

Community Medicine Education Reform throughout 2006/2013: Needs for Reactivating the Reform

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Abstract

Throughout the period 2007-2013, Cairo University - Faculty of Medicine-Community Medicine Department (CU-FOM-CMD) devoted efforts to capitalize on the successful EDUCATION reform model implemented in 2006/2007. **Objectives were** to explore the medical students' and staff perspectives towards CU-CMEC in two academic years 2006/2007 and 2011/2012. The study was a **health system (evaluation) design**. Data were quantitative from a 523 students of year 2011/2012 and qualitative from community medicine department (CMD) staff members. **Results:** The reported satisfaction by the 2012 versus 2007 students was as follows: general satisfaction was 52% versus 69% ($p= 0.00$), satisfaction from generic skills was reported by 61% versus 83%, from technical skills was reported by 54% versus 64%, and from creative activities was reported by 41% versus 59%. CMD staff members affirmed that, the reform persisted for seven years due to continuous role of the critical mass of staff members. **Conclusion:** focusing on students' autonomy, learning-service and hands-on training, could boost the CMER and respond to the changing students' expectation and community needs over time.

Key Words: Education reform, Community Medicine Course, health system research, critical mass

Introduction:

The introduction of health care reform in many countries all over the world was coupled with initiation of medical education reform to respond to community demand to quality health care. Medical education reform has different approaches regarding contents and methodology of education/training, as well as research studies that evaluate the outcome of the reform. Nevertheless, there is a consensus that medical education reform considers holistic approach in medical education. There is guarantee that physicians are highly skilled due to their biomedical education and clinical training, but they are not prepared to provide health care services that consider determinants of health (Sales & Schlaff 2010; PREP V. 3 Ways Healthcare Reform May Impact Medical Education 2011) , health promotion and addressing disparity to access to quality health care (Taylor, Buckner, Walker & Blumenthal, 2011) . Such situation edicts the

need for collaborations and integration between the academic medicine and public health communities to augment benefits to both parties (Maeshiro , Johnson , Koo , Jean Parboosingh , Carney , Gesundheit , & Shore 2011) . Medical education reform could consist of different articulated principles ((Sales & Schlaff 2010) . Those principles include: quality of medical practice that require teamwork, evidence-based medicine which focuses on outcomes and assembled clinical trial data, population/social medicine, awareness about health care policy, and heuristics approach that build the capacity of monitoring patients to develop cumulative experience. Medical education reform could consider capitalizing on the role of the medical school staff (Hueppchen , Dalrymple , Hammoud , Abbott , Casey , Chuang ,& Katz 2011; Rotthoff , Baehring , David , Bartnick , Linde , Willers , & Scherbaum 2011;Stok-Koch , Bolhuis , Koopmans . 2007). The medical school staff should have knowledge about education theory, show interest to topics, organize time according to components of topics, justify the process of teaching according to student needs, stimulates independent thinking, and emphasize on generic skills as teamwork and communication skills (Hueppchen , etal 2011; Rotthoff ,etal 2011; Majumder , D'Souza &Rahman 2004) , and staff –student interaction (Stok-Koch , Bolhuis , &Koopmans . 2007) , and problem solving learning (Oda Y& Koizumi S 2008). Teaching professionalism had been well-defined as (Stern & Papadakis 2006): setting expectations (orientation sessions), providing experiences (formal curriculum, problem-based learning, community-based education, patient-doctor relations) evaluating outcomes (Assessment by faculty, by peers, patients (satisfaction) and multi-perspective evaluation. Specific education reforms had been designed for each medical specialty across the medical school departments. For example The Microbiology Department (Said , Abdel-Fatah & Abo-ElKhei 2011) had introduced the reform intervention as student-centered education, team work that stimulates students to present specific topics. Community Medicine Departments (CMDs) consider three principles (Simoyan , Townsend , Tarafder , DeJoseph , Stark & White . 2011) : apply knowledge and skills acquired through the course of their studies to public health research in varied settings, service-based practice and address different needs of patient subgroups and population. Other CMDs focus on multi-disciplinary approach that covers three broad areas (Uottawa University 2012; Funning and Goba . 2007) : etiologic epidemiology, social epidemiology and clinical epidemiology. In general, there is compromise to Community Medicine Education Courses (CMEC) to be student-centered, self-directed learning, early clinical contact and early contact with health care services. The core curriculum incorporating the essential knowledge and skills and to be formulated in a special study modules, emphasis on primary health care, fostering problem solving skills, and use extended learning settings and community based teaching (Majumder, 2004). Public health professional consider building capacity in public health and community medicine should consider three levels: (a) Generic skills in the public health workforce such as information seeking skills, project management, leadership and team work (b) Specialized skills in public health areas where there is a nationally recognized deficit of highly skilled practitioners/researchers in epidemiology, biostatistics, health economics, environmental health (c) High profile specific strategic needs-special skills qualified to manage different types of disasters and outbreaks (Said, et al 2011).

