

## **Evaluating the usability of SAFEER e-services implemented by the Saudi Arabian Cultural Mission (SACM) in the USA**

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### **ABSTRACT**

This study investigates the usability of SAFEER workflow implemented by the Ministry of Higher Education, Saudi Arabia on Saudis Students at the United States of America. It focuses on SACM employees' perspective. Data were collected through a questionnaire distributed among all employees. In addition, open-ended questions were used to obtain more details to address the problem.

The study findings were unsurprising to the researcher. SAFEER e-service is effective tool to serve students dispersed on a huge country such as USA. Nevertheless, it needs more improvement and adjustment to accommodate users needs and requirements. The usability of the system is very low; more changes and options are required to make the system more effective and efficient.

The study suggests conducting similar study to investigate SAFEER usability form students' perspective, in order to improve it and refine it.

Keywords: Usability, e-services, e-business, evaluation, Saudi Arabia.

## **INTRODUCTION**

### **Overview**

In 2005, the government of Saudi Arabia decided to initiate a new scholarship program called King Abdullah Scholarship Program (KASP) to help its citizens to gain the necessary knowledge for advancement. As a result, more than 150,000 students were sent to study abroad all over the world, and about 50% of them are now studying in the USA. The government decided to extend KASP for five years more. And because it is difficult to handle such huge number of students through traditional ways, the Ministry of Higher Education (MOHE), decided to build new systems under the name of SAFEER; which is a workflow that handles the requests of Saudi Arabian Cultural Mission (SACM) students. The system was launched on August 1<sup>st</sup>, 2011, and the system is updated and modified on a weekly basis.

This research will concentrate on e-services provided to Saudi students studying in the US. It intends to present some information related to contributions of the MOHE in providing services to scholarship students in USA through the SACM, especially through the newly designed Internet Portal (SAFEER). The Internet portal was designed to allow easy interaction between the SACM employees and the Saudi students studying in USA. First, it will provide a general review on the Saudi Arabia history and its education. Second, it will show some information on the development of higher education. Third, it will shed some light on new King Abdullah Scholarship Programs (KASP) and its objectives. Fourth, it will provide information about the students' online e-services, and the problems that SACM employees and students face during using it. Fifth, it will offer a tool to collect information from SACM employees about the e-services, to analyze and improve its effectiveness. Finally, it will display the results, and offer suggestions to help SACM present e-services in a better way in a trial to reduce difficulties and increase effectiveness.

### **Study Problem**

A large number of Saudi scholarship students in the US have expressed dis-satisfaction about their interaction with SACM officials in the USA. In addition, employees as SACM (advisors mainly) complained about the portal too. The major factors contribute to students' dis-satisfaction feelings: (1) about SAFEER comprehensiveness, (2) is SAFEER intuition –ease of use, (3) SAFEER portability, (4) SACM employees' responsiveness to requests submitted through SAFEER –Agility, and (5) Technical Support and Help Desk. For employees however, they are concerned about the following factors: (1) the clarity of each electronic request, (2) the level of information provided at each electronic request (3) the relationship between different requests, (4) the pathway of each request. Finally, SAFEER will be evaluated overall and compared with traditional method of conducting business such as paper-based, sending electronic mail, calling advisor or travelling to Virginia to get request done.

### **Study Rationale**

This issue is very crucial to the investigator, not only because he is currently (during the study) working at SACM, but also because the issue is global, recent trend, and important to

make it succeed. In Saudi Arabia, the government is moving towards automation of all processes related to citizens' services; huge initiative was launched few years ago toward e-government. The government requested all its sections such as; higher education, colleges public, and schools to implement a workflow that will replace the traditional system – using paper- in processing requests inside their institutions.

There are more than 150,000 Saudi students studying abroad, enrolled at language centers aiming to continue their undergraduate as well as graduate studies and training programs. MOHE launched the portal (SAFEER-workflow), aiming to replace the traditional paper-system that was used for many decades. Therefore, SACM is working hard to improve its services. Those services were never evaluated internally or tested by outsiders; however, it had undergone consistent changes through ad-hoc committee. It is important to investigate the Usability of SAFEER from customer perspective (students and employees) to be able to improve the system, and eliminate shortcoming or weaknesses.

