



Evaluation of the Blended Learning Health Science Graduates by Health Community Preceptors

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ABSTRACT

Background and Objectives: Studies about internships are mostly done on the internship experiences of interns who received traditional face-to-face education, but limited studies were done on interns who studied under a blended learning educational style. Similarly, most studies on the professional competencies of health sciences graduates are done on the graduates of traditional schools. This study aims to describe the professional competencies of blended learning health sciences graduates through community preceptors' evaluations of interns in Saudi Arabia. **Methods:** This study is a secondary analysis of existing data that are available from the College of Health Sciences at the Saudi Electronic University. The study population consists of 96 community preceptors who evaluated 90 health sciences, undergraduate interns, during the last six months of 2019. **Results:** Data analysis is a descriptive method that provides simple statistics related to evaluation variables. The 90 interns were distributed to 47 different internship sites, 83.33% were from the health informatics major while 16.67% were from the public health major. The study tested the technical competencies, nontechnical competencies, and employee perceptions of interns. The mean scores for technical and nontechnical competencies represent positive evaluations of health sciences interns who graduated from undergraduate blended programs. The standard deviations <1 indicate that most responses are close to the mean scores. The modes for all competencies are excellent. Of the 96 evaluations, more than 90% answered "YES" to hiring blended learning health sciences, graduates. **Conclusions:** From the perception of community preceptors, blended learning graduates who majored in health sciences are competent and well prepared to be employed in the health sector in Saudi Arabia and globally.

Keywords: Blended learning, Health sciences, Internship, Professional competencies, Community preceptor, Evaluation

INTRODUCTION

In Saudi Arabia, the Ministry of Health (MOH) is the official governmental body that governs the health sector and leads the transformational activities related to the Saudi 2030 Vision which was released in 2016 [1,2]. As a result, the Healthcare Transformation Strategy identifies the challenges and issues that are facing the healthcare sector, which was released by the MOH. Some of these challenges are related to workforce development, productivity, capacity, and capability [3].

Across the health sector in Saudi Arabia, approximately 710,000 healthcare professionals are needed by 2030, which is a 36,000 increase in the labor demand for healthcare professionals over the number that was working during 2019 in the sector [4]. Preparing the labor market to meet the demand requires effective coordination of different sectors, especially between higher education and employers. Health employers heavily rely on qualifications, knowledge, skills, personality, and ethics in the process of healthcare hiring which graduates are expected to have [5]. Proper training and development of the labor market along with coercing qualified talents to choose the healthcare sector as their career is among the objectives needed to achieve the proper transform of the healthcare sector [6].

Studies about internships are mostly done on the internship experiences of interns who received traditional face-to-face education, but limited studies were done on interns who received Blended Learning (BL) education. Similarly, most

studies of the professional competencies of health sciences graduates are done on graduates of traditional schools. The purpose of this paper is to describe the professional competencies of BL health sciences graduates through community preceptors' evaluations of interns in Saudi Arabia.

Competency is described as "a set of success factors that include the key attributes required for excellent performance in a particular role" [7]. Professional competence can be divided into two main views: the first view is about a set of essential characteristics or qualifications that individuals must have to perform tasks, and, the second view is about the production and execution of work [8]. Health professional competencies include interpersonal health support, community health support, and administrative competencies [9]. Interpersonal health support competencies include individual characteristics, communication, and experiences; community health support competencies consist of role expectations, responsibilities, teamwork, skills, and knowledge; and administrative competencies include organizing, planning, and monitoring [9-11]. A fourth competency is identified as nontechnical competencies, which are related to but not limited to adaptability, motivations, cooperation, ethics, and creativity [11,12].

Knowledge, skills, and experience are related to personal and organizational factors positively associated with the accumulative development of competencies [9]. The knowledge and awareness of role expectations can be obtained through educational and academic institutions that offer academic degree programs and professional associations that offer professional continuing education courses. Training plays a major role in supplying and endowing health professionals with the required skills and experiences [9].

An international survey on internship quality that was conducted in 2011 mentioned that formal education alone is not enough to allow a job seeker to access the job market [13]. The International Labour Office (ILO) described an internship as "a limited period of work experience with an employer usually lasting between a few weeks to one year but which is neither part of a regular employment relationship nor a formal apprenticeship" [14]. Academic programs aim to provide students with opportunities where they can apply classroom knowledge to real-life settings. Generally, students have a positive view of internships as they gain a deeper understanding of their professions and develop their professional skills through internships [5,15,16]. On the other hand, employers' perceptions of student internships may vary due to different reasons such as the organization's size, the number of employees, being for-profit or non-profit, and other reasons [15,17]. In Saudi Arabia, most health sciences-related academic programs have internships as a part of their curriculum structures, which vary between different educational institutions since they vary in learning and educational styles and include the following: regularity, correspondence, distance learning, and BL [18].