In Egypt, higher education reform is aiming at improving the quality of education for preparing graduates to the workforce with its important impact on social stability in Egypt (Holmes 2008) . The initiation in health sector reform in Egypt 1997 had emphasized the need for reform in

medical education (Ministry of Health and Population and Harvard School of Public Health 1995; MOHP- Sector of Technical Support and Project 2003; Salah H.2005). Additionally, each intervention/pilot testing of medical education reform activities should be properly evaluated, monitored overtime and publicize learned lessons especially with the changing policy, economic and organization environments

Background

Cairo University, Faculty of Medicine, Community Medicine Department (CU-FOM-CMD) introduced Community Medicine Education Reform Initiative (CMERI) in the academic year 2006/2007 for the fifth year medical students. The CMERI adopted the mission of the Faculty of Medicine related to preparing community-oriented physicians who could respond to community health needs within primary health care (PHC) settings. The concept of "CMERI" was based on three mainstays in the education process: development of generic skills, integrating the theoretical and practical components within the frame of the Intended Learning Outcomes (ILOs) and firming up the learning service activities that build advocacy skills. For sustainability of the initiated reform three pivotal interventions were done: political backing from the head of the department, institutional upkeep by training the junior staff-as a critical mass for supporting change and raising students and staff demands through marketing for the reform across the faculty through conferences and joined activities with the other departments in the medical covveys.

The objectives of the CMEC were focused towards ensuring that the student is able to carry on a leadership role in motivating the served community, having community-oriented physician capable of anticipating and responding to community health needs and influencing the students to become role models to the individuals, families and communities.

The evaluation study of the CMERI (Abdel-Razik, Abdel-Hai R, Ibrahim S Y& Saleh D 2007) identified potentials of success as: development of the generic skills in *leadership, teamwork and communication*, small-group teaching, organization of the staff into 15 teams with increased staff-student interaction. Creativeness was obvious outcome as students had conducted health education programs in the rural schools, youth centers and PHC facilities. Students had demonstrated their health education products in a permanent gallery in the CMD. Learning-services included medical conveys to serve people in the target villages. Community mobilization has been an outstanding achievement, through communication with NGOs to devote help to priority families. The students-organized conferences to advocate for key health issues identified during the field visits in the target village. The junior staff and students had developed experience in applied research and survey studies during which they measured blood pressure and sugar level (hands-on-training). Activities that stimulate teamwork as conferences and scientific competitions were conducted each round. The way of assessment of the students' performance was depending on day to day assessment and according to specific items. Assessment scores were distributed across the training activities, and more than one member of the staff team had contributed in the evaluation process.

According to WHO report (Abdel-Razik etal, 2007), there was a major recommendation for scaling up of the CMER 06/07 across the coming academic years. However, throughout the period 2007-2013, there were changes at the macro-level (international, national and university level) and micro-level (faculty and CMD). Such dynamics of change could influence the adoption

of CMER principles and modules. Therefore, having enough information about CMEC throughout the period 2007-2013, will provide learned lessons that could guide decision making for continuous upgrading in CMER.

