Original Article

The Relationship between Implementing Electronic Educational Records and Faculty Involvement in Educational Activities in Kermanshah University of Medical Sciences

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Abstract

Introduction: In the vast majority of Iranian universities, evaluation of educational activities of faculty members is limited to student's survey on teacher's (professor's) performance at educational electronic system. Determination of quantitative scores for educational activities can considerably play an important role in the university by increasing the motivation of professors to carry out their educational activities. This study was conducted to determine the impact of the implementation of electronic educational record on educational activities in Kermanshah University of Medical Sciences.

Methods: This study was conducted on 400 faculty members of Kermanshah. Educational record was developed and prepared in electronic form in 2017. Information regarding educational activities was collected from Educational Development Center of Kermanshah University of Medical Sciences during six years. One year after the implementation of educational record for faculty evaluation at the university, some educational activities performed in 2017 were compared to five years ago, using repeated measures ANOVA.

Results: The results showed that the number of classrooms, lesson plans, approved proposals, tests sent for analysis, revised curricula, virtual workshops and educational processes showed a significant increase compared to previous studied years ($P<0.05$).

Conclusion: Implementation of educational record can increase and improve quantity and quality of education at the university. Universities can develop a similar record to increase educational faculty activities.

Keywords: Electronic Records, Educational Activities

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Introduction

In order to achieve higher status, medical education in Iran needs quality promotion and improvement of medical education. Science is the main asset of any state and the mission of education is to encourage teachers and students to develop knowledge in various fields (1). In this regard, faculty members play a very crucial role because of their direct impact on the educational processes (2). Quantitative and qualitative evaluation of educational activities of faculty members is a vital factor in improving the quality of educational programs and is one of the most important monitoring and promotion processes of medical universities (3). It is universally accepted that the faculty evaluation process should be performed as a main component with its own function and independent from other types of institutional evaluations and with the aims to develop and promote faculty member and ultimately improve the quality of educational services (4). Teacher evaluation refers to the extent to which teachers reached their own educational goals (5). Undoubtedly, the results of fairer and closer to reality assessments lead to better effectiveness of educational objectives (6). There are numerous ways to evaluate educational activities of faculty member, including self-assessment, group manager evaluation and 360 degree appraisal method in organizations, where superiors, colleagues, subordinates and customers are asked to evaluate him on the basis of merits determined (7). Steinert et al. performed a systematic review on effect of faculty development interventions in medical education. They showed that educational incentive interventions lead to improve in teaching behavior reported by faculties and students (8). It seems that development and implementation of an evaluation system based on evolutionary and final appraisal by taking into account many educational activities at universities as well as the impact of the evaluation system score in the promotion and selection of the best professors are advantageous and helpful for a complete evaluation of faculty members. Few studies have reported evaluation of faculty members according to electronic evaluation systems. One study showed that leadership/administration & curriculum was significantly improved after using electronic evaluation systems (9). It seems that designing an educational record based on proper and comprehensive evaluation system for faculty members and with regard to most neglected activities and approval of certain programs, such as virtual learning, reviewing educational curriculum, development of processes and educational articles, test reform, designing lesson plans, teacher empowerment, academic mentorships, setting up graduate programs and many other training components, can be beneficial in establishing academic governance at the universities of medical sciences. On the other hand, the existence of such records can increase motivation and greater participation of faculty members in carrying out educational tasks (10). Tools developed for faculty evaluation can enhance faculty participation in educational programs (11). In general, since this record characterized by these activities, features and goals has not been implemented at the universities of medical sciences in Iran, this study tried to examine the impact of implementation of electronic educational record on some educational activities in 2017 at Kermanshah University of Medical Sciences compared to five years ago.