Blended Learning in general is the interactive mixture of traditional teaching and electronic learning methods [19]. There are three types of BL: a combination of traditional face-to-face and online learning, a combination of different technologies, and a combination of different methodologies [20]. Some Australian universities highlighted issues with medical students who received traditional education having limited skills regarding nontechnical engagements such as teamwork, creative thinking, self-regulation, and critical thinking. As a result, medical students were introduced to a BL program that aims to supply medical students with nontechnical skills *via* online discussion, digital evaluations, online case scenarios, and face-to-face activities. Interestingly, the program has become a fundamental program, and developers were given incentives to continue their development [21]. A Dutch study was conducted to study the perceptions of General Practitioners (GP) trainers through BL interventions. GP trainers positively evaluated BL in both knowledge and practice [19]. Again, very limited studies in the literature regarding the internships designed to bridge the gaps between educational and professional competencies in health sciences were done on BL graduates. In this paper, we will describe community preceptors' evaluations of BL health sciences interns from the perspective of employers.

MATERIAL AND METHODS

This study is a secondary analysis of existing data that aims to describe the professional competencies of BL health sciences graduates through community preceptors' evaluations of interns in Saudi Arabia. The existing data are available from the College of Health Sciences (CHS) at the Saudi Electronic University (SEU) which is currently the only Saudi governmental university that specializes in the BL method [22]. Primary data were collected using an evaluation questionnaire as part of the normal practice activities related to the internship evaluation. The study population consists of 96 community preceptors who supervised and evaluated 90 health sciences, undergraduate interns, during the last six months of 2019, where each internship period is 3 months. Community preceptors were

invited to complete the electronic evaluation questionnaire after the internship periods of the interns they supervised. Data related to the questionnaire are not publicly available. Therefore, the only data come from the 96 post-internship evaluations collected by the CHS at SEU.

Ethical Considerations

The study protocol has been reviewed and approved by the Saudi Electronic University Research Ethics Committee as study # SEUREC-CHS20104.

RESULTS

Data analysis is a descriptive method that provides simple statistics related to evaluation variables. Means, modes, standard deviations, and percentages are used to describe the study observations. The study was conducted at the CHS which offers two undergraduate programs: health informatics and public health [22]. All 90 interns did their internships in Saudi Arabia at one of 47 internship sites, which vary between the public sector, private sector, and other agencies that offer health/medical services to their affiliated employees and their families. The distribution is illustrated in Table 1. Out of the 90 interns, 75 (83.33%) were from the health informatics program while the remaining 15 (16.67%) were from the public health major.

Table 1 Distribution of interns at internship sites N (%)

Major	Internship Sites			Total
	Public	Private	Other	
Health Informatics	53 (70.67)	4 (5.33)	18 (24)	75
Public Health	9 (60)	1 (6.67)	5 (33.33)	15
Total	62	5	23	90

N=Number of Interns (90)

The preceptors' evaluations of interns' performance are presented in the following aspects: first are the technical competencies, which are measured through interpersonal health support, community health support, and administrative competencies; and second are non-technical competencies. The results are shown in Table 2. Mean scores are derived to determine whether community preceptors have negative or positive evaluations of interns' performance during the internship period.

Ninety-six community preceptors evaluated 90 health sciences, undergraduate interns, during the last six months of 2019 as some interns were supervised by more than one preceptor. Out of the 96 evaluators, 81 (84.375%) evaluated interns from the health informatics program while the remaining 15 (15.625%) evaluated interns from the public health major.

Table 2 Preceptors' evaluations of interns' performance

Technical Competencies	Mean	Mode	SD
Interpersonal Health Support Competencies			
Degree of independence	4.33	5	1.124
Ability to conduct work activities without supervisions	4.6	5	0.62
Effective oral and written communication with others	4.89	5	0.378
Technical and professional competencies	4.77	5	0.444
Community Health Support Competencies			
Skills related to health specialty			
Health Informatics N=81	4.72	5	0.514
Public Health N=15	4.78	5	0.412
Development of knowledge management tools	4.79	5	0.431

Ability to coordinate several activities, ideas, and thoughts	4.79	5	0.455
Awareness of work procedures	4.82	5	0.456
Meeting role expectations	4.74	5	0.484
Reporting to work on-time	4.85	5	0.408
Appropriate reporting of schedule changing	4.84	5	0.363
Conforming to the dress code	4.94	5	0.282
Administrative Competencies			
Preparing reports and written assignments that are free of errors	4.59	5	0.622
Preparing reports and written assignments on time	4.8	5	0.448
Ability to concentrate on work assignments until completion	4.93	5	0.26
Ability to organize assignments effectively and efficiently	4.78	5	0.461
Non-technical Competencies			
Degree of initiative	4.77	5	0.444
Work-relations with coworkers	4.92	5	0.312
Preservation of confidentiality and personal privacy of others	4.94	5	0.242
Polite and considerate speech and manners with others	4.91	5	0.291
Maintaining a clean and orderly workplace	4.69	5	0.2
Overall preceptors' evaluations toward interns' performance	4.84	5	0.363
N=96; Scale: 1=Very Poor to 5=Excellent			

