Relationship of Information Literacy and Professional Ethics with Career Development

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Abstract

Background: Information literacy is a capability that enables individuals to create, sustain, and deepen communication with others, which can be effective in many organizational dimensions such as organizational ethics and career development.

Objectives: This study aimed to determine the relationship of information literacy and professional ethics with career development among Zahedan University of Medical Sciences (ZAUMS) staff.

Methods: Using systematic sampling, this cross-sectional study was conducted on 238 ZAUMS staff in southeast Iran in 2018. Data were collected through individual interviews using standard questionnaires Information Literacy, Professional Ethics, and Career Development. The data were analyzed using SPSS-v21 software and descriptive statistics, one-way ANOVA, and *t*-test.

Results: Of 237 individuals, 116 (48.7%) were males with a mean age of 38 years. The information literacy and career development scores were in the moderate range (means of 170 and 56, respectively), while the professional ethics score of the majority was poor, with a mean of 32. There was a significant direct relationship between information literacy (coefficient = 0.189) and professional ethics (coefficient = 0.391) with career development (P < 0.05). Multivariate linear regression showed that an increased level of employees' access to information had significant positive effects on career development (β = 0.878, P < 0.01). Also, an increase in the level of career development (performance evaluation, workplace environment, supervision status, and educational factors) and professional ethics (loyalty and respect to others) was associated with increased levels of information literacy (P < 0.05).

Conclusions: Information literacy and professional ethics could increase career development. Therefore, it could improve organizational productivity. It is suggested that professional ethics workshops and courses be held to improve staff's information literacy.

Keywords: Information Literacy, Professional Ethics, Career Development

1. Background

Information technology is a valuable tool for disseminating information (1). Information and communications technology (ICT) literacy is a feature that empowers a person to create, sustain, and deepen communication with others in order to access, evaluate, and make accurate, valuable, and creative use of information to meet his needs and others'. In other words, ICT literacy is the ability to think about information and the power to retrieve and use it as one of the essential requirements of life when communicating with others in a two-sided or multi-sided interaction (2).

Information literacy is a component of a wide range of skills and abilities, including critical thinking, problem-solving, social, communication, and personal skills, li-brary literacy, and computer literacy, and it is a tool for informing people who use it. Moreover, it aims to comfort, prosper, and make more accessible tools for doing things (3). Today, modern technologies are increasingly used in all aspects of life. Living in the age of communication and information forces people to adapt to the rapid growth of science and technology (4). Information technology will increase the health knowledge of people. Recently, the concept of information technology has become much broader and encompasses a set of techniques and tools that allow for the study, design, development, implementation, support, or management of computer-based information systems, particularly software programs and computer hardware (2).

On the other hand, professional ethics is a kind of moral commitment and conscientiousness to any work,

duty, and responsibility. Professional ethics results from knowing, wanting, capability, and attitudes. Professional ethics is a set of principles and standards of human behavior that determines the behavior of individuals and groups. It is a rational thinking process to realize which and when values should be preserved and disseminated in an organization. The principles of ethics, in a particular sense, states professional (5). Therefore, first, we must recognize morality and then explain its specific professional ethics concerning the circumstances and space of each profession. A person who adheres to ethical rules modifies his or her wishes in favor of others and, through the promotion and enhancement of spiritual dimensions, always works to serve his fellows (6). Compliance with ethical standards in the workplace and in the presence of clients is one of the essential principles of every occupation (7). In the current era, in which the advancement of technology has affected most businesses and services, performing organizational tasks in a committed and ethical manner is one of the critical priorities of organizations. In the meantime, the staff of health centers has the solemn responsibility of maintaining and protecting health and preventing diseases, and it is expected that they do their job faithfully, honestly, and morally (8).