Methods

The population of the study consists of 400 faculty members of Kermanshah University of Medical Sciences. Statistical population was included all faculty members. All data and statistics concerning educational activities from six continuous years from April 2012 to March 2017 to be collected from Educational Development Center (EDC) of Kermanshah University of Medical Sciences. In the current study, the number of educational activities conducted by faculty member including delivering lesion plans, developing educational proposal, holding virtual classroom, and analysis of final exam after developing educational record and before that (previous six years) were evaluated. Repeated measures ANOVA was used for this purpose. In this study, educational record was firstly prepared (six months) by the following method: the expert committee responsible for developing educational record was established. Committee members included: vice president and educational director of the university, vice president and deputy of EDC, members of the evaluation committee in EDC, experts in medical education, and deputies and the authorities of the Educational Development Office (EDO). In preparing the record, a quantitative score was set according to the ceiling specified for all educational activities. Based on the approval of the university council, the faculty members were obliged to score 23 points for their promotion on an annual basis. Evaluation criteria included: development and submission of lesson plans to EDC (1 score up to 5 scores for each course), submission of questions to EDC (1 score up to 4 scores per test), reviewing the educational curriculums (1 point up 4 points per lesson), organizing virtual classroom (2 scores up 6 scores per class), development of educational processes sent to EDC (3 or 12 scores per process), codification of the research plan in education (2 scores up to 6 scores per plan), and providing virtual faculty member empowerment workshops prepared by faculty members (4 scores up to 12 scores per workshop). Various scores were also considered on the record for the number of teaching courses, evaluation feedback from head of the

department, educational tools, and academic responsibilities at the university, which were not examined in this study. To assess the validity of the content items, expert opinion prepared by the committee was used and the record was submitted for comment to all heads of departments of the university. In the quantitative analysis, the heads of department were asked to provide the required feedback about the tool that the items were modified accordingly. Content Validity Ratio (CVR) index and Content Validity Index (CVI) were used in the quantitative analysis and answers were calculated using the following formula:

$$CVR = \frac{(ne - N/2)}{N/2}$$

"N" refers to the total number of directors and "ne" refers to the number of managers who were responding to essential option.

To test the validity of scores allocated and minimum points needed for promotion base of professors, at least 30 members of the faculty in the three grades of assistant professor, associate professor and full professor completed the records in the pilot phase. They were asked to determine each of the items using one of the three ratings as "completely necessary", "useful, but unnecessary", and "unnecessary". CVR was assessed according to Lawshe's table and reference value of the CVR index was set based on the number of specialists. So, Lawshe's table considers an acceptable CVR for an expert panel of 30 to be 0.33. Experts were also asked to response a 4-point Likert scale in order to assess if the items measured what they want to measure. To calculate the CVI value for each item, the number of experts who rated the item as content valid (a rating of 3 or 4) was divided by the total number of experts (9). The acceptable lower limit of the CVI value was considered 0.80 (10). After planning, electronic records were installed on the server university with the help of IT professionals. To evaluate and measure the effectiveness of record within one year after the implementation, the results of each activity were evaluated and compared with similar educational activities in the five consecutive years before the implementation of the record. Numerical indicators such as the mean and median were used to summarize the data. One- and two-dimensional frequency tables were used for qualitative data. The Kolmogorov Smirnov test was used for measuring normality test of scores. For comparison of variables, independent t-test and paired t-test were used to compare independent data and data before and after the study, respectively. Repeated measures ANOVA was used to compare data from different years and different groups of data using SPSS software (version 16). The significance level of data was considered at 0.05.

Results

The CVR of all items was 0.85. The CVI was also found to be 0.89, with a variable range from 0.66 to 1.0. So, all considered educational activities were confirmed to use in this study. The results of the present study regarding the examined educational items, indicated that the number of approved educational proposals and lesson plans submitted to the EDC in 2017 had a significant increase compared to the previous years of study (P-value<0.001) (Figure 1).