The objectives of the study were to explore 11/12 medical students' perspectives towards the CMEC generic skills (leadership, teamwork, staff-student interaction), technical components (field visits-related seminars) and creative skills versus perspectives of 06/07 students. Additionally, the study was aiming at describing views of CMD staff towards CMEC throughout the period 2006-2013

Methodology:

The study is an evaluation post-test separate sample **design**, conducted in the CU –FOM during the academic year 2011/2013.

Both **quantitative and qualitative data** were collected. There were two sources for the quantitative data: (1) secondary analysis of WHO report 2007 (Abdel-Razik et al, 2007) for the perspective of 500 medical students towards CMEC 06/07 who participated in self-administered questionnaire form in 2007 (control group), (2) data collection from a representative random sample of 525 students (130 students from each academic round) in 2013. **Self-administered** questionnaire form was distributed to 5th year medical students, who participated in CMEC in the academic year 11/12-4th year medical education.

Qualitative data were collected by conducting **two Focus Group Discussions (FGDs)** with two groups of CMD staff members who participated in CMEC throughout the period 2006-2013. The discussion points were focused on their feedback about the changes in CMEC throughout the period 2006-2007 and modifications in response to the changes at macro and micro-levels.

Statistical analysis

The quantitative data for 2013 had been entered into the computer excel program, and statistical analysis had been done by SPSS program version 15. Data was presented by frequency and percentages. Comparison between the perspectives of 06/07 students and 11/12 students was done, and X^2 test of significance was used. Compound indices had been used to present overall perspectives towards special category which was composed of different items. For example; generic skills compound index represented the average percent of students who reported any degree of satisfaction for each of the included items of generic skills (3 items in 06/07 group and 4 items for 11/12 group).

The **Ethical Considerations** included approval from the department ethical review committee. The questionnaire forms were innominate, and the names of CMD staff members participated in the FGDs were not mentioned in the analysis of data

RESULTS

Figure (1) summarizes the overall evaluation of the medical students to CMEC-practical training. It is obvious from the figure that just more than half (52%) of 11/12 students expressed satisfaction from CMEC in general, versus 69% of 06/07 students. Students participated in 06/07 course were more than three times satisfied from generic skills acquired during the course

than 11/12 students (OR= 3.1). The key for venting general satisfaction of CMEC by significantly higher proportion of 06/07 students than 11/12 students was related to gratification in participation across wider spectrum of creative activities as expressed by 59% of 06/07 students compared to 41% of 11/12 students (OR=2.1)

