/2019 7:35:04	govardhanca27@gmail.co.1RV16MCA06		GOVARDHAN C A	9900959881	govardhanca27@gmail.com		
5/10/2019 7:36:23	jugaladumka.mca16@nvc.1R216MCA28		Jugal Dumka	8393018833	jugaladumka@gmail.com	Gale	
5/10/2019 7:39:23	vijaybabu4589@gmail.co.1RV16MCA53		Vijay babu	9008408836	vijaybabu4589@gmail.com		
5/10/2019 8:05:30	rohitarakeri.mca16@nvc.1R216MCA52		Rohit Arakeri	9742427920	rohitarakeri@gmail.com	Cerebrik Tech	
5/10/2019 8:08:04	vageshahm87@gmail.co.1RV16MCA47		vagesha k m	8861533834	vageshahm87@gmail.co	GALE	
5/10/2019 8:11:17	sandeshah.mca16@nvc.1RV16MCA30		Sandesh HN	+919108345220	Hssandu1@gmail.com	No	
5/10/2019 8:36:27	nikita.sakthare@nvc.edu.1RV17MCA85		Nikita Sakthare	7259693703	saktharenikita56@gmail.c	Cerner	
5/10/2019 8:54:52	prinyanah.mca17@nvc.e.1RV17MCA87		Priyanika H	9035605246	h.priyanika96@gmail.com		
5/10/2019 9:22:18	m08892961297@gmail.co.1RV16MCA15		Naveen Kumar V	7892697174	m08892961297@gmail.com		
5/10/2019 17:30:58	harshat.mca16@nvc.edu.1RV16MCA08		HARSHA T R	8123593398	harshachandant55@gmail	STUDENT	
5/11/2019 16:19:00	sanapplegates@gmail.co.1RV16MCA31		sanjay	7975085752	sanapplegates@gmail.co	Accenture	
5/12/2019 15:15:05	jnaneshhm.mca17@nvc.1RV17MCA80		jnanesh hm	9108438220	jnaneshh87@gmail.com	CERNIER	
5/13/2019 8:45:14	mukeshkulkarni19@gmail.co.1RV16MCA50		Mukesh K	94811714039	mukeshkulkarni19@gmail.co		

Fig.6 Responses of Exit feedback are exported to csv file format

Google Form designed for collecting exit feedback of programme contained questions with options which has to be selected by the stakeholder. So it has been ensured that to each respondent is able to write in detail about their experience in addition to the closed ended questions. This is achieved by adding a category named “Any other” in which the stakeholder was able to write the response in sentence as shown in Fig. 7.

Fig.7 response provided for any other in google form

For Scheme and syllabus, three options were provided in the google form as very good, good and satisfactory to provide the response. From 139 responses 50.4% students have said very good, 38.8% as good and 10.8% as satisfactory as show in Fig. 8. Applying the same technique, analysis was done for Examination and Evaluation and the responses were as below:

- 57.6% (80 Stakeholder) very good
- 36.7% for good (51 stakeholder)

- 5.8% for satisfactory (8 stakeholders)

