

### Evaluation of the Software to Help Advising Professors in Isfahan University of Medical Sciences

### تقييم البرنامج المساعد للإستاذة المشاورون في جامعه اصفهان للعلوم الطبيه

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**Background:** One of the essential and inevitable principles in improving the education quality, particularly in universities, is the continuous assessment of students' educational progress at different education levels. The role of advisors and consulting tutors at universities are considered as one of the important interventions of the Ministry of Health for the purpose of guiding students' studying affairs. This article studied the design, implementation and evaluation of the software used in aiding the advising professors of Isfahan University of Medical Sciences.

**Methods:** The present study is a descriptive-analytical one. This investigation was done in pursuit of designing and implementing software procedures, helping the advising professors to instruct students to evaluate their results through its implementation. The researchers considered the software through analyzing the average grades of students and the circumstances before and after implementing the software (i.e. intervention). The statistical population included all of the Isfahan University of Medical Sciences students between 2009 and 2011, being the total of 11813 persons. Student workbook records were included in the study. The data was analyzed by the software SPSS 16, descriptive statistics and proper statistical tests.

**Results:** The process evaluation showed both conditional probation situations (0.12 percent) and decreasing the average grades (0.11 percent) decreased as compared to the past, whereas students' GPA (grade Point Average) increased significantly after the intervention ( $P < 0.05$ )

**Conclusion:** Implementing the instructional software for the advising professors, regarding the education of the students on the verge of academic failures in 2009, has significantly increased their capability in supervision and educational instructions, and reduced the number of students at risk of academic failures.

**Keywords:** Advising Professor, Education Trend, Online Control, Probation

**التمهيد و الهدف:** إن احد الاركان الضرورية و التي لا مفر منها في مجال تحسين كفيه التعليم خاصة في الجامعات ، هو التقييم المداوم و المستمر للمستوى الدراسي عند الطلاب في المقاطع التعليميه المختلفه. إن برنامج الإستاذ المشاور في جامعه هو من المداخلات المرحبه من قبل وزارة الصحه في مجال اعلاء المجال التعليمي عند الطلاب. إن الدراره العاليه تمت بمرصد تقييم التخطيط و الاجراء و التقييم برنامج المساعد للإستاذ المشاور في جامعه اصفهان للعلوم الطبيه.

**الالطوب:** إن الدراره العاليه من النوع التوصيفيه - المقطعيه - تمت بمرصد دراره نتائج اجراء برنامج المساعد لاساتذة المشاوره . تم تقييم البرنامج من قبل الباحثين على اساس متابعه معدل الطلاب و مستوى عدم النجاح عندقدم بعد اجراء البرنامج. تمت فذه الدراره على جميع طلاب جامعه اصفهان للعلوم الطبيه في سنوات ٨٨-٩٠ البالغ عددهم ١١٨١٣ طالب. و تم تحليل المعلومات عبر برنامج SPSS16 و القواعد التوصيفيه و اختبارات احصائيه .

**النتائج:** التقييم اثار الى أن نسبة عدم النجاح (٠.١٢%) و انخفاض المعدل (٠.١١%) كان قد دتنى و قد ارتفع متوسط المعدل عند الطلاب بعداجراء البرنامج بشكل ملحوظ ( $P < 0.05$ )

**الاستنتاج:** اجراء برنامج المساعد لاساتذة المشاوره كان تأثير واضح من حيث رفع مستوى طلاب من كانوا في خطر التكالل الدراسي و قد رفع مستوى المراقبه و الرعايه التعليميه عند المستوى التعليمي عند الطلاب .  
**الكلمات الرئيسييه:** الاستاذ المشاور ، السير التعليمي ، المراقبه عبرالنت ، عدم النجاح الدراسي .

### ارزشیابی نرم افزار کمک به اساتید مشاور در دانشگاه علوم

### پزشکی اصفهان

**زمینه و هدف:** یکی از ارکان ضروری و اجتناب ناپذیر بهبود کیفیت آموزشی بویژه در دانشگاهها، ارزشیابی مداوم و مستمر روند تحصیلی دانشجویان در مقاطع مختلف آموزشی است. برنامه استاد مشاور در دانشگاه یکی از مداخلات مهم وزارت بهداشت در راستای هدایت هدفمند امور تحصیلی دانشجویان است. مقاله حاضر طراحی، اجرا و ارزشیابی نرم افزار کمک به اساتید مشاور در دانشگاه علوم پزشکی اصفهان را مورد بررسی قرار داده است.

