

# A Sustainable Paperless Online System (SPOS) for Engineering Quality in Teaching: Koya University as a Case Study

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**Abstract**—Rapidly advancing computer based technologies offer many possibilities for innovation in educational and administrative assessment tasks which allow for a reliable real time reporting and feedback process. This paper considers the requirements for teacher assessments to become an accurate and reliable process. As a case study, the challenges of implementing such a system at Koya University have been considered. This paper examines how a paperless online system can support faculties' efforts for improving sustainable quality in learning and up-to-date assessment techniques. The proposed sustainable paperless online system (SPOS) uses Google Applications for Education that have been adopted at Koya university as a communications and collaboration medium to enhance its teaching quality. Such a system may enhance security, transparency and ease of use while consuming less time and resources and promoting green practice. The work throughout this paper explains how the initiative is engineered for achieving and monitoring a better quality in teaching.

**Index Terms**—Continuous academic development, Google Apps, online system, quality teaching, student feedback, sustainable system, teacher portfolio, teaching quality assurance.

## I. INTRODUCTION

The recognition of higher education as a major driver of economic competitiveness has made high-quality education more important than ever before in both industrialised and developing countries. Fabric (2010) considers the imperative for countries to improve employment skills calls for quality teaching within educational institutions.

The past decade has witnessed an increased interest in assessment in a learning culture (Popham, 2008; Stobart, 2009; Darling-Hammond, 2010; Colbert, et al, 2012) with quality academic faculty member (teacher) assessment understood as central to local and systemic efforts to improve student learning and outcomes (Murphy, 2009; Wilson, 2010; Willis, 2010; Colbert, et al., 2012).

Although the quality and standards of the courses taught at the university are the responsibility of all academic staff, the quality of teaching and the teacher's academic achievement are assured in part through the academic performance review process run by the Teaching Quality Assurance (TQA) directorate/office at each academic institute.

“Institutions may implement evaluation mechanisms in order to identify and promote good teaching practices. The environment of higher education institutions can enhance the quality of teaching through various means. For example, a national policy run by the public authorities or recommendations issued by quality assurance agencies are likely to help university leaders to phase in a culture of quality that encompasses teaching” (Fabric, 2010).

Deane and Krause (2012) argued that an institution may use multiple forms of peer review and calibration to provide evidence that it is monitoring and assuring learning standards. We believe that beside this multiple forms of peer review, other activities that involve both academics and students may play a role to assure a quality teaching and helping to assure the learning standards.

Assuring a quality teaching in the higher education, two activities need to be implemented continuously; student evaluation of teaching, student feedback (SF), and institute/university evaluation of teacher. Numerous of publications have been written on students' feedback. It probably started with pioneers such as Max Freyd a psychologist in social behaviour in 1923 something which is still widely in use. He suggested that his graphic rating scale could be used to measure characteristics of the teacher that he accepted as “fundamental to the acquisition of a successful teaching technique” (1923, p. 434). A good survey on the

student feedback were written by (Feldman, 1997; Marsh, 2007; Addison and Stowell, 2012). In spite of the major literature reviews during the last forty years (Marsh, 1987; Centra, 1993; Costin, Greenough, and Menges, 1971; McKeachie and Lin, 1979; Cashin, 1988, 1995) that support the reliability of student ratings when used for evaluating instruction, but their relationship to educational outcomes is questionable due to the reasons explained by Deane and Krause (2012).

In line with this argument the teacher evaluation by institute/university via teaching or teacher portfolio (TP) is providing a multilevel assuring of quality teaching in higher education.

TP describes and documents the different aspects of teaching ability and prepared either in a summative format created for the purpose of applying for an academic job or for promotion and tenure within a department as well as a formative format for the purpose personal and professional development (Edgerton, Hutchings and Quinlan, 1991; Lang and Bain, 1997, Kaplan, 1998; Wiedmer, 1998; Seldin, 2004).

In 2010 the Ministry of Higher Education and Scientific Research (MHE) in Kurdistan Region (KRG) of Iraq started to adopt the TQA in the higher education institutes (Dlawer, 2010). The quality assurance process at Koya University goes through three channels:

- 1) Student feedback (SF).
- 2) Teacher portfolio (TP).
- 3) Continuous Academic Development (CAD) scoring system.

The TQA process adopted by Koya University until May 2013 was a paper-based process. The data from the three TQA channels was collected manually then converted to electronic data sources for later report and analysis. This laborious work took place from mid-April to mid-June each year engaging 6 members of staff full-time and other 28 members of staff part-time. This manual mechanism faced many issues, among them:

- 1) Insecurity.
- 2) Inefficiency.
- 3) High cost.
- 4) Large use of resources.
- 5) Lack of transparency.

In the two recent decades the Internet has been having a great impact on education and in particular higher education quality in teaching. New challenges are emerging constantly, which require global solutions for geographically distributed common issues that our modern societies are facing. Due to the global nature of the current education concepts and the evolving impact of IT on educating the future professionals, the teaching methodology are continuously changing for better qualities. These challenges require support with communication, interaction, integration, knowledge transfers, and shared up-to-date best practices. IT facilities such as the Internet can potentially provide integrated environments satisfying these requirements. (Roshani, 2006)

Reference to outlined arguments the drawbacks of the manual mechanism adopted in assuring a quality teaching/learning, at Kurdistan Universities in general and at Koya University in particular, this paper presents a new engineered mechanism based on an online digital interactive system to assure a secure quality teaching/learning and promoting the university to become an electronic enabled university.

## II. E-MANAGEMENT AT KOYA UNIVERSITY

Koya University is one of 9 public universities in Kurdistan Region regulated by the ministry of higher education (MHE), with common legislation and regulations. Koya University consists of four faculties and 24 departments in different fields, with 3500+ students, 650 academic (including teaching staff, teaching assistants, tutors and engineers) and 750+ administrative staff all are recorded in the year 2014. The management of the university like other public universities in the region is heavily centralised, bureaucratic and manually managed as well as over populated by students and staff.