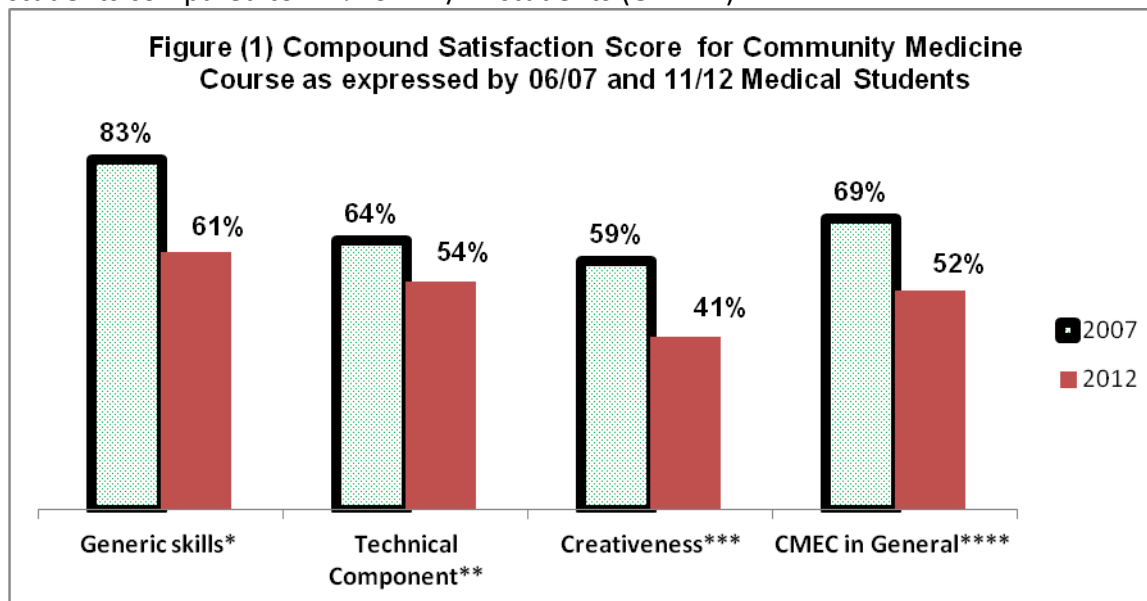


Figure (1) Compound Satisfaction Score for Community Medicine Course as expressed by 06/07 and 11/12 Medical Students

* $p=0.00$ OR= 3.1 CI = 2.3 ; 4.2 , ** $p=0.00$ OR= 2.2 CI = 1.7 ; 2.8 , *** $p=0.00$ OR= 2.1 CI = 1.6 ; 2.7 , **** $p=0.00$ OR= 2.05 CI = 1.59 ; 2.65

Table (1) illustrates that the components of CMEC- practical training in 2012 was conforming to the major components of the 06/07 reform: generic skills, technical skills and creative activities. However, there were variations within each component of the studied CMEC in 06/07 and 11/12. In 2012, there were more field visits and their corresponding class sessions as preparatory and feedback discussion sessions. The 11/12 CMEC, compared to 06/07 CMEC allocated less time for creative activities.

Table (1) shows also the percent of students expressed satisfaction from the different items of the CMEC - practical training. As depicted in the table, compared to 06/07 students a significantly less proportion of 11/12 students expressed satisfaction from the different items of the CMEC- practical training, especially for workshops, 59% for 11/12 versus 81% of 06/07 medical students ($p=0.00$ OR= 2.9 and CI 2.2; 3.9), scientific competitions, 40% for 11/12 versus 65% of 06/07 medical students ($p=0.00$ OR= 2.8 and CI 2.2; 3.6) and leadership 64% for 11/12 versus 83% of 06/07 medical students ($p=0.00$ OR= 2.4 and CI 2.0; 3.7). However, there were insignificant differences in the proportion of 11/12 students (65%), and 06/07 students (69%) who reported satisfaction from village visits ($p=0.17$) and computer skills as 38% of 11/12 students versus 41% 06/07 students expressed satisfaction ($p=0.36$) .

Table (1) Percent of interviewed students who demonstrated satisfaction from the different components of Community Medicine training course covered in the Academic years 2006/2007 and 2011/2012

CME Reform Items	2007	2012	p	OR	CI
Generic skills:					
Leadership	83%	64%	0.00	2.4	2.0 ; 3.7
Teamwork	83%	69%	0.00	2.2	1.6 ; 2.9
Staff student relation	83%	66%	0.00	2.5	1.9 ; 3.4
Ethical commitment stars	NA	50%			
Technical component:					
Workshops	81%	59%	0.00	2.9	2.2 ; 3.9
Village visits	69%	65%	0.17		
PHC centers visits	62%	48%	0.00	1.7	1.4 ; 2.3
CSPM Visit	NA	60%			
Fever Hospital Visit	NA	61%			
Nursing School Health Education	NA	53%			
Environment Assessment Visit	NA	44%			
Visit to the Nursery	NA	50%			
Occupational health services Visit	NA	52%			
C NA exercise	61%	53%	0.01	1.4	1.1 ; 1.7
Computer Skills	41%	38%	0.36		
Scientific Competitions	65%	40%	0.00	2.8	2.2 ; 3.6
Creativeness:					
Conferences	64%	NA			
Creativity	62%	46%	0.00	1.9	1.5 ; 2.5
Medical convoys	62%	42%	0.00	2.2	1.7 ; 2.9

