



The relationship between work climate and nurse educators' use of information technology



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ABSTRACT

Understanding organizational behavior and the attitudes of individuals in organizations is crucial for policymakers and managers. Work climate is a major part of these constructs. The main goal of this study was to examine the perceptions of academic nurse educators about their **work climate**, concerning the use of information technology (IT), including examining a number of variables such as self-efficacy, innovativeness, attitudes, intention to use, and actual use of information technology.

Method: This study used a quantitative research design, using written and online surveys submitted to 109 academic nurse educators working at ten different academic nursing schools in Israel.

Results: The relationship between work climate and actual use of IT was mediated by personality characteristics such as attitude toward using IT, self-efficacy, and innovativeness. Work climate positively predicted both self-efficacy and attitudes toward IT, but did not directly predict innovativeness and did not predict actual use.

Conclusion: Policymakers and managers should consider work climate and personality characteristics as important factors in their efforts to promote IT use in nursing. As a result, nurse educators would become better acquainted with new technologies, and their acceptance of IT would improve. The organization would benefit from a better work environment and from enhanced performance.

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Introduction

The use of information technology (IT) has become very common in our daily activities, including their immense use in health care institutes. It is, therefore, critically important that nurse educators have the knowledge and competences to use IT at their workplaces. Nurse educators and their use of IT are the focus of this study. We believe that nurse educators are the most important group in nursing, concerning this issue. It is their responsibility to build, design, and mold future nurses. Nurse educators are the first to introduce the nursing profession to the students, and it is the duty of faculty heads to train nurse educators properly in order to produce a professional nursing graduate (Gonen et al. 2014). Successful implementation and use of IT can be accomplished by understanding the way that the end users – nurse educators – act, and to find the factors that might advance or hinder their acceptance of technological changes.

In order to achieve this target, the authors examined the relationships between IT knowledge and competencies of nurse educators and three categories of human factors: work climate, subjective norms,

and perceived level of threat and challenge. The present study, examining **work climate**, is the first part of this series.

Literature Review

Work climate has been a research subject for many years because of its importance in analyzing and understanding organizational behavior and the attitudes of individuals in organizations. Mitchell et al. (2012) commented that despite tremendous investments in IT, many technological interventions in organizations fail because employees do not fully accept and use IT. Herzberg's classic two-factor theory of job satisfaction maintains that there are two factors that affect job satisfaction: *hygiene factors* that surround doing the job such as interpersonal relations, physical work conditions, salary, and company policy, and *motivation factors* that lead to positive job attitudes. Following this theory, the opposite of dissatisfaction is no dissatisfaction. The satisfaction of hygiene needs can prevent dissatisfaction and poor performance, but the satisfaction of motivation factors improves productivity (Herzberg et al. 1957). Herzberg's theory focuses on work climate. Herzberg wanted to create the opportunity for employees to take part in planning, performing, and evaluating their work. He concentrated on the importance of internal job factors such as motivating forces for employees and on increasing job enrichment for employees (Evans and Olumide-Aluko 2010). For this reason, organizational climate, one of the

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influential factors in organizations, should also be considered a crucial factor for successful implementation of IT.

Rafferty (2003) described organizational climate as the internal environment experienced by the employees. It can be defined as the shared perceptions of employees concerning practices, procedures, and behaviors that are rewarded and supported in the workplace. Individuals' behaviors and perceptions are influenced by their environments. For this reason, it is possible to refer to work climate as one of the subjective norms/factors that can predict human behavior, namely using IT in the workplace.

Students' and teachers' acceptance levels of e-learning in classrooms have been well-studied (Liaw et al. 2007; Park 2009; Yuen and Ma 2008), and according to Lee et al. (2009), if a user experiences positive acceptance toward using e-learning, the outcome tends to be successful.

The theoretic basis of this research is Ajzen's classic Planned Behavior Theory, which provides a general direction to measure attitudes and behavior (Ajzen 1991). The Planned Behavior Theory incorporates components of behavior such as attitudes, subjective norms, self-efficacy, intention and actual use. Table 1 includes the definitions of these components, including work climate.

Attitude to behavior relates to the degree of an individual's positive or negative assessment of behavior/planned behavior. The term 'attitude' indicates an important concept in human behavior. It is one of the most common terms of social psychology, and is used to explain various human behaviors, primarily social behavior. A person learns from experience how the social environment responds to his/her reactions and behaves accordingly.

