

## Evaluating the effectiveness of the *Diploma-In-Research* course on university students' research-based awareness and performance

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### Abstract

**Introduction:** Instruction is a policy of accessing human resources and a way of developing human resources for organizations. Research has always been an instrument for material and moral progress. Such activities as holding research workshops in different universities has been considered as a strategy of promoting students' research capabilities. The present research investigates the effectiveness of the Diploma-In-Research course on students' awareness and practice of research.

**Method:** The present applied research was of descriptive, cross-sectional type and was conducted in 2015 on all students participating in the Diploma-In-Research training course. The sampling method was census. 91 subjects participated in this research. The instrument used was a likert-type questionnaire developed by the researcher. The content validity of the questionnaire was established by a number of professors and experts in the field of education and research. Reliability of the questionnaire was checked through test-retest method.

**Results:** From among the 91 student participants of this study, 72 were female (79.1%) and the rest were male. Among all research activities, the highest rate of performance belonged respectively to articles (71.4%), research projects (31.9%) and conference participation (12.2%). According to investigations conducted on student participants' awareness of and attitude towards the key factors of research, the majority of subjects (67.1%) had a positive attitude.

**Conclusion:** Overall, the results of the present research showed that students' research-oriented awareness and performance was raised after attending the training course. During this course we didn't asked to any student for research activities such as writing proposals and papers (articles). Do any of this practical research activities are held after each workshop maybe increase the knowledge and attitude of students to be more favorable rate. Hence it is recommended, research activities used as part of the research methods in the students educational programs.

**Keywords:** Diploma-In-Research course, awareness, research(-oriented) performance

### Introduction

What is implied by education in university-level education system is to provide for appropriate and increasing changes for students. The aim of evaluation is to enhance the quality of education, research and healthcare services. In Iran, universities of medical sciences are characterized by targeting additional purposes to higher education (1). According to Kirkpatrick's model, the effectiveness of training can be evaluated on four levels: reaction, learning, behavior and results. To summarize, these levels respectively evaluate: desirability of the learning experience, learned content, application, behavior and results (2). Training is considered as an organizational policy of accessing and developing human resources. A body of preexisting research has shown that instructional interventions can raise people's self-confidence as well as their knowledge of different fields (3-6). In education which is seen as

a continuous process, many factors should be taken into account (7). Research has always benefited from material and moral advancement tools. Undoubtedly, human progress within history has been largely dependent on research. Healthcare research has been always necessary for improvement in the healthcare domain and has played a key role in medical sciences. Such activities as holding research training workshops in different universities are used to promote students' research-based capabilities. A primary mission of educational institutions is to promote research. Therefore, there is a need for an extensive review of factors affecting research and its obstacles (8). In agreement with the above-mentioned issue, an investigation conducted in 1970 by the U.S. national educational research revealed that holding workshops can enhance research capabilities. Moreover, according to

Mohammadi et al.'s study, statistics and research methodology workshops held helped to improve faculty members' knowledge and research productivity (2). Another research conducted in Kerman indicated that holding teacher training courses raised participants' knowledge and attitude (9). Other research with this concern found that holding training courses significantly affected the trainees' awareness and skills. This was consistent with the findings of another research which examined managers' knowledge after participating in a clinical skill workshop (10). As Helly, Jordan, Paul & Shirt argued, research or research-based-learning is an effective way to incorporate research and learning (11).

Accordingly, due to the logical effect of training on knowledge and the effect of knowledge on research activities, there could be a causal relationship in between. Due to the causal relation between participation in training courses and the depth of knowledge as well as knowledge and research productivity, there is a need for continuing training courses on methodology review and research consultation (2).

Publishing academic papers in credible journals is a primary knowledge- and research-based index in all universities around the world including Iran.

According to research reports, the number of papers published internationally in 1997 was 1 paper per 1000 academics in the U.S., 1 per 6000 academics in South Korea, and 1 per 120,000 academics in Iran. Iran, as compared to such developed countries as the U.S., west European countries and Japan published 100 times less frequently (8).

A dynamic education system should consistently evaluate its educational status and plan to remove all its deficiencies (5). Modifications in the healthcare system are essential for promoting healthcare services and play a key role in medical sciences (8).