Health Education Gallery	58%	NA			
Plays/games	57%	NA			
Seminars to clients	55%	36%	0.00	2.2	1.7 ; 2.8
Referral from PHC to hospital	54%	NA			

Table (2) highlights items of 11/12 CMEC that considered as strengths (as 60% and more of the students expressed high satisfaction towards them) and those considered (as weaknesses as more than 60% of the students expressed dissatisfaction).

It is clear from the table that 11/12 CMEC succeeded in responding to students' expectations regarding the positive opportunities for continuous and reciprocated interaction with the CMD staff members at different occasions as small-group teaching and field visits that required active contribution of the students by interviewing clients and home visits (CSPM visit and village visits). Additionally, students expressed appreciations for generic skills that build autonomy leadership and team work), learning-service (health education and medical conveys). Students considered that the weaknesses in CMEC were related to overloading of the schedule with theoretical lectures and field visits that depend on observations rather than active contribution or learning-service (PHC center)

Table (2) Perspectives of 11/12 medical students towards the CMEC regarding strengths and weaknesses

Components	Satisfaction by 60% and more of students (Strengths)	Dissatisfaction by more than 60% of the students (Weaknesses)
Administrative	Small group teaching	Overloaded course schedule with theoretical sessions and less satisfactory field visits reduce time for grasping the curriculum components
	Student team-leader	Less time for creativeness and learning service activities
	Staff-student interaction	Teamwork was not associated with identification of eminent students
	MIS coordinator	
	Exposure to different staff members	
Field Visits	Village visits	PHC center visits

	CSPM visit	
Workshops	Preparatory/feedback to village visits	
	Preparatory/feedback to PHC center visits	
Computer skills		Computer sessions
Lectures	Small group Lectures	Professional lectures by experts from outside the university
Generic skills	Leadership, teamwork, communication, student staff interaction	
Creative skills	Health education to clients	Uninvolvement of the students in creative activities

Qualitative data analysis: FGD with CMD staff

Overview of CMEC reform: The CMD staff members affirmed that there are seven pillars for success in making change towards improvement. Those seven pillars were concerned with: **Political support** from the head of the CMD, **leadership** capacity of senior staff, empowered **critical mass** of junior staff, having supportive/well-prepared **work environment** (class sessions and field visits), having well-developed and tested scientific standardized **educational material** that guide the education and training process, **continuous capacity building** of the junior staff, **proper management** with continuous **monitoring** of staff-student interaction to make a difference and progress in performance. Articulating all the pillars to make the CMEC **student-centered** was pivotal for success of the education reform.

Applying and evaluating the CMEC reform model 06/07 by staff and publishing the results in WHO report, was essential to document the learned lessons from the reform. Additionally, achieved managerial and scientific experience was enabling in responding to the changing policy, educational, social and economic environment at macro-level (country and university) as well as the micro-level (FOM and CMD) throughout the period 2006-2013.

The macro-level situation evoked by High Education Agency policy in Egypt to make CMEC which was distributed across three academic years (3rd, 4th, and 5th) to be integrated and studied during the 4th academic year. The presence of the 06/07 CMEC reformed model for the 5th year students was so flexible to confront/adapt to the new situation as it allows fascinating more topics for different generations of students, so long as the seven pillars are intact and actively supported.

Throughout the academic years 07/08, 08/09, 09/10 the seven pillars of the reform were continuously reinforced. The different generations of medical students were circulating information about CMEC as student-centered, support student autonomy, and well-defined practical role of students as leaders, team-members, technical coordinators for self-studying, MIS coordinator to compile data from all the students in the round. Objective Standardized Practical Examination (OSPE) had been introduced to assess performance of the students in practical training.