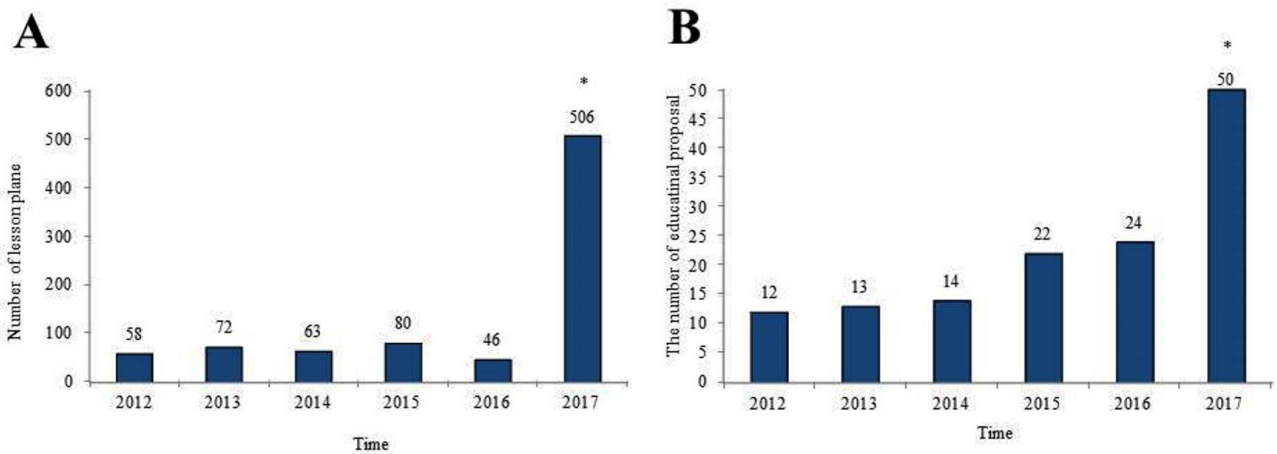

Figure 1. Impact of the implementation of educational record on changes in the number of submitted lesson plans (A) and approved proposals (B) in six continuous years [* Significant increase in the number of the lesson plans submitted and approved proposals in 2017 compared to the other years examined in the study (P<0.05)]

The results of this study showed that the number of virtual classrooms in the university and the number of tests submitted to the EDC, in 2017 had a significant increase compared to the previous years of study (P<0.05) (Figure 2).

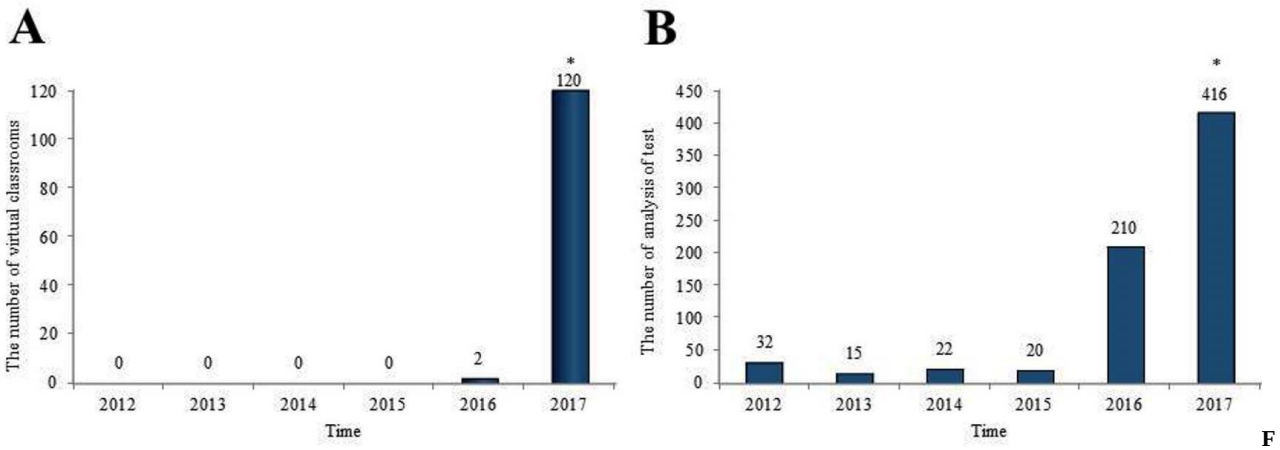

Figure 2. Impact of the implementation of educational record on changes in the number of virtual classes (A) and the number of submitted tests (B) in different years [* Significant increase in the number of virtual classes and tests submitted in 2017 compared to the other years examined in the study (P<0.05)]