Since the establishing of the first university of the world the University of Bologna A.D. 1088 the fundamental concept of higher education institute has been the same, namely spreading of knowledge with organisational focus on discipline through student's education and training. Through time the combination of demands for improved efficiency and increased access to better quality have made the higher education to seek quality in their offered education. At the same time reduce expenditure whilst improving the operation of resources.

In line with these concepts Koya University aimed to process with new approach to update its strategies for a faster and effective response in managing its academic community. The university outlined a new progressive strategy in 2012 to be ranked globally based on its student welfare, organisational performance, teaching quality and inclusive policy. The university started its long term strategy by identifying the needs and the bottlenecks vs global standard, rearrange and mobiles the basics, facilitate the logistic for new approaches, put the students at the core of the new approaches (see Fig. 1) and choose technology with a minimum cost, then implement and training the trainers. This has created a chain of active line of knowledge transfer among our academic community.

The directorate of TQA gathered skills to facilitate the new Koya University strategy which appeared feasible and logically practical to enhance the QA procedure system. Therefore a new TQA policy focused to engineer a new Sustainable Paperless Online System (SPOS) to overcome the drawbacks of the current bureaucratic process to achieve a faster and effective response with workable data.

## III. QUALITY TEACHING

As the landscape of higher education has been undergoing continuous changes, quality teaching has become a demand and an issue of importance. Student numbers have

considerably expanded and diversified, both socially and geographically.

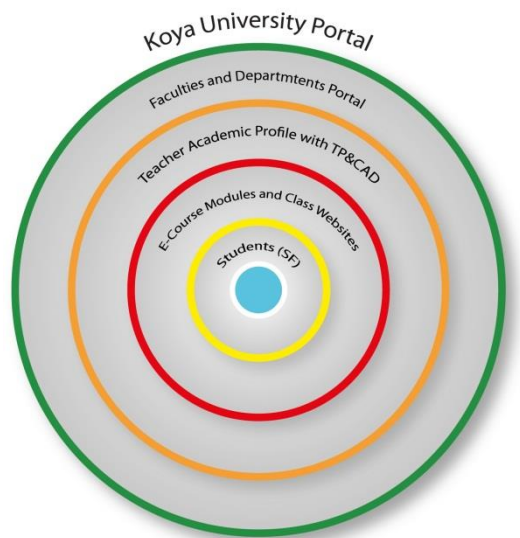


Fig. 1. Students at the core of an integrated inclusive e-Management.

Today's rapid developments increasingly demand dynamic teaching methods. Modern technologies have entered the classroom, thus modifying the nature of the interactions between students and teachers (Henard and Leprince-Ringuet, 2008). Henard and Leprince-Ringuet believe that "good teachers" have empathy for students, are generally experienced and most of all are organised and expressive. "Excellent teachers" are those who have passions: passions for learning, for their field, for teaching and for their students. But research also demonstrates that "good teaching" depends on what is being taught and on other situational factors. Quality teaching lacks clear definitions and to some extent can't be disconnected from debates on quality culture in higher education that remain controversial terms. Some scholars regard quality primarily as an outcome, others as a property. Some consider teaching as the never ending process of reduction of defects and so quality teaching can never be totally grasped and appraised. In fact, conceptions of quality teaching happen to be stakeholder relative: students, teachers or evaluation agencies do not share the definition of what "good" teaching or "good" teachers is (Henard and Leprince-Ringuet, 2008).

The quality of higher education in developing countries is influenced by complex factors that have their roots in commercialization, general funding, and population growth as well as demand for skilled manpower. Appropriate policies and home-bred professionals, both academic and administrative, are necessary for improving the quality of higher education in developing countries (Bunoti, 2010).

#### IV. TQA MECHANISM AT KOYA UNIVERSITY

In the academic year 2012-2013, 358 teaching staff, including the external lecturers, and around +3500 students

were registered by the QA directorate in 24 departments and four faculties, namely;

- 1) Faculty of Engineering (FENG).
- 2) Faculty of Science and Health (FSCH).
- 3) Faculty of Humanities and Social Sciences (FHSS).
- 4) Faculty of Education (FEDU).

The TQA directorate at Koya University is taking responsibility for assuring quality teaching at the university through a mechanism that comprises several major and minor activities. All these activities are monitored by 4 TQA faculty officers and 24 TQA department coordinators. The TQA officers/coordinators are all working under the supervision of the Directorate of TQA.

##### A. Major TQA Activities

The major TQA activities at Koya University include:

- 1) SF; at the end of every academic year, usually in May, the students are asked to give their feedback on every course they study via a questionnaire which contains 12 questions. These questions are expected to be scored from 1 (Poor) to 5 (Excellent). There are 24 departments with an average of 7 modules per year/stage. There are some 672 different course modules taught at Koya University. There are about 3500-4000 students studying at the university every year and they submit a minimum of 21000 yearly response sheets.
- 2) TP; to achieve this activity, all teaching staff members are asked to prepare a box-file containing all documents, certificates and proofs about their academic and non-academic activities during the forthcoming academic year. The portfolio may comprise academic certificates, publications, seminars, academic committee engagements, workshop activities, etc. Usually, a single TP is about 100-500 sheets in size, depending on the level of teacher activities. For the 358 teachers at Koya University in the 2012-2013 academic year, as an example, a minimum of 35000 sheets of paper were submitted to the TQA directorate under the umbrella of the TP activity. It is the responsibility of the TQA directorate at the university to assign a TP assessment committee at each scientific department that head by the teachers' head of department. The TP activity is scored from 1 (Poor) to 5 (Excellent). For every single TP assessment, the committee needs to complete an evaluation sheet that consists of 16 questions based on portfolio content and the recommendation of the relevant head of department.
- 3) Teacher Continuous Academic Development (CAD): It is based on the teachers' academic achievements throughout the academic year and covers the details of all the teacher's scientific publications, scientific reviews, seminars, training courses, workshops, postgraduate student supervision, *etc.* This requires teachers to submit a box-file of about 100-500 sheets of paper, depending on the level of teacher academic activities. CAD produces a

minimum of 35000 sheets of paper at the university level. The CAD activities/actions are divided into passive actions e.g. attending seminars, workshop and conference, *etc.*, and active actions e.g. scientific publications, presenting seminars, *etc.*