**روش:** مطالعه حاضر از نوع توصیفی-تحلیلی می باشد. این تحقیق در پی مراحل طراحی و اجرای نرم افزار کمک به اساتید مشاور در هدایت تحصیلی دانشجویان، به منظور ارزشیابی نتایج پیاده سازی آن، انجام شد. محققین ارزشیابی نرم افزار را از طریق بررسی معدل دانشجویان و وقوع مشروطی در ایشان قبل و بعد از اجرای نرم افزار (مداخله) انجام دادند. جامعه آماری همه دانشجویان دانشگاه علوم پزشکی اصفهان در سالهای ۸۸-۹۰ و در مجموع ۱۱۸۱۳ نفر بودند. اطلاعات کارنامه دانشجویان به صورت سرشماری وارد مطالعه گردید. برای تحلیل اطلاعات از نرم افزار SPSS 16 و آماره های توصیفی و آزمونهای آماری مناسب استفاده شد.

**یافته ها:** ارزشیابی فرآیند نشان داد، وقوع مشروطی (۰.۱۲ درصد) و افت معدل (۰.۱۱ درصد) نسبت به قبل کاهش داشته و میانگین معدل دانشجویان بعد از مداخله نسبت به قبل از آن به طور معناداری افزایش داشته است. ( $P < 0.05$ )

**نتیجه گیری:** اجرای نرم افزار کمک به اساتید مشاور بر روند تحصیلی دانشجویان در معرض افت تحصیلی از سال ۱۳۸۸، توانایی اساتید مشاور رادر نظارت و هدایت آموزشی دانشجویان به میزان چشمگیری افزایش داده و از تعداد دانشجویان در معرض خطر افت تحصیلی کاسته شده است

**واژه های کلیدی:** استاد مشاور، روند تحصیلی، نظارت آنلاین، مشروطی

### اصفهان میڈیکل یونیورسٹی میں ایڈوائز اساتذہ کے لئے سافٹ ویئر کا جائزہ

**بیک گراؤنڈ:** تعلیمی مراکز بالخصوص یونیورسٹیوں میں تعلیمی عمل کو بہتر بنانے کے لئے یہ ناگزیر ہے کہ مختلف مراحل میں تعلیمی عمل کا جائزہ لیا جاتا رہے۔ ایران کی وزارت صحت نے میڈیکل یونیورسٹیوں میں ایڈوائز اساتذہ کی پوسٹ اسی وجہ سے رکھی ہے تا کہ طلباء کی تعلیم کو بہتر بنایا جاسکے۔ اس تحقیق میں ایڈوائز اساتذہ کے لئے بنائے گئے سافٹ ویئر کا جائزہ لیا گیا ہے۔

**روش:** یہ تجزیاتی تحقیق ہے جس کا مقصد ایڈوائز اساتذہ کے لئے بنائے گئے سافٹ ویئر کی کارکردگی کا جائزہ لینا ہے۔ اس سافٹ ویئر کا جائزہ لینے والے محققین نے اس کے استعمال سے پہلے اور اس کے بعد کی صورتحال کا جائزہ لیا جس سے صاف ظاہر تھا کہ سافٹ ویئر کے استعمال کے بعد طلباء کی حالت میں بہتری آئی ہے۔ دو ہزار نو سے دو ہزار گیارہ تک اصفهان میڈیکل یونیورسٹی میں گیارہ ہزار آٹھ سو تیرہ طلباء تھے۔ ڈیٹا کا تجزیہ ایس پی ایس سولہ سافٹ ویئر سے کیا گیا۔

**نتیجے:** ایڈوائز اساتذہ کے لئے بنائے گئے سافٹ ویئر سے ظاہر ہوتا ہے کہ اس کے استعمال سے پہلے طلباء کے نمبر کم تھے لیکن استعمال کے بعد ان کے نمبروں میں خاصہ اضافہ ہوا۔