Results of this study showed that the number of revised curriculums, the number of virtual workshops prepared by the faculty member and the number of developed educational processes and submitted to the EDC in 2017 had a significant increase compared to the previous years of study (P-value<0.001) (Figure 3).

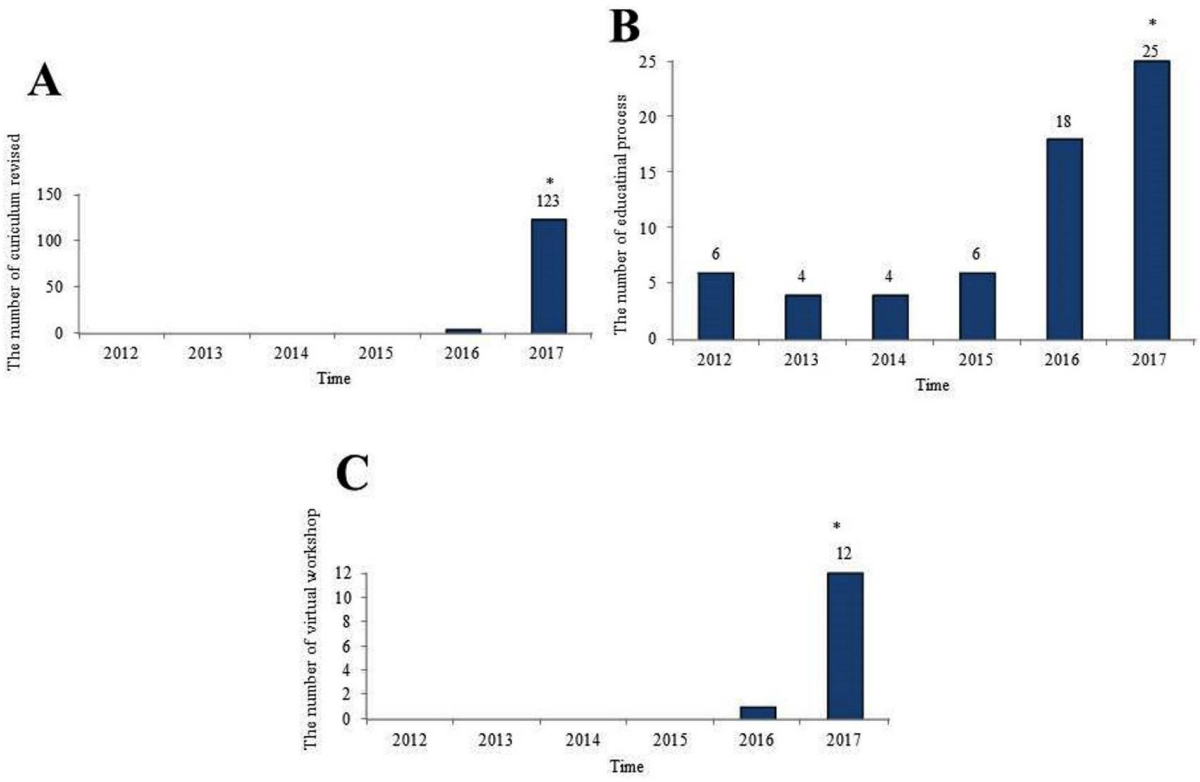

Figure 3. Impact of the implementation of educational record on changes in the number of revised curriculums (A), the number of educational process (B), and the number of provided virtual workshops (C) in different years [* Significant increase in the number of virtual classroom, educational process and tests submitted in 2017 compared to the other periods examined in the study (P<0.05)].