### **Study Objectives**

The study aims to investigate the usability of SAFEER e-services implemented by SACM. It is crucial to evaluate current system – at this study from employee's perspectives. In addition, through this study it is possible to uncover issues related to...

### **Study Questions**

This paper intends to answer a number of questions on the usability of the SAFEER from SACM employees' perspective. The research questions are:

1. Is SAFEER covers all students needed services and requests?
2. Is SAFEER user-friendly, easy to use and intuitive?
3. How much information is needed at each request to be processed accordingly?
4. Is the current pathway of each request sufficient? If not what is the alternative?
5. How effective is SAFEER compared to traditional ways of conducting business such as; paper-based requests, using traditional mail, using phones in contacting SACM advisors and employee, using emails, and even travelling to Fairfax to talk to them face to face.

### **Research Design and Methodology**

#### ***The Study Limitations***

The study is limited to the specified electronic portal (SAFEER-workflow) implemented at SACM and evaluated by its employees in the USA. Other studies for similar services can be modified to suit the other situations. It is recommended to conduct such study to cover areas such as students' perspective.

## **THE LITERATURE REVIEW**

### **A Historical Overview on Saudi Arabia and its Education**

Saudi Arabia is one of the oldest countries in the Middle East. It occupies most of the Arabian Peninsula. It mostly desert occupies a 1,960,582 km with a population of 22,000,000 (estimates vary) including about 5 million foreigners. All Saudis are Muslims. The country is known to the whole world for several reasons. First, it is the birthplace of prophet Mohammad (PBUH). Second, it is the most important place for Muslims as it contains the two Holy Shrines of Mecca and Medina. Third, it is the focus of the annual Islamic ritual “Hajj”; the pilgrimage to the holy city of Mecca. Fourth, it is the biggest known oil-producing country in the world. Finally, the country is a young country; King Abdulaziz Al Saud unified it in 1932, less than 100 years ago (The Royal Embassy of Saudi Arabia, 2012).

Saudi Arabia is one of the developing countries in the Middle East that tries by all means to develop the country and the people. Saudi Arabia is using a lot of its revenues to develop and educate the most important asset in any nation; its citizens, and that is through serious dedication to education and training. After a period of time, the Kingdom started another era, by sending students abroad to more developed countries to learn (KASP Forum, 2012).

Finally, like in many countries, education in Saudi Arabia had encountered problems during its development and modernization; such as, classroom management, student absenteeism, lack of reading and writing, academic cheating, parental involvement, and teacher burnout. All those problems were tackled with, and solved to an extent.

### **History of Higher Education in Saudi Arabia**

The Saudi higher education has undergone several developments. At the beginning, the country depended on sending students abroad either self-sponsored or government-sponsored, but later on, universities began to open. First, a new mark for higher education started with the opening of the oldest university in the country is King Saud University in Riyadh. The Royal Embassy of Saudi Arabia (2012) mentioned that the first university was opened in 1957 with nine instructors and only 21 students.

Nowadays, the university has around 25,000 students pursuing degrees at all major fields of art and science. The university offers also higher degree programs in many fields especially in engineering and medical sciences. Second a private national university in Jeddah. King Abdulaziz University was known as the National University. Later, it carried the name of the founder of Saudi Arabia as the first university in the kingdom. King Abdulaziz University (2012) noted that the university established in 1967 aimed at allowing and giving opportunities of higher education in the Saudi western region. The university started its first year with a small number of students (68 male students and 30 female students). In the year 1974, the government adopted the university and changed its status to a government university. The adoption of the government allowed strong support and changed King Abdulaziz University to a modern university with 82,152 male and female students (King Abdulaziz University, 2012).