It is worthy to mention that although both TP and CAD having the same sub-activities, e.g., scientific publishing, participating conferences, contributing to scientific committees, *etc.*, their assessment are different. The TP assessment is a qualitative, whereas, the CAD assessment is a quantitative.

### B. Minor Activities

The minor TQA activities at Koya University may include:

- 1) Teacher Seminars: Usually the teacher may present one seminar or more during the academic year and attend seminars presented by other teaching staff. Every presented seminar should be evaluated by the attendees via a special assessment form. Presenting a seminar is considered as an active action and evaluated at 3-4 points for CAD, whereas attending a seminar is considered as a passive action and evaluated at 1 point for CAD. Every academic year, the TQA directorate receives about 14000 seminar assessment sheets. The seminar scoring depends on the average assessment sheet value: a value of less than 2.5/5 scores the activity with zero point, a value of 2.5-4.5/5 enables the seminar presenter to score 3 points, whilst a value of more than 4.5/5 enables the seminar presenter to score 4 points.
- 2) Teacher Feedback on Performance of their Head of Department: At each of the 24 University departments, teachers are asked to evaluate the performance of their head of department. This takes place via an assessment sheet that contains 16 questions scored from 1 (Poor) to 5 (Excellent). There are about 334 assessment sheets to be submitted to the TQA directorate for processing. The 24 head of departments are not involved in the process of lecturers' feedback submissions.

At the end of every academic year, all the major and minor QA activities related documents, a minimum of about 105000 sheets of paper excluding the waste, are processed manually by the TQA directorate staff. Then, every teaching staff member receives a certificate which shows their scores on the main three QA activities namely; SF, TP and CAD.

## V. DEFINITION OF THE PROBLEM

We believe that TQA activities are not the same as quality teaching: they are tools to be used to achieve a quality teaching that leads to better student learning. The tools adopted should guarantee efficiency, accuracy, transparency, cost effective, and environmentally friendly which are important for a productive sustainable quality teaching.

Based on experience and analysis of the TQA process outcomes of the Kurdistan Region's higher education

institutes in general, and Koya university in particular, since the year 2010, the following outlines have been observed:

- 1) The TQA process is currently not sustainable due to its convoluted and lack of clear outcomes and its inefficient implementation.
- 2) The SF is not totally transparent. The students claim giving the feedback on (5-8) taught courses during a one hour class in the presence of the TQA coordinator and the class teacher makes them feel uncomfortable and under a sort of pressure and classmates interfere.
- 3) The SF is a paper-based process; the data is collected manually then goes through data entry to be analysed electronically. This is a time- and resource consuming process.
- 4) More than 21000 SF paper sheets were submitted yearly to the TQA office at Koya University before May 2013 where the SPOS is applied. This huge number of paper sheets is exhausting the TQA resources and devalues the whole purpose of the SF.
- 5) The TP appears impractical to the teachers as well as to various evaluation committees due to the number of paper sheets (100-500) submitted for evaluation. The evaluation committee needs a long time to review the TP contents with such a huge number of paper sheets. This causes serious problems in transparency and hinders true evaluation of the academic staff's scientific achievements during the academic year. The same is true for the CAD scoring system.

The list of drawbacks above made Koya University rethink its QA policy and proceeding system to include with its established long-term strategy to become an electronically manageable university and globally recognised higher education institute.

## VI. CHALLENGES IN APPLYING A COMPUTER-BASED ONLINE SYSTEM

Adopting the SPOS using Koya University adopted Google Apps. for Education (GAE), (Google, 2013), which has enabled the university wide e-management strived strategy. As any new approach, this would present a big challenge to members of our academic community.

### A. Challenges to the System Architecture

Computerizing the paper-based QA process requires a central database that all users (students and academics) can access to complete forms or upload their scientific activity proof files, and other information related to the QA evaluation. Such a traditional computer-based system, Fig. 2, has many drawbacks for implementing/assuring a quality teaching, among them;

- 1) The data has to be collected and stored in one central database.
- 2) There is no interaction between the database management system (DBMS) and the user. It is just a one direction data flow.

- 3) Maintaining the database is the responsibility of the DBMS administrator.
- 4) Since accessing the database (DB) is via a secure process, sharing the online academics' scientific activities and achievements among each other will be not an easy task and need authentication at each sharing-access time. Transparency is not easy to achieve completely.
- 5) Such a system is considered a passive system that has no added value to user.