According to past findings, IT literacy and professional ethics, as important organizational variables, can affect organizational performance from career development and productivity (9). Development means continuous growth, learning, and application of individual skills. Developing an output (outcome) career path is the planning of a personal career path and supporting the organization in the ideal state is a collaborative process. Theorists have defined the development of a career path differently. In this context, the definition of Simonson, the development of the career path is a continuous process of planning and directing activities for the purposes of work and personal life, will be used as the basis of the proposed framework (10, 11).

Considering that career development is vital in the organization, and little research has been conducted in this field, the present study tried to investigate the relationship of technology information literacy and professional ethics with career development in the staff of medical sciences universities as the most important providers of health services in the country. The results of this study can provide valuable information to managers to improve the performance of this organization and community health.

2. Objectives

This study aimed to determine the relationship of information literacy and professional ethics with career development among the Zahedan University of Medical Sciences (ZAUMS) staff. The results of this study provide valuable information to managers to improve productivity in health care organizations.

3. Methods

A cross-sectional study was conducted in southeast Iran in 2018. The study population consisted of all staff of ZAUMS, among whom 238 were selected through systematic random sampling. The inclusion criteria were employment at ZAUMS at the time of the study, willingness to cooperate, and informed consent about research objectives.

After approving the project by the university's ethics committee and obtaining the necessary permissions, the researchers referred to the workplace of the University of Medical Sciences staff. Systematic random sampling was performed using the staff list (considering inclusion criteria) until the completion of the sample. After the initial identification of the participants, the reviewer described the study objectives to the participants and provided the necessary explanations for the confidentiality of the information and voluntary participation in the study. Also, other participants' rights, such as permission to leave the study at any time of the research process, were explained to them.

In this study, three standard questionnaires were used. The IT literacy questionnaire consisted of 63 items with a five-point Likert scale in seven areas: Explaining (four items), accessing (six items), evaluating (four items), managing (seven items), composing (nine items), creating (17 items), and communicating (16 items). The items were scored on the five-point Likert scale (5: Very high, 4: High, 3: Medium, 2: Low, 1: Very low), as used in Zare-Moghaddam et al. research with an alpha of 0.97 (12).

The standard professional ethics questionnaire contained 16 questions that measured eight dimensions: Accountability, honesty, justice and fairness, loyalty, superiority-wanting and competitiveness, respect for others, sympathy with others, and respect for social values and norms. It was used in the study of Zahid Babolan and Hakaran with a reliability of 80% (13).

The career development questionnaire consisted of 21 questions to measure the level of career development according to managerial, environmental, social and educational factors, scored on a five-point Likert scale. Experts confirmed the validity of this scale. Also, the reliability of this questionnaire was obtained using Cronbach's alpha higher than 0.91, indicating good reliability of this tool (14).

After completing the informed consent form, the questionnaires were delivered to the participants and were collected after completion. The data were manually recorded in SPSS v21 software and analyzed using one-way ANOVA and *t*-test.

4. Results

In this study, 238 ZAUMS staff were studied. Most of them were between the ages of 30 and 40 (n = 123, 51.7%), 122 (51.3%) were female, and most (n = 101, 42.5%) had bachelor's degrees. The demographic characteristics of the staff are presented in Table 1.

Most staff had a work experience of 6 to 10 years (n = 100, 42.1%). Most were chosen from the health department (n = 51, 21.4%). Most graduate and postgraduate students working in their deputies had weak and moderate technology literacy scores. Most people with different work experiences had a moderate technology literacy rate. Most people in single and marital age groups and others had poor professional ethics scores, while 81% of the graduate and postgraduate students had excellent professional ethics scores. Most people with a history of working in the deputies had poor professional ethics scores.

Most people were under 46 years (80.7%), the sex distribution was equal, 87% were married, 51.39% were graduated and older, and 42% had a 6 - 10 years history. Most people in all age and sex groups had a moderate career development score, and 70% of married people had a moderate career development score. Most people with a bachelor's degree and a history of different jobs and working in the deputies had a moderate career development score. Technology literacy, professional ethics, and career development had a significant relationship, so those with higher IT literacy scores had higher professional ethics scores. Also, staff who earned a higher professional ethics score were more successful in career development (Table 2).