Third, a new era started in 1975, where the government decided to establish the Ministry of Higher Education. The Ministry started planning for higher education to care about the quality and availability of higher education in all regions. The objectives of the plans were: (1) to

establish new higher education institutions in all the country's regions, and (2) to establish undergraduate and graduate programs in most majors at all universities (The Royal Embassy of Saudi Arabia, 2012). Fourth, another era of development of higher education exploded lately in the country after the Gulf War 1991 where the government started to exert more effort to higher education. As a result of the oil revenues, the government kept building and establishing new universities all over the country to support the increase of number of students, and to cover the large and remote areas in kingdom (SACM, 2012).

Finally, and as a result, the number of higher education institutions reached 64 universities and colleges in both the state and private sectors. As by the year 2005, the number of universities reached 11 major universities, afterwards 8 new government universities were opened later in 2006 and 2010. In addition to that a large number of vocational institutes, and a growing number of private and electronic open universities and colleges that reached around 44 universities and colleges (MOHE, 2012b).

### **An Insight on the Recent Development of Higher Education**

According to the MOHE (2012b) report on higher education, the new developments of higher education in Saudi Arabia unlimited support from the government in a form of “a decree to expand existing universities and their colleges and departments,” in addition to “setting up new universities in the provinces and districts of the Kingdom”. As a result, the number of public and private universities has gone up, and the budgets allocated to the Ministry of Higher Education and the various universities went up to 8% of the total budget of the country. Furthermore, the MOHE has also gone further in a step towards “focusing on research and planning for the future, in order for the Kingdom to rise to the rank of advanced countries in the field of higher education”(MOHE, 2012b).

The most important aim of higher education was to accommodate the rising numbers of male and female students. The numbers of colleges and majors expanded, the numbers of faculty members doubled, and universities and colleges reached smaller regions and cities.

### **An Overview on the Types of Higher Education**

All the above tables can clearly show the increasing numbers that were not expected in this newly developing country. The total number of programs jumped to 3,600 programs, the number of students doubled, the number of graduates almost tripled, and the number of faculty members exceeded the double. All that shows that there is an increasing demand for higher education. That increasing demand in both higher education and the job market (that is mostly filled with expatriates) made the young country use its savings from the oil revenues to take a wider and faster step to the future through the scholarship programs where the government started sending large numbers of Saudi students abroad to gain knowledge and return to help developing the country. Actually, the Saudi government's intension was to follow the track of advanced countries in major areas of knowledge such as medicine, engineering, computer science, and business administration.

Thus, the government started another effort in its history sending a large number of students abroad for higher studies. The deal was that the government offered its citizens an opportunity of a lifetime that included full paid scholarships to high GPA students to study in many countries of the world such as USA, GB, Canada, Australia, Japan, Korea, Malaysia, and

many other countries. The number of students reached around 150,000 students all over the world; in the US only we have around 70,000 students (SACM, 2012). Following is a description of the program.

### **King Abdullah Scholarship Program (KASP)**

One of the programs devoted for gaining knowledge is King Abdullah Scholarship Program (KASP). The main objective of the program is: "To prepare and qualify Saudi human resources in an effective manner so that they will be able to compete on an international level in the labor market and the different areas of scientific research, and thereby become an important source of supply of highly qualified individuals for Saudi universities as well as the government and private sectors" (KASP Forum, 2012). The program provides the means for Saudi students to join the best universities of the world to complete studies and obtain higher degrees (Bachelors, Masters and Doctoral degrees) in certain fields needed by most public and private sectors in the kingdom. Those fields are as follows:

1. Medicine, Dentistry, and the Medical fellowship.
2. Pharmacy.
3. Nursing.
4. Medical sciences: radiology, medical laboratories, medical technology, and physical therapy.
5. Engineering: civil, architectural, electric, mechanical, industrial, chemical, environmental and communications engineering, as well as heavy equipment and machinery.
6. Computer: computer engineering, computer science, networks, etc.
7. Pure sciences: mathematics, physics, chemistry, and biology.
8. Other disciplines: law, accounting, e-commerce, finance, insurance and marketing.

The above academic disciplines and scholarships were selected based on a study of the needs of government's ministries, other governmental sections, and the private sector in order to fulfill the requirements of work force in all the kingdom's regions. The Program was directed to qualify Saudi youth to participate in the development of the country in all fields (KASP Program, 2012).