**سفرشات:** اس نتیجے کے پیش نظر یہ ضروری ہے کہ ایڈوائز اساتذہ کے لئے بنائے گئے سافٹ ویئر سے طلباء کی صورتحال بہتر بنانے کے لئے استفادہ کیاجائے۔

**کلیدی الفاظ:** ایڈوائز اساتذہ، تعلیمی عمل .

## INTRODUCTION

As a pioneering system in promoting the scientific and cultural levels of the youth, higher education system is one of the main acting, constructing and forming for each country's future growth. The high sensitivity of this issue has caused governments to give priorities in investing heavily in this section. (1)

One of the essential and inevitable principles in improving the quality of education, especially in universities is the continuous evaluation of the students' education at different levels. Descriptive and analytical analysis of the students' educational status during school and comparison of the acquired average scores can be effective in better compilation of education programs, promoting the education quality and finally improving the efficacy of relevant authorities (2, 3). The number of medical students, like other groups, has increased in recent years. Quantitative increase of these students with no regard for improving the educational quality and skills can have adverse effects on the medical community and health services. On the other hand, research shows that about 12% of medical students have got conditional cases and probations at least once during their studies. Probation and the education failures or underdevelopments could happen due to various reasons, one of which is guidance and academic consultations (4). The advisor program at universities is one of the major interventions of Ministry of Health and Medical Education, which is in line with target instructions of students' academic affairs. The mentioned program is designed for the prevention of academic failures, providing scientific promotions and eliminating educational, research, personal, social, emotional and welfare problems of student at different levels of education (5).

According to advisors regulations ratified at the thirty-ninth meeting of the Supreme Council for Planning Medical Sciences (dated 2009), which replaced the supervisor regulations (dated 2003) and all other contradictory ones, the advising professor is one of the members of a university or a faculty, responsible for educational guidance and consultation of the students at different levels. Needless to say, the supervisors (instructors) and the advising professors in recent years have had important roles in promoting students' scientific levels and talents. It has been stated in the advisors' regulations that the advising professor should analyze and identify the effective factors on the education trends of the students and if necessary, refer them to the related authorities to further their developments, as well as, compensate for the shortcomings related to their education (6,7). What is essential to verify this important task is an accurate knowledge of students' education and social conditions.

The literature review indicated only one study in particular that considered the role of the advisor professors. Results of the study by Lotfi and et al. (8) in evaluating the role of advising professors revealed the implementation of a plan for them has been effective in the promotion of devoted students' GPA. Their research was based on students' consultation meetings and GPA variations. Accordingly,

education section of Isfahan University of Medical Sciences designed and prepared a software package in that context. This software has prepared the ground for contributions of the advising professors, verifying aims, offering easy access to the data and communication with students requiring consultation. To overcome the shortage of literature concerning advising professors and designing softwares, the researchers decided to have a more precise analysis of the applications of the software.

## METHODS

The present study is a descriptive-analytical study. The research was done in pursuit of the designing and implementing steps for the software, to help the advising professors in conducting students to evaluate its results.

Software designers determined priorities needed for a web-based software in this regard through the help of the consultants, professionals and veteran professors, instruction experts and revising the contexts (4). Implementation of the software was also done via guidance of the designers and experts of the education department.

In the first and second semesters for the execution, the education department specialists informed capabilities and goals of the software to the user professors through letters. Explanatory sessions were held in the second semester. The meetings were preplanned separately for each faculty, and the objectives, benefits, applications and possible problems in using the software were discussed. The experts were asked to contact with the software designers in the education department in case of experiencing any problems or questions. After the design and implementation, the views and suggestions of the teaching professors were recorded both in oral and written forms in order to match the potentials of the software with the requirements of the teachers and students, as well as for more applied plans. This software pursued the following objectives:

- Facilitating access of the advisors to academic records, education trends and social specifications of the students.
- Sending and receiving the necessary prognosis via the diagram of students' educational progress.
- Reporting the names of those at risk of academic failures.
- Possibility of comparing students' academic behaviors and sending appropriate messages to relevant people.
- Possibility of alerting the advisor professors regarding the probated students under consultations via e-mails automatically.
- Sending e-mails to advisors regarding the probated students whose first semester average score was over 10% less than the previous semester.
- Alert to advisors regarding the students under consultation, with the number of failed subjects being more than two.
- Sending e-mails to advisor professors regarding the students having more than one conditional probated subject.
- Identification of students whose GPA standard deviations are two points less than the class average score.
- Sending students' names with academic drops to the student consultation center, faculty educational assistants, educational services office and deputy of education of the university and the center for the devotees.