A multivariate linear regression model with backward elimination (P < 0.05 retention requirement) was used to evaluate the relationship of the dependent variable (career development) with all aspects of professional ethics and information literacy. Partial regression coefficient estimates (β), standard error (SE), 95% confidence intervals (CIs), and significance test results (P-values) are reported for each predictor retained after backward elimination. Also, the percentage of dependent variable variance (R-sugared or R^2) is reported.

Table 3 shows that the backward multivariate linear regression model significantly predicted about 78% of the variance in career development (R^2 = 0.78). Increased employees' access had a significant positive effect on career development (β = 0.878, P < 0.01).

Backward multivariate linear regression was used to identify the predictors of job satisfaction (Table 4). The results showed that the model significantly predicted about 66% of the variance in job satisfaction (R^2 = 0.66). Regression analysis revealed that an increase in the level of career development (performance evaluation, workplace environment, supervision status, and educational factors) and professional ethics (loyalty and respect to others) was associated with increased levels of job satisfaction (P < 0.05). Nevertheless, a higher level of honesty was associated with lower levels of job satisfaction (β = -0.106, P < 0.05).

5. Discussion

The study showed a significant relationship between professional ethics, information literacy, and career development so that higher professional ethics and technology literacy were related to staff's higher career development. Employees with higher literacy are usually more skilled in using technology; they are more likely to behave more appropriately in dealing with the client, causing them to make sure to do their jobs properly, which will lead to career development. In confirmation of these findings, some studies found a direct relationship between professional ethics and career eagerness and development (13, 14). In explaining these findings, it can be said that whenever the staff is hard at work, they will place professional ethics at the forefront of their work, adhere to their job responsibilities, have a deep and effective interest, and have an attachment to their job, care for others, and have a friendly attitude toward others. On the other hand, we can expect their productivity and career development to increase dramatically.

Table 2. Pearson Correlation Coefficient of Technology Literacy, Professional Ethics and Occupational Development of Staff at Zahedan University of Medical Sciences

Variables	Information Literacy	Professional Ethics	Career Development
Information literacy	1	0.170**	0.189**
Professional ethics	0.170**	1	0.391**
Career development	0.189**	0.391**	1
Total	238	238	238

Table 3. Multivariate Linear Regression Analysis for Variables Predicting Career Development [a]

Variables	B	S.E.	β	P-Value	95% CI for B
Access	2.749	0.96	0.878	0.001	2.560 - 2.937
Creating	0.35	0.020	0.052	0.09	-0.005 - 0.75

[a] R = 0.88; R^2 = 0.78; Adjusted R^2 = 0.77; β = Beta coefficient; S.E. = Standard Error; P-Value = Two-tailed statistical significance.

Table 4. Multivariate Linear Regression Analysis for Variables Predicting Information Literacy [a]

Variables	B	S.E.	β	P-Value	95% CI for B
Performance evaluation	0.327	0.135	0.144	0.01	0.061 - 0.593
Workplace environment	0.848	0.146	0.290	0.001	0.559 - 1.136
Supervision status	0.493	0.087	0.355	0.001	0.322 - 0.664
Educational factors	0.572	0.221	0.125	0.01	0.136 - 1.008
Being honest	-0.363	0.167	-0.106	0.03	- 0.692 - - 0.034
Loyalty	0.406	0.154	0.127	0.01	0.103 - 0.710
Respect to others	0.389	0.178	0.107	0.03	0.038 - 0.740

[a] R = 0.81; R^2 = 0.66; Adjusted R^2 = 0.64; β = Beta coefficient; S.E. = Standard Error; P-Value = Two-tailed statistical significance.