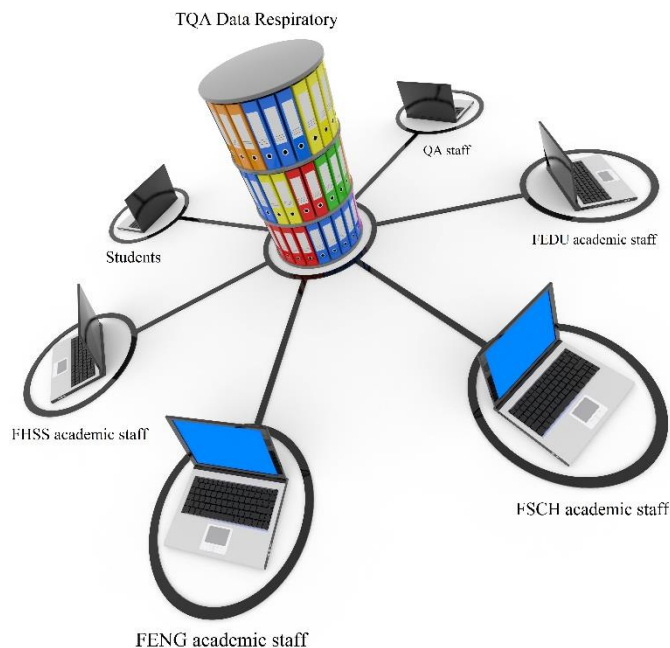


Fig. 2. A diagram showing a traditional computer-based network for collecting data into a central database.

### B. Challenges for the Students

The current TQA system allows all students to give their feedbacks on the taught courses. Computerizing the SF process as a paperless e-system needs:

- 1) A standard Google email account for every student for academic activity purposes as well as access to the online feedback system. Such a process has been constructed by Koya University directorate of IT, Fig. 3.
- 2) Internet provision for students at the university campus and home.
- 3) Workshops on how use the online system and give feedback, and the benefits of such activity in order to create better understanding of the feasibility of the online system.

### C. Challenges for the Academics (Teachers)

Although the current TQA system appears practical to individual teachers, it represents a huge resource cost to the

university. Nevertheless computerising the process such as TP and CAD needs:

- 1) A basic IT literacy course to enable all academic staff to make use of TAQ e-processing. This will ensure senior academic staff become familiar with the online e-system.
- 2) Special workshops on Google Apps for Education in particular its feasibility for TP and CAD in the new TQA e-system.
- 3) A comparison of the usability of data between the current and proposed e-system.
- 4) Internet provision at the university campus/offices and at home.

Naturally adoption of a SPOS needs to address the above challenges to validate its feasibility and logical practicality.



Fig. 3. A poster shows the process of creating a standard Google email account for the students at Koya University

## VII. THE PROPOSED SYSTEM AT KOYA UNIVERSITY

In line with Koya University long term strategy to become an electronic enabled inclusive student centred university with successful presence locally and internationally, the directorate of TQA created an innovative engineered SPOS to assure quality teaching practices to support a rapid teaching quality assurance policy. This new system, SPOS, offers a platform where all academics can be credited for their scientific achievements during an academic year, easily and efficiently. The proposed SPOS is not just a simple online portal system for students and academics of Koya University accessing to record their activities, e.g., giving feedback and uploading certificates, documents and proofs for both TP and CAD activities, but an interactive and dynamic shared space. The suggested SPOS is a self-training interactive online system enables members of academic community to play an important role. SPOS consists of the digital interaction between the teachers and their university (T-U), between the teacher and



teacher (T-T), between teachers and students (T-S) and between the students and their university (S-U).

With the GAE the teachers can easily create and deal with forms, spreadsheets, presentations, videos, sites, etc. Moreover, GAE offers a simple automatic data analysis and graphs. Fig. 4 shows the proposed network diagram of the SPOS.

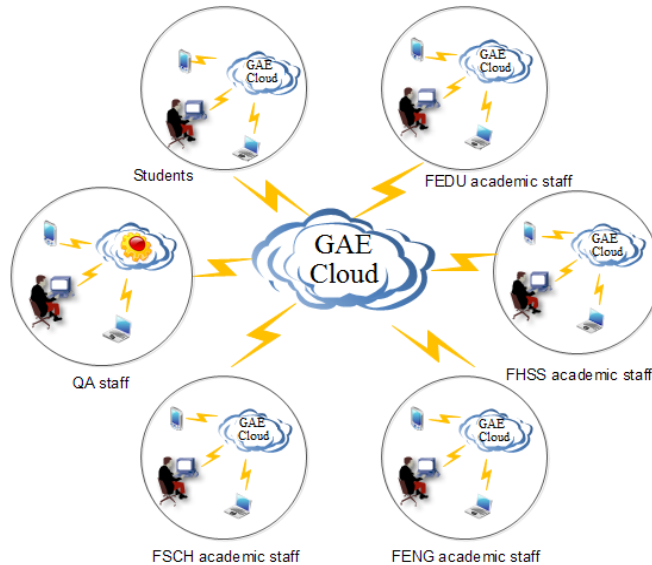


Fig. 4. The SPOS network diagram on GAE Cloud core.

Within the SPOS the TQA is functioning as Knowledge Transfer Hub (KTH) and staff being trained to give individual remote of face-to-face support. SPOS may guarantee:

- 1) Security.
- 2) Transparency.
- 3) Accuracy.
- 4) Less time consumption.
- 5) Ease of use by students and teachers.
- 6) Less use of resources.
- 7) A lighter environmental footprint: uses less paper during the process.
- 8) Accessibility of data for university strategy and policy making.

It is important to mention that using SPOS, sharing the online information and activities can be authenticated easily based on the users' University account, i.e., @koyauniversity.org. This will assure achieving a complete transparency.