Throughout the academic year 10/11, the reformed CMEC had missed important pillar: the political support of the head of CMD, with subsequent collapse of other pillars. The conflicts between the head of the department and the critical mass of junior staff were obvious. The pressure imposed by students to follow the CMEC reform principles was not successful to sustain the achieved success. Deprivation of the CME system from leadership of the senior staff was critical issue. Consequently, CMEC reverted back to the traditional teaching which is staff and book oriented.

Throughout the academic years 11/12 and 12/13, the seven pillars of CMEC reform were activated due to the political support of the head of CMD. However, enthusiasm for upgrading the reform was waning. The macro-environment at the country level after January 25, 2011 revolution has its impact on spreading the sense of uncertainty for both the students and staff. Despite, the situation of revolution was accompanied by energetic power of medical students to make changes; this opportunity was not properly capitalized on by CMD staff. Medical students- who represented critical share in the revolution- had specific expectations that need out-of box thinking by CMD staff. Despite, the learned lessons from 06/07 reform emphasized on learning- service activities/hands-on training that invest the generic skills of leadership, team work, student-community interaction, such activities were not properly vitalized. Additionally, generic skills have no implication, so long as the CMEC was accentuating class-sessions, and field visits that focus on observation and reporting rather than actual involvement in health service-delivery domain that exploit team-work and leadership skills. This situation was the case in academic year 11/12.

However, in 12/13 the CMEC had included a new module, which is student-mini research at group level of 35 students. Such initiative was considered successful at group level as it needs teamwork, leadership and creativeness in MIS and computer skills. However, such initiative has limited scope as it does not consider interaction with other groups within the round of 500 students. Additionally, throughout the period 10/11- 12/13, leadership of the senior staff was missing. This leadership role is critical for continuous injecting of the reform with comprehensive ideas and innovative interventions that invest the current situation with global vision that build a momentum among students for quality improvement in CMEC.

CMD staff members participated in FGDs, acknowledged the need for reactivation of the CMEC reform to be more responsive to the current macro-level and micro-level environment that need active contribution of all Egyptians in community development, and universities should have a lead in this upcoming development plans.

DISCUSSION:

The current study arouses important issues related to medical education reform (MER). MER is an important component of health system reform that focuses on health workforce

development to respond to community needs that emphasis on equity (Ministry of Health and Population and Harvard School of Public Health 1995 ; MOHP- Sector of Technical Support and Project 2003; Salah .2005; Blace & Hearst . 2002)¹. Addressing CMEC reform in 06/07 for the 5th year medical students by the study as a start point was crucial for gap analysis and follow up subsequent changes overtime regarding continuous upgrading versus regression of the reform activities throughout seven academic years in CU-FOM-CMD. Additionally, the study presents, how to make changes, principles for sustainability of change, and the impact of/interaction between the ideology /dynamics of reform and amendments at the macro-level (International, national and university) and micro-level (FOM and CMD). At the international level there was highlighting on developing and disseminating innovative and creative interventions for upgrading medical education and professionalism, health management and primary care (stijnen & Vluggen 2004;Yathish &Manjula 2009) . The changes at the national/ country level were related to January 25, 2011 revolution, where Egypt undergone dramatic political change associated with economic problems that resulted increase in poverty from 21.6% 2008/2009 to 25.2% in 2010/2011. The increase in poverty level constitutes an important challenge to achieve the Millennium Development Goals (MDGs) by 2015 for improving health of the Egyptian population (The World Bank Egypt overview. 2003 ; United Nations 2012), and require innovative approach in medical education that confront inequity to access quality healthcare. At the University level, the policies set by Supreme Council of Universities, Ministry of Higher Education and Scientific Research had to be adopted by the CMD, where CMEC has to be covered throughout the 4th year of medical school education and according to the set Intended Learning Outcomes (ILOs) (Community Medicine Curriculum Committee 2004). At the FOM-CMD level, throughout the period 2007-2013 there were five professors assigned as head of the department. Each head of the department has his/her personal attitude towards the profile of medical education reform. Additionally, sustainability of the concept of change for upgrading the educational/training process was the outcome of interaction between head of the department and the other six pillars of the change cycle. Yet, it was obvious that reform-leadership of the senior staff is always the dominating factor for activation of the reform. The study had focused on the three parameters, and their sub-items, that constitute the CMECR: generic skills (GS), technical component (TC) and creative skills (CS). Other studies on medical education reform usually focus on one parameter or one sub-item, as for example team work (Said , etal 2011) , communication skills (Rotthoff , 2011) or problem –based learning (Oda & Koizumi 2008) . The study considered that the three parameters are harmonizing with each other. For example, students' visit to the village requires TC for preparation of students review health problems of the rural population, GS for communication with household in the visits, TC and GS for student –staff interaction to analyze the identified health problems, and GS/TC/ CS as leadership, teamwork, and creative approach in health education, communication with policy makers, communicating with school students/teachers, clients in rural health units etc. The results of the current study could not be compared with other studies, as it represents an evaluation of the outcome/ effectiveness of two CMECs implemented by the same institution but at different points of time. Consequently, learned lessons could be straightforwardly adopted by the staff.