The countries specified for scholarships are the countries thought of as developed and have good higher education. The criteria put to select those countries was their excellence of their educational programs. Students who are accepted in the program currently are sent to the following countries: USA, Canada, UK, Ireland, France, Spain, Italy, Australia, Germany, The Netherlands, Poland, New Zealand, Austria, Hungary, Czech Republic, Singapore, South Korea, Japan, People's Republic of China, Malaysia, India, and South Africa (KASP Program, 2012).

The program provided Saudi nationals with opportunities of one-life time, so it cared about quality measures for selecting the candidates. Here are some of the measures decide on for the candidates:

1. The applicant must be a Saudi citizen,
2. The applicant must not be a government employee,
3. The applicant must study full-time and reside in the country designated,
4. The applicant's age must fulfill the specific conditions for each level of study,

5. Nomination shall be according to the requirements of the different province and governorates Kingdom-wide, the academic disciplines targeted by the program, and the countries designated (KASP Program, 2012).

All the above measures are considered data and are entered accurately and correctly in the KASP site. After the Higher Education Scholarship administrators determine acceptance in the scholarship program, then the applicant's nomination will be approved for final scholarship award.

### **The Role of Saudi Arabian Cultural Mission in the US**

Like all the other Saudi Arabian cultural offices abroad, the Saudi Arabian Cultural Mission (SACM) to the United States is a specialized government agency that started in 1951 to fulfill two main objectives: (1) to meet the educational needs of Saudis studying in the United States, and (2) it functions as medium between the U.S. educational institutions and Saudi higher education institutions. SACM is an integral section of the Royal Embassy of Saudi Arabia in Washington, D.C. Since 1988 the Saudi Arabian Cultural Mission has made modern modifications in its system and continues to integrate updated technology into its office to follow the recent technologies and tries to make interaction and services easier for the students (SACM, 2012).

The SACM's carries several responsibilities: (1) it represents Saudi universities, and Saudi governmental agencies in the US, (2) it reports on students' academic progress to their scholarship agencies, (3) it enables communication between Saudi educational and research institutions and their American counterparts, and (4) it also implements the scholarship rules and regulations on students. All those tasks required opening several departments under the supervision of the Cultural Attach', such as Academic Affairs, Financial and Administrative Affairs, Social and Cultural Affairs, and Information Technology (SACM, 2012).

The scholarship program attracted large numbers of students in all degrees and almost all fields of study. The program started in 2005 with 2,800 students, reached 119,582 students in 2010, and according to the latest unpublished statistics reached 186,000; most of them are in the USA.

Table 5: Numbers of KASP Students, 2007 to 2011

| Year | Program          | Male  | Female | Sub-Totals | Totals |
|------|------------------|-------|--------|------------|--------|
| ٢٠٠٧ | Diploma          | ٧٦٩٤  | ٣٦٥١   | ١١٣٤٥      | ٨٠٩٢٩  |
|      | Bachelor         | ٣٤١٢٨ | ٥٩٦٧   | ٤٠٠٩٥      |        |
|      | Graduate Studies | ١٧٥١٥ | ٦٩٦٦   | ٢٤٤٨١      |        |
|      | Language         |       |        | ٥٠٠٨       |        |
| ٢٠٠٨ | Bachelor         | ٣٧٢٢١ | ٦٤١٣   | ٤٣٦٣٤      | ٩٥٦٩١  |
|      | Graduate Studies | ١٩٨٨٥ | ٨٩٣٦   | ٢٨٨٢١      |        |
|      | Other            | ٩٥٦٠  | ٤١٠٦   | ١٣٦٦٦      |        |
|      | Language         |       |        | ٩٥٧٠       |        |
| ٢٠٠٩ | Bachelor         | ٤٠٠٧٠ | ٧٣٢٧   | ٤٧٣٩٧      | ١٠٥٢٩٠ |
|      | Graduate Studies | ١٩٨٨٦ | ٩٣٤٥   | ٢٩٢٣١      |        |