Discussion

The present study explored the effect of implementing electronic educational record on faculty educational activities. We found that educational record system improve markedly faculty educational activities. The Quantitative and qualitative evaluation of educational activities has a direct impact on the educational advancement of faculty members (12). Educational assistants in the universities of medical sciences and EDC

in Iran need such evaluation measurement in order to achieve a proper position in the educational evaluation of faculty members (9). The results showed that the number of classrooms, lesson plans, approved proposals, tests sent for analysis, revised curriculum, virtual workshops and educational processes showed a significant increase compared to previous studied years. In this study, the impact of the implementation of electronic educational record on the changes in educational indices in Kermanshah University of Medical Sciences was investigated. According to the study, the number of the written lesson plans and submitted to the EDC in 2017

showed a significant increase compared to previous years examined in this study. It seems that the motivation of teachers to develop and write lesson plans was very low in previous years; however, with the arbitration and establishment of rules of reward and punishment based on the scores for submitted lesson plans in the educational record and also considering these scores in annual promotion ranking and selection of the best teacher, adequate motivation was created and the number of educational record was increased in the universities. The results of the study by Steinert et al. at the University of Michigan showed that development of educational record can have a positive effect in developing a lesson plan designs, improving the quality of education, educational research, development and leadership in medical education that is consistent with the results of this study (1). The results of the present study revealed that the number of educational research plans was significantly increased after the implementation of educational records. Given that most educational articles are published in journals indexing in PubMed or Scopus, and based on current research rules of the university, much of the published article points in the journal will not be awarded to a faculty member, the majority of teachers were reluctant to work on education issues. Setting high scores resulted in the formulation of such plans and papers of the educational record, which may be due to the increase of these schemes. The results of the study by Merriam showed that designation and development of a model for evaluating the effectiveness and performance of faculty members can increase and enhance research activities for training teachers in the university which confirm the results of this study (13). The results of the present study showed that the number of virtual classrooms at the university and the number of submitted tests to the EDC in 2017 increased significantly compared to the previous years examined. Holding virtual classroom as a new approach in medical education has been commonly used in line with using the electronic instruments. It appears that setting conditional ranking in the educational record for submission of tests in EDC, which cannot be substituted for other scores in the record as well as granting a ceiling of 12 points out of 23 points for organizing virtual classes, are the main factors for the enhancement and the significance of these two important indicators in educational spheres. The results of the study by Chandran et al. are inconsistent with the results of this study, showing that the independent variable (intelligent record) was affective in the improved and enhanced educational and research performance of the faculty member, but showed no significant effect on executive function (14).

Assessing the performance of medical educators showed that comprehensive evaluation tools can improve opportunities for faculty promotions and advancement (14). The results of the present study indicated that the revised curriculum, the number of virtual workshops prepared by faculty member and the number of developed and submitted instructional processes to the EDC in 2017 had a significant increase compared to the previous years examined. In educational record, 4 scores were awarded to professors in exchange for organizing a virtual workshop; it seems that this factor resulted in the organization of 12 virtual workshops for the first time at a university that did not exist before. Setting motivational points to review curriculums and developing educational processes encouraged all clinical departments of the university and most of the department of basic sciences in order to revise their curriculums and send their feedback to the EDC of Ministry of Health. In addition, it was found that the motivation of university professors to develop the educational processes was increased, resulting in the increasingly growth of educational processes in quantitative terms. Kim et al. showed introduction of new system of educational faculty members significantly increased the total educational activities, especially in assistant professors (9). In general, the educational assessment in the universities is often limited to obtaining student's feedbacks and setting points for professors (15). Despite some advantages, this type of valuation suffers from very high bias and cannot reflect the actual activities of professors at the University (16). In addition to the paying attention to the majority of educational activities and setting specific quantitative scores for each activity, it seems that the implementation

of this kind of record can significantly lead to increased motivation of teachers in providing educational activities as well as enhancing the quantitative and the qualitative dimensions of education at the university level. One of the limitations of the current study was the risk of low quality of educational activities due to poor quality evaluation during implementing of the electronic educational records. Qualitative evaluation systems are needed for future studies. Another limitation was the lack of faculty assessment in term of their degree. For future, it is necessary to evaluate the faculty activities according to academic degree and demographic characteristics.