Based on this study, the observance of professional ethics by staff increases the client's satisfaction, and staff can perform their daily activities in a quiet environment without tension, which ultimately increases the staff's satisfaction with their work and creates intimacy between colleagues. In confirmation of this finding, Shaghozaei et al. indicated a significant positive relationship between professional ethics of social adequacy and employees' job performance. Organizations need staff with a high social sense of adequacy who feel responsible and accountable for duties and responsibilities (15). Because today's society is organized and people spend much time in different organizations, the study of organizations, in addition to its social significance, contributes to our understanding of social issues such as ethical organizational culture and provides an emotional sense regarding participation and commitment to ethical values and codes and strongly affects staff's performance.

In the present study, the majority of people under the age of 30, single, with an associate's degree, with 6 to 10 years of work experience, and working in the Deputy of Human Resource had a poor professional ethics score, while most people with a graduate degree had an excellent professional ethics score. The poor professional ethics seems to be due to the lack of workshops on ethics in the workplace and the non-obligation of a unit of professional ethics for all disciplines, which ultimately leads people to enter into work competition without passing through ethical training courses, for which people with longer working serving lives have a low level of professional ethics. Shojayifar et al., in contrast to this study, reported that female staff was in a good status regarding professional ethics (16). Paying attention to customers' rights is among the organization's ethical duties. These include genuine and unconditional respect, honesty and clarity, pre-sale, on-sale, and post-sale services, diversification of goods and services, and non-discrimination. Human resources are the real key to success in the organization, and if people at all levels of work are not committed to providing services or producing quality, they will fail at the very first. Indeed,

employees are the main prerequisites for the success and development of the organization [17].

This study's findings showed a significant relationship between IT and career development. People with higher IT literacy had higher career development scores. In general, the more educated the staff and the more informed they are, the more appropriate they behave in dealing with the client and the more commitment they show in doing their jobs, which, in turn, will result in career development. Shahzad et al. concluded that the level of information technology literacy, as an independent variable, can affect other variables, including career development [18].

According to the study results, only a small number of graduate and postgraduate students had a high technology literacy score. Most people with work experience of 11 to 15 years and those in the social welfare deputy had a moderate technology literacy rate, while half of the single people had a weak technology literacy score. Experienced staff usually have a lower education level than others and have worked with lower degrees; thus, due to technological advancement, they have less information and, consequently, have a moderate level of information literacy. The results of this study are consistent with the findings of Mohammadi et al., who stated that the general level of staff's information literacy was moderate [19]. The ICT literacy and skills and abilities that result from it enhance the ability of the individual to apply learning strategies. Therefore, it can be said that ICT literacy is proposed as the basis of motivation and the ability and skills necessary to improve learning through ICT literacy. Abdekhah et al. also concluded that the elderly with a long work history does not tend to use new computer systems and technologies and show resistance to technology. The resistance of staff, especially those who used to work with the traditional paper system for many years, is an obstacle to implementing the development of health information systems [20].

Given that today's developed countries are highly investing in providing better and more e-services in the field of electronic health, which make them able to provide people with a variety of services regardless of the time and place, it is suggested that the authorities of the country further invest in the field of e-health and, with the development of information and communication technology infrastructure, provide the possibility for electronic health development [21]. Nowadays, staff abilities in computer skills and literacy are one of the necessities of every organization and are considered one of the developmental fac-

tors. Having ICT skills and literacy will increase the confidence of staff in digital societies. In the current era, performing tasks is computer-dependent for the staff, so upgrading this capability will improve the staff's tasks and duties and increase the organization's efficiency and effectiveness. In general, it should be noted that familiarity with the computer and modern information technologies is one of the requirements of the present century, and the lack of familiarity with this category and the lack of information hinders us from all the changes in the world. Therefore, it is imperative that managers, especially deputy directors, organize programs and training courses to enhance these skills in their organizations.

According to the study, men and women had a moderate career development score in all age groups and genders. Most singles, bachelor's degree holders, and those with a job experience of 6 - 10 years had a modest career development score, while only 2% of those with a bachelor's degree had excellent career development scores. By increasing the staff's education level, their career development score increased. Saiti et al. [22] reported a similar level of career development in male and female experts at Islamic Azad University, and academic disciplines influenced experts' career development levels.