|      |                  |        |         |        |         |
|------|------------------|--------|---------|--------|---------|
|      | Other            | ١٢,٩٢٧ | ٥,٣٦٠   | ١٨,٢٨٧ |         |
|      | Language         |        |         | ١,٣٧٥  |         |
| ٢٠١٠ | Bachelor         | ٤٠,٨٧٢ | ٧,٨٣٦   | ٤٨,٧٠٨ | ١١٩,٥٩٢ |
|      | Graduate Studies | ١٩,٣٠٣ | ٩,٧٩٧   | ٢٩,١٠٠ |         |
|      | Other            | ٢٢,٠٩٤ | ٧,٣٢٠   | ٢٩,٤١٤ |         |
|      | Language         |        |         | ١٢,٣٧٠ |         |
| ٢٠١١ | Bachelor         | ٥٨,٨٩١ | ١٠,٤١٩٦ | ٦٩,٣١٧ | ١٣٠,٣٩٧ |
|      | Graduate Studies | ٢٣,٨٥٧ | ١٣,٩٣٠  | ٣٧,٧٨٧ |         |
|      | Other            | ٨,٢٩٤  | ٣,٣٨٤   | ١١,٦٧٨ |         |
|      | Language         |        |         | ١١,٨٤٥ |         |

### SAFEER Student E-services Portal

The Ministry of Higher Education (MOHE) has recently designed a portal site in the Internet using the latest technologies in the management of portals. The gate specified content in accordance with the categories of visitors to the site; where they were divided into three main sections (about the ministry, education in the Kingdom, and education abroad) where the content allowed the various visitors to access quickly the information they need. Navigation of the site used the latest design techniques of drop-down menus that allow quick access to all sections of the site (SAFEER, 2012).

In addition to that, MOHE created student services, university services, Attaches services. The student services contained almost all the required services students need to interact with the cultural mission about. Among those interactions are: (1) academic services such as requesting change of university or change of major; (2) financial services such as stipends and financial guarantees; (3) personal services such as requesting tickets to go home or attend a conference, or requesting information about financial or educational regulations; and (4) creating one's own page of preferred sites and important dates.

The administration has also developed portal services between Saudi Cultural Mission sites all over the world that would enhance communication between those sites on the one hand and between the ministry scholarship Directorate and those Missions on the other hand. Finally, MOHE also has built internal portal for the communication between the ministry's departments as well as with employees (SAFEER, 2012).

### E-government and ICT

The Information Communication Technologies (ICT) revolution is changing the rules of the game in every aspect of our lives. It brings innovation and creativity at the way people learn, conduct business, and deal with each other. It helps to remove geographical and language barriers and even time restrictions. People can process their transactions at anytime, 24 hours, 7 days a week from anyplace on the globe as long the Internet is available. One of the implementation of ICT is E-government, where people or agencies deal with each other through responsive electronic medium. Heeks (2006) suggests that ICT contributes to the advancement of governance in three domains:

1. Automation: Automation of traditional processes.



2. Informatization: Supporting current traditional processes with more accurate information, communication, and decision implementation.
3. Transformation: creating innovative and creative method of process or delivery.

It is crucial to evaluate the effectiveness of any such system to insure that it meets the set requirements and satisfy the designated goals. Evaluating an IT system is very sophisticated but systematic process, which used for many years. Cronholm (2010) suggests an excellent IT System Evaluation Model.

Many of governments, organizations and business corporations are moving toward automation, informatization and transformation of their services into new modes of delivery. Before elaborating on E-government, let us define it clearly. According to Hu et al. (2008) e-government has different definitions depends on domain of practices and objectives. Different people from different disciplines use terms such as e-government, eGovernment, e-Governance, eGovernance and etc., referring to deferent concepts but it is related in one way or another. In my opinion, the most comprehensive definition was coined by Gil-Garcia et al. (2005) “E-government as the intensive or generalized use of information technologies in government for the provision of public services, the improvement of managerial effectiveness, and the promotion of democratic values and mechanisms” (Gil-Garcia et al., 2008).