The academic staff need an @koyauniversity.org account which is based on GAE, whereas the students need a normal free Google Gmail account i.e. firstname.IDNo@gmail.com, to be granted using the new SOPS system. SPOS includes:

- 1) Profile sites that created for teachers with their names that appear in the @koyauniversity.org account. Each faculty has its own profile, based on the logo and colour. The profile site is shared with publics and linked with teacher name at the university main website, i.e., www.koyauniversity.org. Fig. 5 shows the profile template for the academics of the FSCH.
- 2) A completely secure online TP and CAD website. Every teacher receives a dedicated PF&CAD site that should be completed yearly with documents and proofs about all activities to be considered for the TQA assessments. The site contain all help documents and guidelines that the teacher may need to complete their site information. The teacher just needs to state the number of activities under each different category and upload the certificates and proof documents. The TP and CAD website is owned (administered) by the teachers as well as by the TQA directorate account for remote help and upgrading. Creating an individual TP and CAD site is easy with GAE, where a template site for each faculty is created according to its logo, colour, language and specialization. This allows teachers who belong to one of these faculties to get access to an individual TP and CAD site. Each TP and CAD site has a portfolio evaluation page and a CAD assessment page to be accessed securely for scoring by the assigned committee, where the results are collected in a Google spreadsheet for each faculty. Fig. 6 shows the main page of the online TP and CAD (PF&CAD) site template which belongs to FENG.
- 3) A completely secure online Quality Assurance Achievements Scores (QAAS) site is created to enable teachers accessing their own secure homepage to get their certificate of achievement score and scoring details for the relevant academic year. The QAAS site is shared with the TQA office at the MHE. Fig. 7 shows a screenshot of the QAAS site. The QAAS site represents a portal from which the user can access all other sites working under the umbrella of the QA directorate.
- 4) A completely secure online teacher feedback website to assess the head of department performance is also created to enable teachers giving their feedback online. Fig. 8 shows the homepage of teacher feedback online.
- 5) A complete secure CMS-based website for online SF, where the student can access the site using their unique account and get all the information, guidelines, and help and then submit feedback. Tutorial videos are provided to provide an easy interactive approach to the system. Besides the security of the system, a duplicate feedback entry by the same account is prohibited by the system. Fig. 9 shows the main portal of the online SF.
- 6) A completely secure online teacher seminar submission/feedback and scoring pages that embedded inside the website of the QA directorate. Fig. 10 shows the homepage of the QA directorate site.

Fig. 5. Screenshot of the GAE-based online electronic academic profile of the FSCH.

Fig. 6. Screenshot of the GAE-based online electronic TP and CAD system of the FENG.

**KOYA UNIVERSITY** QAAS-KoyaU

QAAS-FENG | QAAS-FSCH | QAAS-FHSS | QAAS-FEDU | DQA Site | Teacher FB | Student FB | Tutorial Videos | Latest News | CAD Handbook | ResearchGate

### Quality Assurance Achievement Score of Koya University Staff

This Site is showing the achievement score for the QA activities of Koya Univ. academics. [Help about score and total average table](#)

هذا الموقع يعطي نقاط التحصيل لجميع فعاليات ضمان جودة التعليم الخاصة بأعضاء هيئة تدريس جامعة كويّة. بمساعدة حول جداول أحساب النقاط والمعدل الكلي

نعم مآبيرة زمار هي حاله كافي جالانكيه كافي دنياي جزري بيشان دودات 45 له لاين سناني زانكي كويوه. نمنجم دراون بهدست هتروان. يارماني ددريار هي حال و حششهي تيكرا

Associate Professor Debra Hayes, University of Sydney and Professor Trevor Gale, University of South Australia, discuss the >>>>>>>>>>



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Fig. 7. Screenshot of the GAE-based online QAAS system.

**KOYA UNIVERSITY** QA Teacher Feedback

Home | Give Your Feedback | FENG Statistics | FSCH Statistics | FHSS Statistics | FEDU Statistics | Time for Feedback | Contact us

### Home

This site is for the teacher feedback on performance of head of department

**Do:**  
 Be certain your boss is open and receptive to feedback before speaking up  
 Share with him/her what you are seeing and hearing in his/her organization or unit  
 Focus on how you can help him/her improve, not on what you would do if you were boss

**Don't:**  
 Assume your boss doesn't want feedback if he/she doesn't request it — ask if he/she would like to hear your insight  
 Presume you know or appreciate your boss's full situation  
 Give feedback as way to get back at your boss for giving you negative feedback

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Fig. 8. Screenshot of the GAE-based online teacher feedback system.