Staff development had an inverse relationship with work experience. In the explanation of this finding, it can be mentioned that the level of career development of experts has been insignificant in recent years [22], which confirms the results of this study. Foroutani et al. showed that organizations and supervisors support the need for success and self-efficacy to increase the nurses' job motivation for self-development. Supervisors, through their leadership and specific expectations, can influence staff behavior. Staff trusted with respect and friendliness by their supervisor are more pleased and act better than others. The organization can also affect staff's behavior in various ways, such as organizational culture, reward structure, and job design [23].

Therefore, to implement career development programs, by an obligation to participate in in-service courses and honor intellectual capital, individuals should use any means to enhance their potential to access more useful information. In this context, more and more factors for developing centers and institutions of higher education are provided.

Limitations of the study: The staff's lack of cooperation was one of the limitations. In order to overcome this lim-

itation, staff was encouraged to participate and complete questionnaires by providing explanations about the reason for the plan or with the managers' advice.

5.1. Conclusions

Information literacy and professional ethics could increase career development and improve organizational productivity. The first step to increasing work efficiency and career development in public and private offices is observing professional ethics and enhancing information literacy among staff, leading to increased staff intimacy and job satisfaction and ultimately increasing clients' satisfaction. Therefore, it is suggested that more comprehensive research be performed on the staff of other organizations, including hospital staff, to explore other variables that affect career development and find solutions to this critical issue among them. Also, professional ethics training courses and classes should be held to increase the information literacy of the staff further. It will eventually lead to career development and organizational excellence.

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Footnotes

Authors' Contribution: MK, ZSG, and AAR conceptualized the study. MP, AK, and FS collected and analyzed the data, supervised the data analysis, and edited the final manuscript. All authors read and approved the final manuscript.

Conflict of Interests: The authors declare no conflict of interest.

Ethical Approval: This study was approved by the Ethics Committee of Zahedan University of Medical Sciences, Zahedan, Iran (IR.ZAUMS.REC.1396.362).

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Table 1. Frequency Distribution of Information Literacy According to Demographic Variables of Staff at Zahedan University of Medical Sciences