Finally, the present study was performed for assessing the role of designed software. According to the software design objectives, researchers considered the evaluation of software via analyzing GPA of the students and probations before and after executing the software (intervention). Researchers believe that although GPA is not the only factor of evaluating the education process, it seems it is the clearest indicator (8). The population contained all the students of Isfahan University of Medical Sciences (11813 people) during 2009-2011. Students' recorded data of all the specialized education groups studying in major, bachelor and general medicine levels were included in the study. Postgraduate students and students of specialty in medicine were excluded due to lack of access to recorded score workbooks and also due to the different calculations of the average scores at the specialty doctorate level. The variables of occurring probation (failure in 2 subjects or more) , plus the decrease in the students' average scores in different fields of study and faculties were compared with the mentioned variables one year before the intervention, within the first and second years after implementing the software. The data was analyzed by the software SPSS 16, descriptive statistics and appropriate statistical tests. It is to note that the data of the students score books was recorded for the research after obtaining the required permissions and proper coordination with the education department of the university, provided that their names would not be revealed.

**RESULTS**

The students were 11813 people, including 3671 in 2009, 3858 in 2010, and 4284 in 2011. The students' GPA was 15.6 in 2009, 15.74 in 2010 and 15.85 in 2011. Their GPA is significantly different before and after of survey. Tukey test revealed that their GPA in 2011 was higher than that in 2009 and 2010. (P<0.05) The comparative test of the average score of probation indicated that the probation of students fell significantly before and after the implementation of the software (P<0.05 )

**DISCUSSION**

The software in helping faculty advisors identified the students with probation/ drop of the GPA/failing 2 or more courses online; therefore, the necessary warnings to the advisors, educational authorities, experts in educational

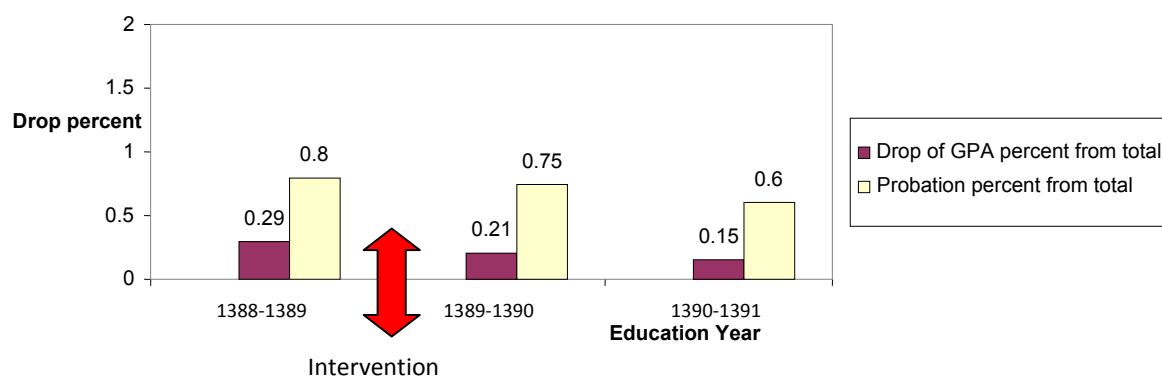
consultants were sent in an electronic form or online status. Students with academic drops can be detected on the basis of parameters considered in the software; hence, the necessary warnings are given by e-mail to the advisor by the SAMA database (virtual education system of Isfahan Medical Science University). Before this project, consulting teachers or professors had to sign out the students' workbook and compare it with their previous semesters. In other words,