One of the important lessons that could be abstracted from the results that in a flexible medical education course there is wide room for adding more topics, and more visits as what happened in year 2011/2012. However, adding, removing or modifying activities/topics should be properly articulating with GS, TC and CS. This observation is important to respond to medical students' expectations towards CMEC that focuses on service-learning, hands-on training, and teamwork for specific tasks that could not be accomplished by one person e.g. research study that include data collection, health education seminar using games, competitions, plays, drama, posters, etc.

Strengths of the current study are related to the study topic as self-assessment in community medicine education reform that provide learned lessons to the staff for action taking for improvement. The study that depends on students' perspectives, emphasize that student-centered education should continue to the evaluation phase as it consider students as partners in the education reform. The study represented a special case of evaluating CMER over a period of seven years, depending on organizational memory (i.e. FGD with the staff) and presenting two snap shot situations for the same organization at the start of the reform 06/07 and six years after the reform 11/12. Nevertheless, the study has another aspect as dealing with institutional reform or making change. The study highlighted seven pillars articulated around specific target i.e. the student. The power and dimness of the change depends on strengths and values added by each of the seven pillars.

Limitations of the study were related comparability of the results of the two students' surveys. The time of conducting the 2007 survey (Abdel-Razik et al, 2007) was at the end of the academic year 06/07. Yet, for the 11/12 students, it was done after the students became graduated to the next academic year. Additionally, the pilot reform year 06/07 was for the 5th medical students who studied the CMEC in 6 weeks and passed through different clinical rounds throughout that year, that add more benefit from CMEC. The 11/12 students studied CMEC in the 4th year of medical education with less exposure to clinical sciences, a situation that limited their benefit from the CMEC. The current study is missing the final evaluation scores for medical students in year 11/12, because it could not be compared with 06/07 score. The evaluation score for 06/07 medical students was for 60 points, with 4 points for each training item (15 items). The evaluation score for 11/12 student was one point for each training item in addition to 10 points for Objective Standardized Practical Examination (OSPE). However, to overcome those limitation FGDs provided an important source of information to elucidate facts at the institutional level regarding staff and students.

CONCLUSION:

The seven ideologies for initiation, sustainability and upgrading CMER are Political support from the head of the CMD, leadership capacity of senior staff, empowered critical mass of junior staff, having supportive work environment (class sessions and field visits), having scientific standardized educational material, building critical mass through continuous capacity building of the junior staff, proper management with continuous monitoring of staff-student interaction, and articulating such ideologies to be student-centered. Networking of generic, technical and creative skills with focusing on students' autonomy, learning-service and hands-on training, could boost the CMER and respond to the changing students' expectation and community needs over time.

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