It seems that the training provided by efficient professors can enable students to make the utmost use of their capabilities. To this aim, the present investigation was conducted to see the effectiveness of training on university students' knowledge and performance in research-oriented behaviors. It was

attempted in this study to investigate students' research-based knowledge and capabilities after participating in a training course. The aim is to promote students' research capabilities.

## Methods

The present applied research is of descriptive, cross-sectional type. It was conducted in 2015 on all students participating in the Diploma-In-Research training course. Criteria for access in the research community is maximum participating in the educational courses. The latter course was a complete training course for proposal and paper writing. The sampling method was census. 91 university students participated in this research. A questionnaire developed by the researcher was used to test students' attitude towards and knowledge of the key research factors, as well as students' research products. The questionnaire was comprised of three sections: a) demographic information b) research activities c) students' awareness. A 5-level likert response format was designed for this questionnaire: to a great extent, much, to some extent, not much, and not at all. And in order to a score was given to each of these spectra: too much is given a score 4. high is given score 3; average is 2 and no knowledge 0. validity of this questionnaire in terms of quality confirmed by a number of professors and experts in educational and research. And to assess the validity of quantitatively we used VCR and VCI factors. and teachers were asked to complete a questionnaire options, that include three options: 1, it is essential 2, it is useful but not necessary 3, not necessary. And then measured the validity of the content of each item by responses. The reliability of this instrument was checked through test-retest method and was then confirmed. In order to see the effectiveness of the Diploma-In-Research course on students' knowledge of and practice in research, the questionnaire was used. It was submitted at the end of the course to those who had participated in all sessions. It is noteworthy that not all participants remained in the course to the end. A few left and were, therefore, omitted from the research population. Only 91 students remained in the study to the end. The collected data were analyzed by SPSS 17 using descriptive statistics (mode, median, mean, etc.) as well as t-test.

## Results

In order to estimate the effectiveness of the Diploma-In-Research course on students' research knowledge and practice, the present descriptive, cross-sectional study was done in Hormozgan University of Medical Sciences in 2015. By the end of the course, the number of student participants who remained in the course was 91.

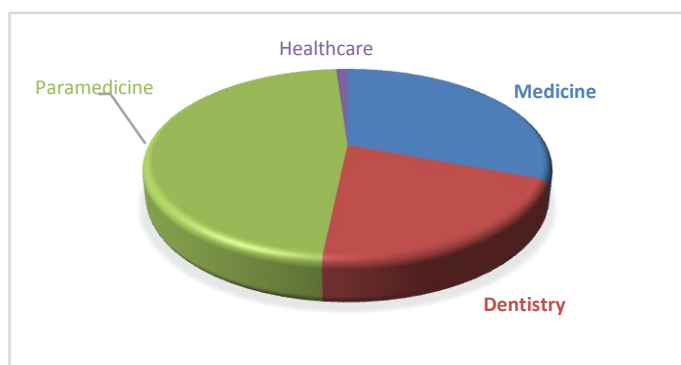


Figure 1: Frequency distribution of population faculties

Among these 91 student participants at the end of the course, the most frequent major was paramedicine (43 subjects, 38.5%) and the least frequent major was healthcare (1 subject, 1.1%) (figure 1). The mean age of the participating students was 21.71.

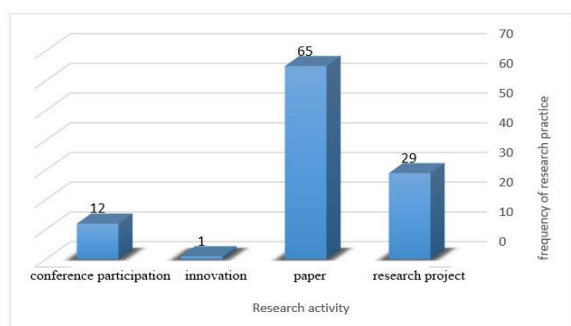


Figure 2: Frequency of students' research activities after the course

Among the 91 students participating in this research, 72 were female (79.1%) and the rest were male. The results indicated in the figures above show that from among all research activities, paper (71.4%), research project (31.9%), conference participation (12.2%) and workshop attendance (7.7%) had

respectively the highest percentages. Book writing and translation (5.5%) and innovations (6.6%) had the lowest percentages.