Work climate is the key component to improve organizational effectiveness. Nurse educators would like to receive responsibility, positive feedback on performance, support, warmth, friendliness, and a sense of belonging. García et al. (2013) studied nursing organizational climate in public and private hospitals. They claim that the characteristics of the human resources and management have a significant impact on the perception of the climate. Koivunen et al. (2015) examined team climate and attitudes toward using IT, and they mention that asserting team climate and supporting innovative operations may lead to more positive attitudes toward IT.

Consequently, work climate is an importance and significant issue to be brought into consideration before beginning any new project. In summary, departmental/organizational climate is a major and significant element of the day-to-day reality of nurse educators.

Self-efficacy is behavioral ability and control, the individual's perceived ease or difficulty to perform a certain action and the perception of his/her capacity to behave in a way that produces an effect. The behavioral control component is the individual's resources and possibilities that dictate his/her tendency to behavioral achievement and success. Self-efficacy reflects one's belief (whether realistic or not) in one's ability to perform a certain task. The term was coined by Bandura (1977), as part of his Social Learning Theory. This study

examined whether the perception of the ease or difficulty to use IT by nurse educators would affect attitudes and use of IT. Many studies emphasize the connection between the two, and state that the greater the sense of self-efficacy, the more positive the attitudes toward using IT (Bond 2009; Cardoza and Hood 2012; Tung and Chang 2008; Wu and Tsai 2006).

Innovativeness was defined by Agarwal and Prasad (1998) as an individual's willingness to try out new information technologies. Although it is not part of the original classic theory of planned behavior, Agarwal and Prasad (1998) contend that it has undeniable value as an additional component that is connected with IT use. Rogers (1995), founder of the Diffusion of Innovations Theory, characterized five types of change efforts: a. risk-takers; b. first adopters; c. early maturity; d. late maturity; and e. opposers. Innovativeness can be expressed in various ways such as interest in technological innovation and intention to buy new gadgets. A tendency to innovativeness should have a positive relationship with attitudes toward computer use, as was presented by Shoham and Gonen (2008) and by Hsu et al. (2009). Accordingly, this study explored how these factors related to the nurse educator's attitudes and use of IT.

IT use and intention to use: Ajzen (1991) claimed that behavior intention is the degree to which people are willing to try, and the degree of effort they plan to invest, in order to perform a behavior, which is affected by attitudes, social influence, and behavioral control. Measuring users' attitudes toward and their intention to use IT appears to be worthwhile when we would like to make predictions. When a study looks for explanations, a measure of actual use of IT is needed (Maillet et al. 2015). Maillet et al. (2015) also claim that not many studies measured the actual use of IT in healthcare settings, but, instead, many nursing studies examined nurses' behavior intentions (notable among them: Chow et al. 2013; Shoham and Gonen (2008); Tung and Chang 2008).

Today, using IT in the workplace is very common, although there are differences in the quality of use. The quality of use is on a continuum starting with simple IT competencies and ending with very advanced IT tools. Examining the use of IT by nurse educators must consider this continuum. Thus, research in this area usually asks questions pertaining to three sets of use: the most popular is surfing the net and using email, the second is using Microsoft Office applications, and the third is using advanced software like Moodle (a popular tool in education) or healthcare software.

In conclusion, a number of factors have been associated with acceptance of IT, namely the level of IT skills among professionals (Yu et al. 2009), the quality and usefulness of applications (Hsiao et al. 2011), managers' support of IT implementation processes (Courtney et al. 2008; Koivunen et al. 2009; Yu et al. 2009), and lack of organizational support (Yarbrough and Smith 2007). We believe that there is great importance to create a friendly and useful work environment for nurse educators, which will enable to motivate and reward the provision of high quality service for them and for the profession.

Table 1
Concepts definitions.

	Concept	Concept definition
1	Attitude to behavior	Behavior relates to the degree of an individual's positive or negative assessment of behavior/planned behavior (Ajzen 1991).
2	Innovativeness	Innovativeness was defined by Agarwal and Prasad (1998) as an individual's willingness to try out new information technologies.
3	Intention to use	Ajzen (1991) claimed that behavior intention is the degree to which people are willing to try, and the degree of effort they plan to invest, in order to perform a behavior, which is affected by attitudes, social influence, and behavioral control.
4	Self-efficacy	The term was coined by Bandura (1977), as part of his Social Learning Theory. Self-efficacy reflects one's belief in one's ability to perform a certain task.
5	Using information technology	Performing a behavior (like information technology), which is affected by attitudes, social influence, and behavioral control (Ajzen 1991).
6	Work climate	The shared perceptions of employees concerning practices, procedures, and behaviors that are rewarded and supported in the workplace (Rafferty 2003).

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