**Table 1. Classification of students into different fields of study and faculty**

Faculty	Field	Frequency	Percent
Dentistry	General Dentistry	1230	10.4
	Prosthodontics	87	.7
	Medicine		
Medicine	General Medicine	2049	17.3
	Laboratory Science	192	1.6
	Radiology	409	3.5
	Anesthesiology	388	3.3
	Pharmacology		
Pharmacology	Pharmacology	1520	12.9
	Nursing	1528	12.9
	Operating Room	455	3.9
	Midwifery	542	4.6
Management and IT	Medical Records	183	1.5
	Medical Library	254	2.2
	Health Services Management	347	2.9
Health	Occupational Health	275	2.3
	Environmental Health	534	4.5
	Public Health	181	1.5
	Rehabilitation		
Rehabilitation	Orthotics	251	2.1
	Physiotherapy	324	2.7
	Occupational Therapy	193	1.6
	Speech Therapy	274	2.3

**Table 2. Frequency distribution of the students with probation conditions in the risk of education drop before and after execution of the plan**

Educational Year	2009 (before of intervention)		2010 (after of intervention)		2011 (after of intervention)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Probation	26	0.61	40	0.58	34	0.55
Drop of GPA	13	0.29	13	0.21	11	0.15



**Figure 1. Status of educational drop before and after the study implementation**

probation, failure and GPA drop of students were calculated manually. Due to the particular situation of the professors of medical university, most of whom have clinical activities as well as private offices and are, as a result, too occupied, the mentioned manual calculations were not done in most cases. After culturing software design and recording views of professors, eventually the software capabilities were completely identified. Its implementation process was performed similarly for all professors but the no feedback was gained from those teachers who benefit from its facilities. Large sample size can minimize the effects of confounding variables, such as varied use of the software by the advisors, which has also influenced this study. The results displayed that the information of the students in different fields were recorded entered the study with similar ratios (Table 1). Also entrance of students' information from different faculties in different years (Table 2) has caused the results of analyzing the students' average scores to directly refer to the effects of implementing the software to the researcher. Significantly, probation and decline in GPA were different before and after implementation of the software. In fact, implementing this software for helping the advisor professors, on the education of those inclined to education drops, facilitated the supervision and management of their students through this provided electronic facility with proper ease and speed; plus, it encouraged them to communicate with those at risk of education failures after identifying them and to provide the required guidance and take the necessary measures (Figure 1). Although various factors could be effective in increasing the average score of the students, but it was tried in this research to reduce the confounding variables by recording data and using appropriate information; besides, with regards to the researchers like Bearden, Hazaveie, etc who identified lack of proper relation between the instructing professor and the students as one of the main reasons in education failures, the considered software was further evaluated by the students' GPAs (3, 9).

It can be inferred from table (3) that the percentages in dropping the average score and also occurrence of probation conditions have reduced to 11 and 12 respectively, among all the students of Isfahan Medical

Science University, which, as mentioned earlier, is statistically significant. In this respect, the results of the research in Hamadan Medical Science University indicated that achieving scores less than ten and using consultation services and education instructions by the instructing professor were quite important from the viewpoint of the students (3). Comparison of students' average GPA for one year before and 1/2 years after implementing the software illustrated that the average scores can increase by doing so. Furthermore, the average scores of the second year was significantly higher than that during the year before intervention and also the first year of implementation. Clearly, the rising trend of GPA could be on account of higher familiarity of most teachers with the software and the explanatory meetings held by the education department in the second year. Hazaveie et al stated that students need proper guidance and consultation which leads to their satisfaction and prevents education failures. As a result, training teachers and professors for such purposes enhances their skills and provides better communication with the students and higher satisfaction (3). The results of the present study confirmed others in this respect. Studies show that executing the regulation in advisor professor aspect ends up in students' education progress. The results of the investigations by Barani et al pointed out the rate in visiting the instructing professors (advisors) has a direct effect on the students' average scores. They emphasize that a lot of researchers and authorities believe that students' consultation sessions could provide them with valuable services. Enhancing their achievement and increasing positive self-esteem, solving employment problems, improving mutual relations in families and acquiring or increasing social skills are among the most important services mentioned above. Advances in this field reduce and solve the problems during education and altogether increase education progress of students. Hence, the mentioned issue could highlight the importance of students' visits to advisors and following the guidelines given by the teachers-consultants (7,10).

The results of the research by Lotfi et al on the role of advisors in the progress of devotee students' GPAs depicted students' average rate of GPAs has significantly increased