The implementation of E-government applications requires strategic plans and well preparation planning. Rabaiah and Vandijck suggested a clear e-government strategic framework that will help governments, organizations and institutions to build reliable e-government system. The strategic framework consists of the following items: Vision, Strategic objectives, Users, Delivery modes, Guiding principles, Channels, Priority areas, Major initiatives, Infrastructure, Organization and Guidelines (Rabaiah et al., 2009).

Sharon (2002) suggests that E-government comprise of four components as follows:

1. E-Democracy, where citizens will be able to contribute and participate on decisions making.
2. E-Commerce, which describe commercial transaction between different parties through electronic medium.
3. E-Management: the implementation of ICT to enhance government transactions and processes. The concept of E-Leadership was not discussed; I believe, there is a great need to investigate this new term in more details; for more information refer to DasGupta work (DasGupta, 2011).
4. E-Service: as defined by Parial and others (2011) “An e-service is a web based software or an information system which is part of the Government web system whose aim is to automate support or partly automate administrative process. This process can be triggered by a request from a citizen.”

### **E-services and Workflow Evaluation**

Software is designed and developed for a clear purpose; the main objective of software is to help and enhance repetitive work that accomplished by human and increase employee productivity (Freeman, 1976). According to (Boehm, 1988) software is developed in a systematic way, starting with systems analysis, requirements analysis, design, coding, and deployment. Later, evaluation and testing is a critical stage to ensure its validity and reliability

(Boehm, 1988). Web-based software is a new type of software relies on the Internet. Due to the Internet revolution, the need for more web-based applications increased significantly. Later, governments, NGOs and private sectors moved toward electronic transactions and e-services.

Now, most of traditional services are available online through agencies' websites. A new type of web-base application was developed, called workflow application; it is a method for automating transactions and processes that were previously handled manually. The concept of workflow is very simple; it requires an interface page that collects specific information from users, passes the information to organizational personnel for review, may forward the information to supervisory personnel, informs users of decisions, and records output in a central database.

Nowadays, Workflow application is very helpful to users, especially if users are located at different places (Boyer, 2002). MOHE launched the SAFEER-workflow to connect its students all over the world to a central database located in Riyadh, Saudi Arabia. Each Cultural Bureau is given the authority to handle its own electronic requests, and make a final decision or forward it to MOHE for final decision. All transactions however, are recorded and reported through electronic medium and saved at central database in headquarter in Riyadh.

SACM employees are dealing with their students in USA through SAFEER-workflow; requests are submitted through students' portal. Everyday, SACMS's employees receive thousands of electronic requests through the portal. The portal covers most of students' requests such as Open File, Change School, Change Major, Issue Financial Guarantee, Issue Ticket, Update Banking Information, Close File, etc. However, new requests are under development such as add Student Report, and Degree Plan, etc. SACM employees need to handle these requests manually, which consume more time and overwhelm advisors.

Furthermore, current electronic requests are not clear in terms of required attachments that need to be enclosed with each request. Additionally, some requests are ambiguous; SACM needs to clarify it and provide students as well as advisors with more instructions. Finally, the pathway of each request is questionable by advisors, directors and students. Students need to know how long it takes to process their request, what is the next step, and how to proceed to if the request is approved or denied.

Designing an evaluation model is critical issue for e-services assessment; Usability is the main criteria that most studies are addressing and investigating (Parial, 2011). Software usability is defined as "a quality attribute that assesses how easy user interfaces [are] to use. The word "usability" also refers to methods for improving ease-of-use during the design process (web). On the other hand Nielson (2000) considers Usability is necessary for websites to survive. He designed a model for web-based application evaluation that will be implemented in addition to extension, which developed, by Garcia and others (2005).

## **RESEARCH METHODS**

This research is considered Action Research; Researcher is evaluating and assessing ongoing project (SAFEER Workflow) at SACM, Fairfax, Virginia. The output and outcomes of this investigation will be used to improve the system process. In order to address the issue and answer the research questions, the investigator developed an Evaluation Card (EC) based on frameworks and models used before Parial (2011), Cronholm (2010), Rabaiah (2009), Garcia (2005) and Neilson (2000).