Conclusion

It seems that educational appraisal and setting scores for educational activities in the record format and the impact of setting points in the process of promoting an annual basis among professors as well as selection of best educational professors at the university level, can significantly contribute in increasing educational activities and encouragement of teachers to conduct and participate in these educational activities.

Acknowledgments

The authors declare that there is no conflict of interests in this study.

References

1. Steinert Y, Naismith L, Mann K. Faculty development initiatives designed to promote leadership in medical education. A BEME systematic review: BEME Guide No. 19. Medical Teacher. 2012; 34(6): 483-503.

2. Mahdavi S, Zare S, Naemi N. Comparison between student evaluation and faculty self-evaluation of instructional performance. Research in Medical Education. 2014; 6(2): 51-58. [Persian]

3. Khodaveisi M, Pazargadi M, Yaghmaei F, Bikmoradi A. Identifying challenges for effective evaluation in nursing education: A qualitative study. Journal of Research in Medical Sciences: The Official Journal of Isfahan University of Medical Sciences. 2012; 17(7): 710.

4. Holmboe ES, Ward DS, Reznick RK, Katsufrakis PJ, Leslie KM, Patel VL, et al. Faculty development in assessment: The missing link in competency-based medical education. Academic Medicine. 2011; 86(4): 460-467.

5. Miller JE, Seldin P. Changing practices in faculty evaluation. Academe. 2014; 100(3): 35.

6. Darling-Hammond L, Amrein-Beardsley A, Haertel E, Rothstein J. Evaluating teacher evaluation. Phi Delta Kappan. 2012; 93(6): 8-15.

7. Stark R, Korenstein D, Karani R. Impact of a 360-degree professionalism assessment on faculty comfort and skills in feedback delivery. Journal of General Internal Medicine. 2008; 23(7): 969-972.

8. Steinert Y, Mann K, Centeno A, Dolmans D, Spencer J, Gelula M, et al. A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME Guide No. 8. Medical Teacher. 2006; 28(6): 497-526.

9. Kim HB, Myung SJ, Yu HG, Chang JY, Shin CS. Influences of faculty evaluating system on educational performance of medical school faculty. Korean Journal of Medical Education. 2016; 28(3): 289.

10. Yuan R, Zhang LJ. Exploring student teachers' motivation change in initial teacher education: A Chinese perspective. Teaching and Teacher Education. 2017; 61: 142-152.

11. Bardes CL, Hayes JG. Are the teachers teaching? Measuring the educational activities of clinical faculty. Academic Medicine. 1995; 70(2): 111-114.

12 . O'sullivan PS, Irby DM. Reframing research on faculty development. Academic Medicine. 2011; 86(4): 421-428.

13. Merriam SB. Qualitative research in practice: Examples for discussion and analysis. New York: Jossey-Bass Inc Pub; 2002.

14. Chandran L, Gusic M, Baldwin C, Turner T, Zenni E, Lane JL, et al. Evaluating the performance of medical educators: A novel analysis tool to demonstrate the quality and impact of educational activities. Academic Medicine. 2009; 84(1): 58-66.

15. Abdolsamadi HR, Dalband M, Davoodi P, Bakhtiari B, Moghimbeigi A, Ahmadimotamayel F. Comparison of self-evaluation and students' evaluation of Hamadan Dental School faculty members. Iranian Journal of Medical Education. 2012; 12(2): 101-109. [Persian]

16. Sattar A, Rajaeepour S, Salami Gh, Abedi A. Investigating the structural relationship of innovation culture with the educational performance of faculty members in Lorestan University and Islamic Azad University, Khorramabad Branch. Journal of Education and Training. 2016; 3(1): 226-238.