Variables	No. (%)	Information Literacy			P-Value	Professional Ethics			P-Value	Career Development			P-Value
		Low	Moderate	High		Low	Moderate	High		Low	Moderate	High	
Age groups					0.001				0.313				0.105
< 30	39 (100)	18 (46.2)	18 (46.2)	3 (7.6)		32 (82.1)	6 (15.0)	1 (2.0)		9 (23.1)	29 (74.4)	1 (2.6)	
30 - 40	123 (100)	54 (43.9)	62 (50.4)	7 (5.7)		91 (73.0)	32 (26.0)	0 (0.0)		32 (26.0)	89 (72.4)	2 (1.6)	
> 40	76 (100)	12 (15.8)	42 (55.3)	22 (28.9)		54 (71.1)	21 (27.0)	1 (1.0)		21 (27.6)	48 (63.2)	7 (9.2)	
Gender					0.807				0.780				0.776
Male	106 (100)	44 (37.9)	57 (49.1)	15 (12.9)		88 (75.0)	27 (23.0)	1 (0.0)		29 (25.0)	83 (71.6)	4 (3.4)	
Female	122 (100)	40 (32.8)	65 (53.3)	17 (13.9)		89 (72.0)	32 (26.0)	1 (0.0)		33 (27.0)	83 (68.0)	6 (4.9)	
Marriage status					0.053				0.001				0.117
Single	27 (100)	16 (59.3)	10 (37.0)	1 (3.7)		23 (85.0)	4 (14.0)	0 (0.0)		7 (25.9)	20 (74.1)	0 (0.0)	
Married	207 (100)	66 (31.9)	110 (53.1)	31 (15.0)		151 (72.0)	55 (26.0)	1 (0.0)		53 (25.6)	145 (70.0)	9 (4.3)	
Other	4 (100)	2 (50.0)	2 (50.0)	0 (0.0)		3 (75.0)	0 (0.0)	1 (25.0)		2 (50.0)	1 (25.0)	1 (25.0)	
Education					0.050				0.115				0.154
Diploma	18 (100)	5 (27.8)	9 (50.0)	4 (22.2)		12 (66.7)	6 (33.0)	0 (0.0)		9 (50.0)	7 (38.9)	2 (11.1)	
Associate	25 (100)	8 (32.2)	12 (48.0)	5 (20.0)		19 (76.0)	5 (20.0)	1 (4.0)		7 (28.0)	16 (64.0)	2 (8.0)	
Licentiate	101 (100)	26 (26.0)	57 (57)	17 (17.0)		69 (69.0)	31 (31)	0 (0.0)		24 (23.0)	75 (75.0)	2 (2.0)	
Master of science, doctorate	94 (100)	44 (46.8)	44 (46.8)	6 (6.4)		77 (81.9)	16 (17.0)	1 (1.1)		23 (24.5)	67 (71.3)	4 (4.3)	
Work experiences					0.001				0.026				0.221
< 5	11 (100)	5 (45.5)	6 (54.5)	0 (0.0)		8 (72.7)	2 (18.2)	1 (9.1)		2 (18.2)	8 (72.7)	1 (9.1)	
6 - 10	100 (100)	48 (48.0)	44 (44.0)	8 (8.0)		80 (80.0)	20 (20.0)	0 (0.0)		24 (24.0)	75 (75.0)	1 (1.0)	
11 - 15	42 (100)	14 (33.3)	27 (64.3)	1 (2.4)		32 (76.0)	10 (23)	0 (0.0)		12 (28.6)	29 (69.0)	1 (2.4)	
16 - 20	28 (100)	11 (39.3)	12 (42.9)	5 (17.9)		16 (57.0)	12 (42.0)	0 (0.0)		9 (32.1)	18 (64.3)	1 (3.6)	
> 20	57 (100)	6 (10.5)	33 (57.9)	18 (31.6)		41 (71.0)	15 (26.0)	1 (1.0)		15 (26.3)	36 (63.2)	6 (10.5)	
Place of working					0.035				0.579				0.222
Health	51 (100)	19 (37.3)	29 (56.9)	3 (5.9)		37 (72.0)	14 (27.0)	0 (0.0)		21 (41.2)	29 (56.9)	1 (2.0)	
Human resource	47 (100)	20 (42.6)	21 (44.7)	6 (12.8)		39 (82.0)	7 (14.0)	1 (2.0)		14 (9.8)	31 (66.0)	2 (4.3)	
Educational	44 (100)	10 (22.7)	24 (54.5)	10 (22.7)		36 (81.0)	8 (18.0)	0 (0.0)		8 (18.2)	35 (79.5)	1 (2.3)	
Research and technology	14 (100)	8 (57.1)	5 (35.7)	1 (7.1)		11 (78.0)	3 (21.0)	0 (0.0)		3 (21.4)	11 (78.6)	0 (0.0)	
Food and drug	20 (100)	7 (35.0)	11 (55.0)	2 (10.0)		13 (65.0)	7 (35.0)	0 (0.0)		4 (20.0)	15 (75.0)	1 (5.0)	
Cultural and student affairs	28 (100)	7 (25.0)	16 (57.1)	5 (17.9)		19 (68.0)	8 (29.0)	1 (3.0)		3 (10.7)	22 (78.6)	3 (10.7)	
Treatment	30 (100)	12 (40.0)	13 (43.3)	5 (16.7)		20 (66.0)	10 (33.0)	0 (0.0)		8 (26.7)	20 (66.7)	2 (4.3)	
Social	4 (100)	1 (25.0)	3 (75.0)	0 (0.0)		2 (50.0)	2 (50.0)	0 (0.0)		1 (25.0)	3 (75.0)	0 (0.0)	