Table 1: Frequency distribution of workshop participants' positive attitude towards research factors

Attitude towards the main research factors	frequency	%
Familiarity with methods and sources of topic selection	60	66
How to write a proposal	59	64.5
Apply referencing soft-wares (e.g. endnote)	29	31.9
How to write a paper	35	38.5
How to select a journal and submit	22	24.2

According to previous research on workshop participants' knowledge of and attitude towards training courses and research factors, the majority of participants (67.1%) had a positive attitude. In the above-mentioned table, students' familiarity with the main research activities after the course was presented. Among the other factors investigated were raising students' awareness of advanced scientific search (17.6%) and conditions for innovation patency (27.5%).

The results of pre-existing body of research indicate that the research population's attitude towards the privileges of research activities (12.1), research ethics (20.9), and abstract writing for national and international conferences (17.6%) was high.

Overall, about 46% of the participants came to have higher knowledge of research issues after the course as well as a positive attitude towards research activities.

## Discussion

Knowledge of research is the first step of motivating research among university students which can be followed by investigations in practice. Average- or low-level students lack the required knowledge for research. Therefore, here is a need to promote their knowledge of research (8). Educational evaluation is the best index of achieving instructional goals. It deals with an analysis of educational activities at university level. It can help to draw logical conclusions. Evaluating a program aims to judge its overall value and occasionally judge its effectiveness on a particular group of learners (1). Interventions in public health educational plans is one goal of the national academic perspective which seeks to promote students' knowledge- and research-based skills along with the typical scientific instructions. The results of an investigation conducted by Mirzaee et al. revealed that short-term instructional interventions in evidence-based medicine can positively affect students' knowledge of and attitude towards EBM (Evidence-Based Medicine). Conducting similar interventions in other countries yielded similar results (11) which is consistent with the present research. The findings of the present study revealed that training courses managed to increase participants' knowledge and awareness of research issues for 46%. The results gained by Izadi et al. indicated that training courses focused on smoking managed to raise military servants' health-related awareness of this issue (12). Similarly in their study, Sharifzadeh et al. indicated that health-related instruction can help to raise students' level of awareness and attitude (13). There have been other investigations which similarly found a positive effect of instruction on correcting attitudes towards research units (14). All above-mentioned studies conformed to the results of the present research (14). In the present research 42.9% of subjects had already done research. 71.4% had published papers. However, Jacobs & Cross (1991) found out that from among Stanford University graduates of the same

year, 90% had already done research work, 75% of whom had published at least one paper (15). This is slightly different from the finding of the present research. Such a difference can be due to the different research populations and the number of samples investigated. Developing students' knowledge and positive attitude are among the key factors of success in psychomotor or practical domains (9). Nouhi et al. investigated the effect of teaching methodology courses on instructors' awareness, attitude and performance in Kerman University of Medical Sciences (2). Moreover, in Azar's research, a problem-solving learning course managed to raise university students' attitude. Active learning strategies helped to improve students' performance (16). The results of this research is to some extent consistent with preexisting research. On average, 22.55% of the population experienced different types of research. Overall, the findings of the present research indicated that university students' research knowledge and practice was significantly raised after the course. However, since throughout the course no practical assignment was given to participants such as writing a proposal or paper, the final outcome of research in practice was not ideally achieved. Therefore, it is suggested that research activities be incorporated within research methodology courses. It is suggested that students be trained as independent, creative, self-confident and committed working forces for future (17). In their research, Davari et al. believed that a precise and efficient need analysis helps to identify the existing problems in the education system, improve the quality of education and plan more correctly and appropriately (3). In agreement with the above-mentioned findings, the results of the present study can help the student research committee to better plan future programs, research methodology workshops and research fellowships for university students. Assigning students' real and practical works of research by the end of the course can help to realize students' research goals in practice.

## Conflicts of interest

Authors declare no conflict of interests.

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