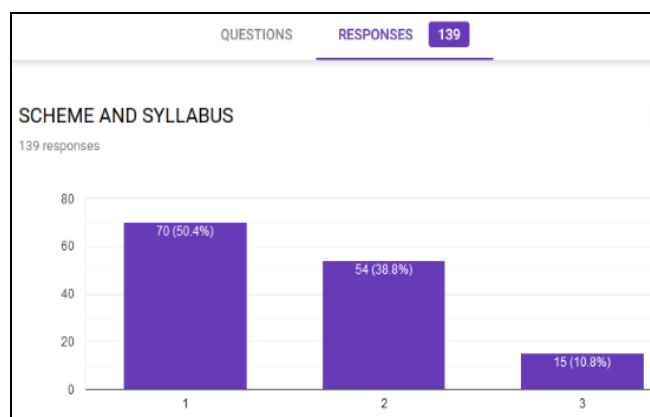


Fig.8 Scheme and syllabus responses analysis

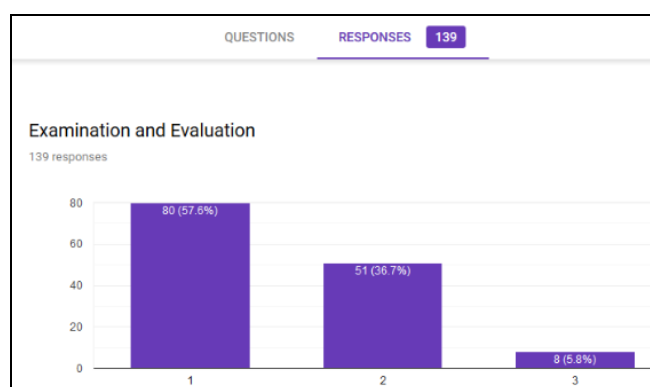


Fig.9 Examination and Evaluation responses analysis

It was necessary to record the feedback about the new facilities provided for lab and other resources which was used by the stakeholders during the programme. This question was included in the Google form to receive feedback regarding course-exit-survey; after analysing the responses for this question it helped the coordinators to understand the views of the stakeholders as shown in Fig. 10.

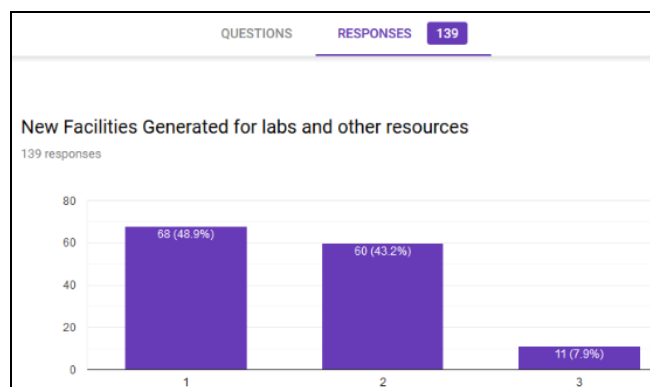


Fig.10 Analysis of the responses provided by stakeholders for the New Facilities Generated for labs and other resources

3.3 Innovative Best Practices

Though many institutions have begun to use online data collection, the best practices suggested through the

practical implementation of the Google Forms at RV College of Engineering are as listed below:

Significance of their precious inputs to be communicated: The stakeholders are to be informed about the importance about their inputs and its repercussions in moulding the courses, academic programs. This instils a sense of belonging in the stakeholder and aids in receiving timely and useful inputs from respondents.

Design of the questionnaire or forms – impetus to proper wording of questions, ordering of questions, and length of the form is imperative to involve the different types of stakeholders

Appropriate Time and contact of sending the mails: The mails are timed such that they do not get stacked in their mailboxes. An updated list of email-ids to be maintained centrally before beginning the process of data collection.

Communicating the impact of the exercise to the stakeholders: Once the data collection is complete, the stakeholders are to be clearly informed about the drastic changes in the system due to their inclusion through Google Forms. Also, they are to be informed about any continuity in the data collection process or similar information.

4. Conclusion

Education sector continues to be one of the verticals that use Google Forms more than any other industry vertical. There is a significant increase in responses through this approach compared to the traditional system of stakeholder engagement in the higher education domain. There can be no doubt that the stakeholders engagement levels would go up through enhanced collaboration using the adoption of Google Forms. Google Forms helps in collection data, analysing them, interpret them in the way they should by integrating with other Google products like drive, email and sheets. Considering the challenges in protecting the anonymity of the participants in the online mode of collection, Google Forms does a very good job of able to keep the identity well sealed and accessible only to the people who are authorized to see the same. IT Act, 2000 which governs data protection and privacy provides necessary guidance to the organizations in the education sector to keep the data collection, storage and analysis in tune which changing needs of the different stake holders. Google Forms provide a good platform to gather, analyse, and interpret data from all the stake holders in higher education which enables the organizations to use the data in a meaningful way.

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