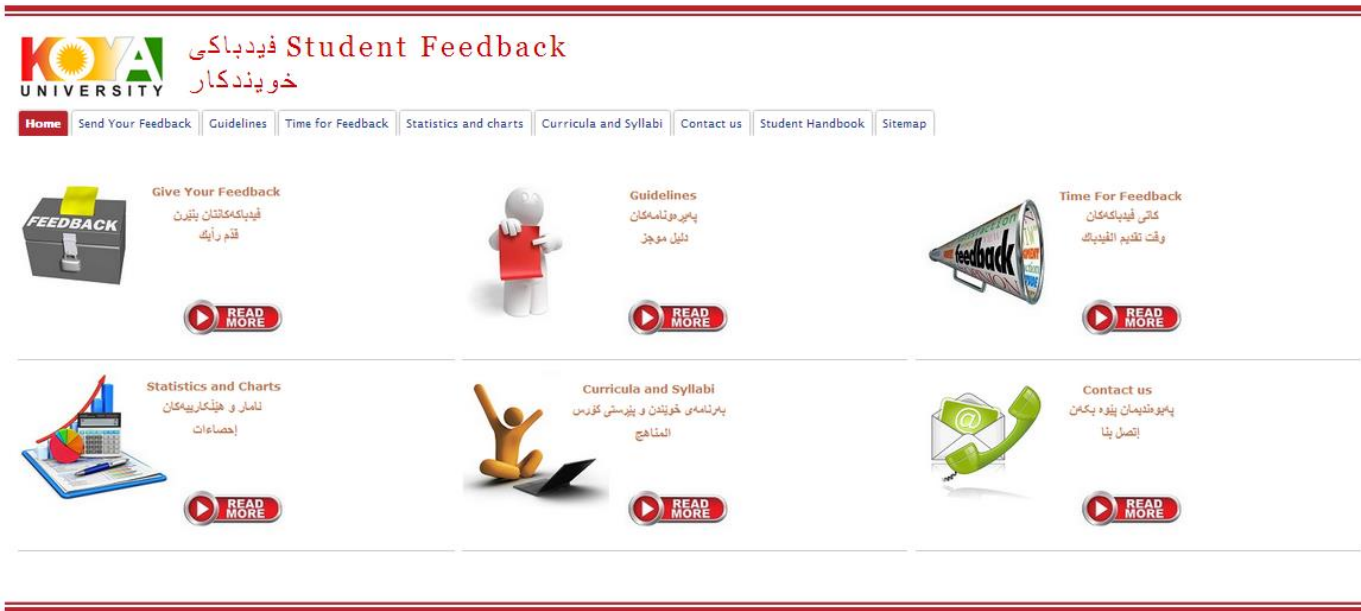


Fig. 9. Screenshot of the GAE-based Site for the online student feedback system.

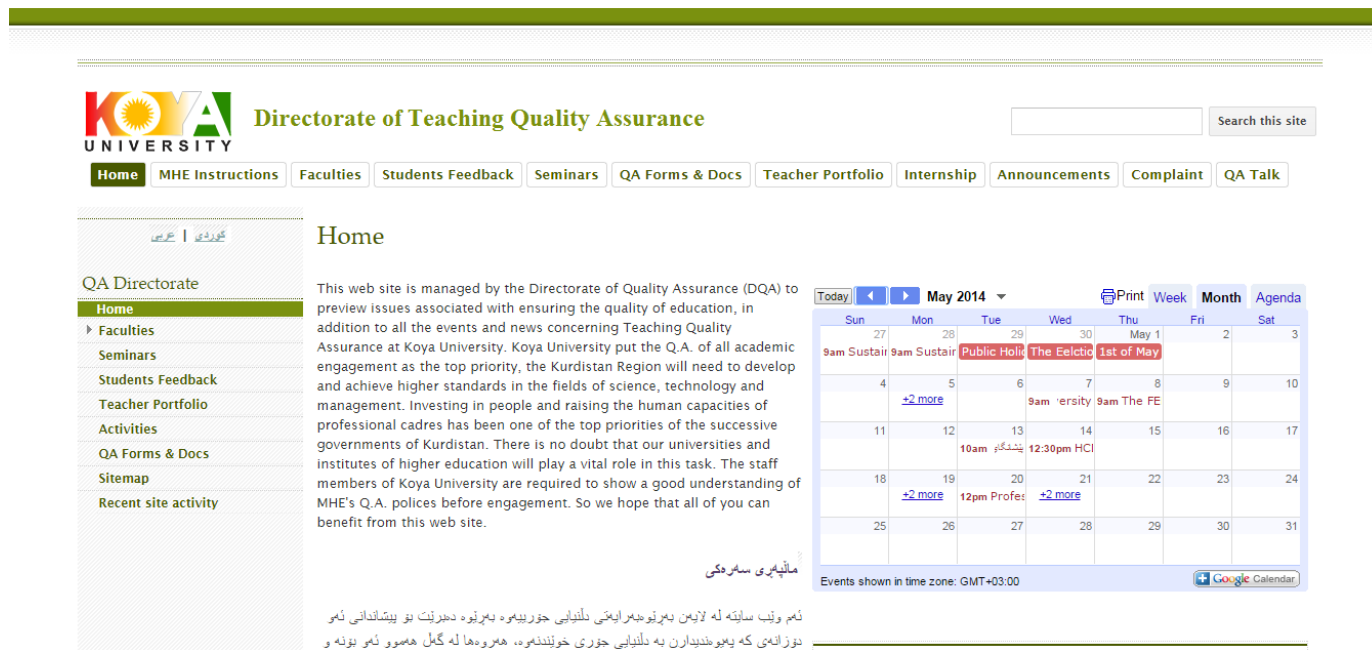


Fig. 10. Screenshot of the GAE-based Site for QA directorate that enables teachers to register and give feedback on seminars.

VIII. ADDITIONAL SUPPORTING TOOLS

Since the proposed SPOS may not guarantee the participation/involvement of all students/teachers e.g. giving feedback, due to the different reasons listed in section IV, the directorate of TQA has established a complete help site that gives information from A to Z in a simple way supported by tutorial videos. Fortunately, internet provision covers more than 80% of Koya university campus, besides the commercial internet provision in different forms in the city of Koya at reasonable a speed and price. A 24/7 help desk created to assist teachers and students, and weekly seminars have been provided by experts to enhance the users' IT skills.

IX. SYSTEM IMPLEMENTATION AND RESULTS

Koya University announced the launch of their SPOS on 14<sup>th</sup> May 2013 to assure a feasible quality TQA process. With the new system during the academic year (2013-2014):

- 1) Out of the 3505 university students, only 3150 were Eligible to give their feedback on taught courses and teacher performance. This is due to the regulation that stops students who have less than 90% class attendance to take part in the SF activity. With (4) faculties, 24 departments and an average of 7 taught courses/student, our system registered the following data; the percentage of the actual submitted SF hits was 76% of the eligible hits. Fig. 11 shows the eligible and actual number of hits per each faculty, and Fig. 12 shows the percentage of the actual feedback hits per faculty. Fig. 13, created by Google Spreadsheets, shows the average score versus number of teachers as an outcome of the online SF. Google spreadsheets collected data is able to present several different kinds of statistics and graphs, of which the graph in Fig. 13 is an example.