This framework is dedicated to evaluate each electronic request of SAFEER-workflow, see Figure 1. The Evaluation Card was assessed and reviewed by a board of five professors who work at SACM in the capacity of Directors, Advisors and consultants. The Evaluation Card was adjusted and carefully revised. Later, a web-based application (Survey Monkey) was used to collect evaluations of all forms of electronic requests. The survey was distributed among all SACM employees through mail list, to seek their feedback and inputs and collect data about SAFEER workflow.

| Request Evaluation Card                  |  |
|--|--|
| Request Name:                            |  |
| Request Definition:                      |  |
| Request attachments and Justifications:  |  |
| What should be available on the Request: |  |
| What should be hidden at the Request:    |  |
| Request's Pathway:                       |  |
| Comments and suggestion:                 |  |

**Figure 1: Evaluation Card template**

The investigator gave participants three weeks to complete survey and submit it electronically. The questionnaire consisted of the following parts: (a) a request for demographic data from each participant; (b) Likert-scale type questions to allow respondents to assess various requests in light of Evaluation Card criteria along with open-ended questions that would allow participants to elaborate and explain; and (c) an open-ended question that allowed respondents to comment on SAFEER workflow in general.

## DATA ANALYSIS

Descriptive analysis was applied to the data to find the percentages of the returned answers of the survey. Out of nearly 500 employees at SACM 182 responded to the survey, which makes about 36% of the population of the study. The results of the study will be organized in the same manner as the questionnaire: (a) demographic data; (b) evaluations of SAFEER requests; and (c) open-ended comments concerning SAFEER processes.

### Part I: Demographic Data

The table below summarizes the demographic data collected during the study, starting with the gender of participants, their qualifications, years of experience at SACM, and their type of work at SACM. The demographic data will be discussed below.

### ***Gender***

According to data collected through survey, participants were divided almost evenly based on gender; 51% of the respondents are male where 49% are female. The result of this survey confirms the actual distribution of gender at SACM.

Table 6: Summary of Survey Respondents

| Response Category     | Available Options                         | Responses |         |
|-----------------------|---|-----------|---------|
|                       |   | Count     | Percent |
| 1. Gender             | Male                                      | 93        | 51.1    |
|                       | Female                                    | 89        | 48.9    |
| 2. Qualifications     | High School or Equivalent                 | 4         | 2.2     |
|                       | Bachelor Degree                           | 74        | 40.7    |
|                       | Master                                    | 74        | 40.7    |
|                       | Ph.D.                                     | 25        | 13.7    |
|                       | Other                                     | 5         | 2.7     |
| 3. Experience at SACM | Less than one year                        | 51        | 28.0    |
|                       | One to two years                          | 37        | 20.3    |
|                       | More than two, less than five years       | 56        | 30.8    |
|                       | More than five years                      | 38        | 20.9    |
| 4. Nature of Work     | Administrative employee                   | 13        | 7.1     |
|                       | Finance employee                          | 1         | 0.5     |
|                       | Technician                                | 0         | 0.0     |
|                       | Administrative manager/ Assistant manager | 2         | 1.1     |
|                       | Academic advisor                          | 161       | 88.5    |
|                       | Regional director / Assistant director    | 5         | 2.7     |

### ***Qualifications***

The qualifications of participants are vary; most of participants however have graduate degrees, which suit SACM objectives of recruiting well-educated personnel who is capable of dealing with electronic system.

### ***Years of Experience at SACM***

The Years of experience of participants are divided; each group is ranging from 20% to 30%; most of participants have between 2 to 5 years of experience at SACM, which tells about the their experience with old system –none interactive system.

### ***Nature of Work***

The last criterion which was checked is Nature of Work, as expected most of participants were Academic Advisors; 88.5% of the participants. This confirms the reality since the majority of SACM's employees are Academic Advisor -80% of SACM's employees- (SACM, 2012).

## **Part II: Evaluation Card for All SAFEER Requests**

Each participant evaluated each electronic requests based on Evaluation Card provided. The researcher used Multiple Choice and Check Box to judge each request and provide feedback. Participants provided valuable information about electronic requests, suggested revision and new pathway for each request. The researcher analyzed data, identified themes and patterns. Later, the researcher reached a conclusion in regard to SAFEER workflow in general and each requests particularly.