The mean scores for the technical and non-technical competencies represent positive evaluations of health sciences interns who graduated from BL undergraduate programs. The standard deviations are less than 1, which indicates that most responses are fairly close to the mean scores, except for the “degree of independence” that had an SD above one, although it is still considered small. The modes for all competencies are excellent, even for the lowest reported mean. Overall, preceptors' evaluations of the interns' overall performance are positive and are excellent.

Community preceptors were also asked if they would hire their interns at their affiliated organizations if they have the opportunity. This question was essential to measure employers' perceptions of health sciences graduates from a BL program since preceptors may represent an important view of their affiliated organizations. Of the 96 evaluations of both majors, more than 90% answered “YES” to hiring BL health sciences graduates while no observation was recorded for the negative answer. However, there were still less than 10% of preceptors that have answered: “May Be” of hiring the interns. Figure 1 shows the evaluators' opinions regarding employing this specific group of interns.

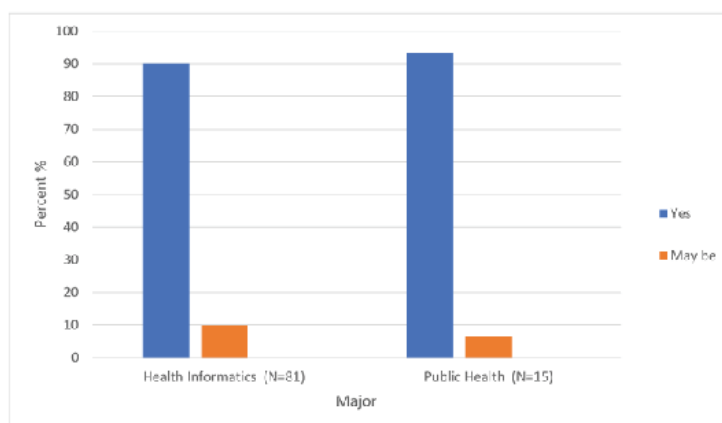


Figure 1 Community preceptors' opinions regarding hiring blended learning Health Sciences graduates, in percentage, (N=number of community preceptors)

DISCUSSION

The current study aimed to describe the professional competencies of BL health science graduates through health community evaluators. The findings imply that the competencies of BL health sciences graduates are perceived to be at an excellent level by different community preceptors, indicating that these graduates were supplemented with the essential knowledge, skills, and techniques of their majors. As a result, more than 90% of community preceptors would recommend hiring these interns at their affiliated organizations.

In Saudi Arabia, most community preceptors found that BL health sciences graduates are professionally competent for technical and non-technical competencies. Technical competencies include interpersonal health support, community health support, and administrative competencies. This study included four measurements of interpersonal health support competencies. BL interns were mostly competent in their effective oral and written communication with others, followed by technical and professional competencies, and abilities to work with limited supervision. Furthermore, the community health support competencies were also fulfilled by BL health interns. Respectively, interns were evaluated as competent in conforming to dress codes, being on-time, flexible in changing schedules, awareness of work procedures, developing knowledge management tools, abilities to coordinate several activities and thoughts, skills related to health specialties, and meeting expectations.

Also, BL interns were supplemented with administrative competencies such as concentration of finishing tasks, preparing reports on time and free of errors, and organize assignments with quality. BL health sciences interns were much different than other regular health science interns who have graduated from traditional face-to-face programs. Previous international studies showed similar observations of the important evaluation of technical competencies for health professional groups [9-11].

On the other hand, nontechnical competencies were also evaluated by health community preceptors of BL health sciences interns. Interns were evaluated as competent of all non-technical competencies. They preserved the confidentiality aspect of others, good work relations with coworkers, polite, degree of initiative, clean. These nontechnical competencies were recommended to be followed by health sciences professionals [11].

The study is limited since the study population is small, especially for the public health interns, which may cause an unbalanced analysis of both majors. Also, the shortage of similar studies with different populations in the literature means that the researcher is unable to compare the professional competencies of health sciences graduates who graduated from BL undergraduate programs with others.

CONCLUSION

Overall, from the community preceptors' perspective, BL graduates who majored in health sciences are competent and well prepared to be employed in the health sector in Saudi Arabia and globally. Future studies are needed to fill the gap in the literature regarding the professional competencies of BL graduates.

DECLARATIONS

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Conflicts of Interest

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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