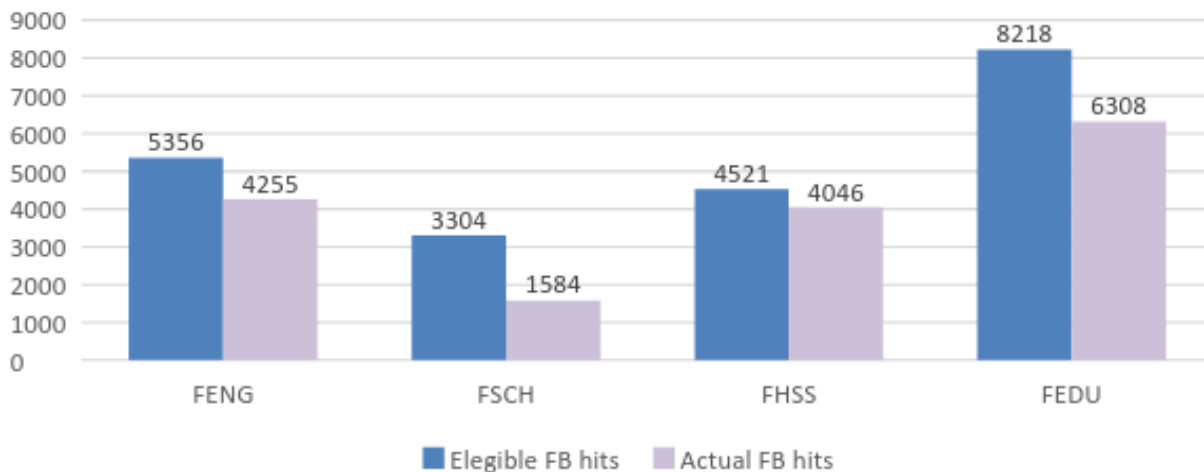


Fig. 11. The eligible and actual number of student feedback hits per each Faculty.

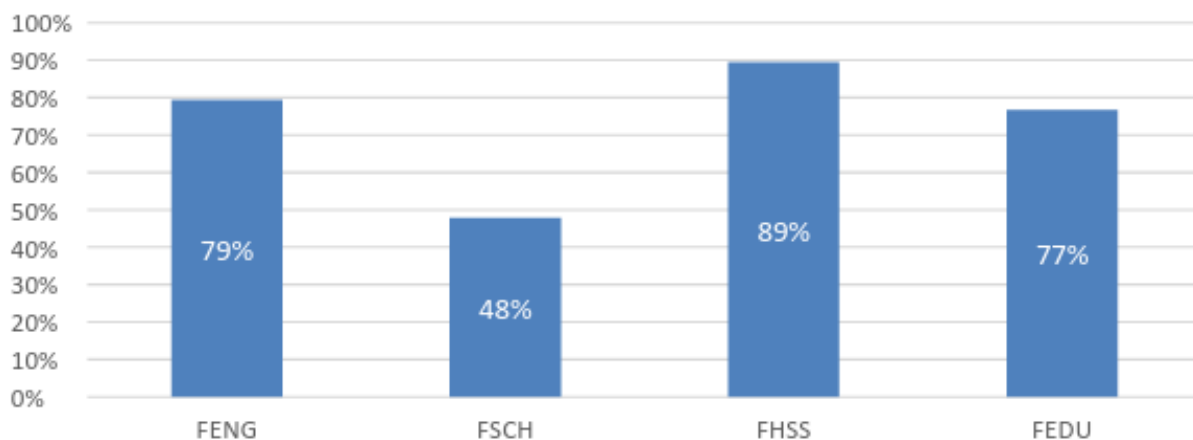


Fig. 12. The percentage of actual student feedback hits per Faculty.

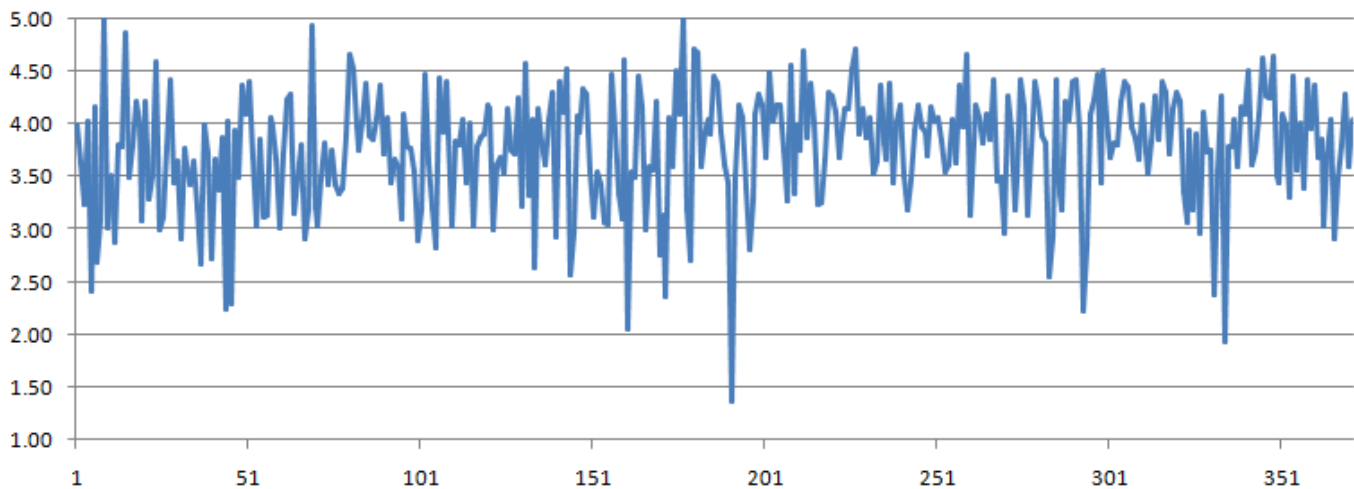


Fig. 13. Average SF score (on a scale of 5) versus number of teachers/courses.