## **Part III: Open-ended Question**

The open-ended questions were very important to reveal more information. Only 42 respondents (23%) responded to the opportunity to comment on the overall SAFEER system. More persons might have responded if the preceding questionnaire had been shorter.

Participants showed great appreciation to SAFEER workflow; especially those who experience working without electronic system. In addition, participants suggested adding more electronic services to cover all other request that is processed manually. Some participants believe that some request has information that is not needed, in some cases, confusing. In the same time, some requests is missing crucial information that is helpful to make decision. Furthermore, defining requests; the purpose of each request, attachments that is needed, should be clarified and declared with more details in order to increase the efficiency of SAFEER.

Participants on the other hand, suggested revising the policy of having database overseas; the system is slow and in some cases jammed during the working hours. It effects on their achievement and create more frustration and panic on students side. Improving portal speed and avoiding maintenance during working days is suggested.

## **RESEARCH FINDINGS**

The study revealed very important information related to SAFEER Workflow. First, the participants showed high level of satisfaction with SAFEER Workflow in general. They talked about the software as a great help for them to accomplish their daily work; many positive comments were noticed, and recorded. In addition, most of participants selected current documents, did not ask for change in regards to attachments or data provided with each request. In other word, when survey presented data and asked participants to comment on it or to change it, few participants choose to do so. Most of participants agreed that current workflow is sufficient and suitable. Furthermore, participants agreed upon current pathway of most requests; they did not suggest changing the requests pathway.

On the other hand, participants were very worried about the speed of the system. They expressed great concerns about the system halts during working hours. It causes a lot of distractions and frustrations; students and schools officials have great demand and high expectations from SAFEER workflow, yet the system frequent failure creates more disappointments.

## **Suggestions and Recommendations**

Based on the outcomes of the study, the researcher suggested several steps to improve the efficiency of SAFEER workflow, and ensure high quality of services handled through cutting-edge information technology used to manage Saudi students studying abroad. SACM needs to revise the system from different perspectives; it has to take series of actions that lead to optimal software, comprehensive system, free of bug and easy to use, fast and efficient.

In order to accomplish this goal, the researcher suggested the following actions: SAFEER workflow needs to be revise from different perspectives, technical perspectives, administrative perspective, logistic perspective, and functional and engineering perspectives. First, the system needs to be reviewed from technical point of view; it has to cover all requests; including requests that might arises at monthly basis. Other department should be connected, such as Medical Department and Health Insurance (Aetna). MOHE regulations must be incorporated and implemented through SAFEER workflow. Accreditation Department should be included as well, where should not be able to request transferring to school that is not accredited or recommended.

Second, students need to be educated about the system; SACM has to launch an intensive program targeting their students to elevate their awareness about how to use the portal, and how to utilize it on the optimal way. Due to geographical barriers, SACM should utilize Social Media, such as YouTube, Facebook and Twitter to reach their students; disseminate its message and introduce new system to mass population through cheap but effective way; email is no longer the favorite option to younger generation.

On the other hand, internally SACM's employees are lacking training; according to survey most of them joined SACM very late; it was mentioned that they experience a lot of confusion, despite multi-language interface provided. SACM needs to organize professional training for their employees in general and advisors in particular. Since most of them are not aware of MOHE regulations, it is very important to organize professional training courses and workshop targeting employees.

Furthermore, MOHE needs to revise its policy in regard to system delay; servers and central databases need to be moved locally to ensure quick access and less technical delays, especially during peak hours. Such decision needs to be addressed with careful and strict access policy; due to the nature of data and possibility of security breaches; SACM is handling a very sensitive information and national data of hundred of thousands of citizens.

Finally, there is a great need for Re-engineering of electronic requests of SAFEER workflow. The requests should be connected with each other to elevate the efficiency of employees and advisors. Through automation of all requests and adding more options the system will be able to control the advising process and give employees more time to focus on other issues such as collaboration with US universities and English centers.

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