- 2) For the 358 teachers, everyone has a complete dedicated personal electronic TP and CAD site, where they can record their number of activities and upload their certificates and proof documents. Moreover, the teachers are using a GAE-based QA directorate site to register their presented and attended seminars that are later scored by the same system and transferred automatically to their electronic TP and CAD personal site.
- 3) The teacher Portfolio and CAD are assessed online and scored using Google CMS-based form available at each teacher's TP and CAD site.
- 4) The SF and data collection process, and the process of the TP and CAD scoring both went smoothly and successfully.
- 5) The process is transparent, where the teacher's scientific achievement during an academic year is published on their electronic TP and CAD site and shared within the domain @koyauniversity.org only.
- 6) The process is secure and gives advisory accurate live results, statistics and graphs.

Furthermore the project implementation contributed to increase the overall computer literacy and Internet impact in education among academic community of Koya University. It is also contributed to Koya University global web presence. In the latest global university web raking by webometrics.info Koya University has showed a significant increased presence. The "Webometrics Ranking of World Universities" is an initiative of the Cybermetrics Lab, a research group belonging to the Consejo Superior de Investigaciones Científicas (CSIC), the largest public research body in Spain. The Webometrics report shows that Koya University has secured a world rank of 12096 compared with zero presence in any previous global web raking before. The report reveals that Koya University is now ranked 20<sup>th</sup> university amongst 55 total university in Iraq and ranked 4<sup>th</sup> university amongst the KRG universities (webometrics.info, 2014)

#### X. ANTICIPATED RISK WITH SPOS AND TACKLING

The implementation of SPOS during the academic year (2013-2014) revealed that only 76% of the students were accept to be involved in the online SF of SPOS and around 90% of the academics were able to be engaged with SPOS online activities. These were due to:

- 1) Limitation of internet access.
- 2) Limitation of computer literacy that was generally obvious in both FEDU and FHSS more than FENG and FSCH, due to the later better IT background.
- 3) Lack of awareness on the benefits of using the online system, by both; academics and students.
- 4) The prevalence of a culture of rejection to the online systems implementation, particularly by senior academics.

The above risks can be tackled with the:

- 1) Provision of the high speed internet and increase the coverage over the Koya university faculties, library and campus, via wire and wireless access.
- 2) Provision of IT training courses for the University academics to enhance their IT skills.
- 3) Provision of frequent seminars to the university students to be more familiar with the online systems.
- 4) Increasing the academics/students awareness on the benefits of the online system implementation using posters and brochures.
- 5) Provision of online tutorial videos in the SPOS sites.

Considering the above tackling actions, were some of them are already followed, we believe that in the second and later years of implementing SPOS, more academics and the students, as well, will be fully engaged and take the benefits of this online system. Nevertheless, we also believe that there will always be a small percentage of the academics who will continue to reject the SPOS due to its, security, transparency and efficiency that create accountability to their scientific community in different forms.

## XI. THE BENEFITS OF IMPLEMENTING SPOS

Since May 2013, where SPOS has been implemented, and till September 2013 where all students and academics presented their different activities via the online system, the following benefits were achieved:

- 1) More than a quarter of million sheets of paper, plus printer toner and scans were saved.
- 2) The QA office staff needed for collecting sheets and forms, data entry, and data processing became useless after implementing SPOS.
- 3) Since the SF and other major activities are accommodated electronically, the physical direct monitoring by coordinators has been eliminated.
- 4) The academics and students showed more confidence about their activities assessment, due to the transparency and efficiency.
- 5) The SPOS revealed itself as a low cost online system, where all belonging sites are edited and updated by the academics themselves. Moreover, the manpower needed to run, administrate and maintain the system is limited to four persons with average IT skills working at the QA directorate office with the assistance of the four faculty officers that make a physical bridge between the QA directorate and the academics.
- 6) SPOS may show more adaptation, as compared with paper-based system, to any future updating/upgrading to the TQA process.

## XII. CONCLUSION

This paper presented a newly-engineered paperless online system to assure quality teaching practices at Koya University. The proposed/implemented system uses GAE as the medium and:

- 1) It is a totally computerised and processed electronically and online. It is not a lost hybrid system (paper+paperless system).
- 2) It is a secure, convenient and easy to use for the SF as well as the TP and CAD.
- 3) Guarantees the transparency and accuracy in evaluating the TP and scoring the CAD.
- 4) It is less time-consuming, organized out of the package and easy to use by the teachers, and makes them more familiar with the benefits of computer-based technology and online applications.
- 5) It offers a good archiving system for the University/teacher, since the data is saved in the Google Drive of the teacher's Google-based account and shared with the University. This makes teachers personally responsible for their data and archive.
- 6) The process takes less effort since the physical link between teachers and the TQA directorate has been shortened via electronic link. They share their inputs directly with the directorate of TQA in an easy way.

- 7) It is an easy interactive way to access statistics and analyse data faster to enhance and assure the quality of teaching at Koya University.
- 8) It creates a genuine link between members of our academic community for sharing experiences and personal views.
- 9) It puts the university in the unique position of advocating more futuristic and dynamic ways of assuring its TQA policies.
- 10) Lack of serious accountability measures against faculty's low rated TP and CAD by MHE has led to shortcoming in full hearted engagement by academics.

During the short period of implementing SPOS at Koya University from May 14<sup>th</sup>, 2013 till the date of collecting SFs and assessing the TP and CAD in June 20<sup>th</sup>, 2013, SPOS registered a high turnout by the students, namely about 76%. The teachers' turnout was 90%, who were engaged and prepared their online TP and CAD. The whole process also revealed that, in general, faculty members and students in the FENG performed better in using the new system. This indicated that users with an engineering background approached the new system more quickly and easily.

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