



OJNI FEATURE ARTICLE

Exploration of the link between speaking English as a foreign language and Internet use among nurses in Israel

Talma Kushnir, M.Sc., PhD,
Associate Professor
Ben-Gurion University of the Negev

Yaacov G. Bachner, PhD
Senior Lecturer
Ben-Gurion University of the Negev

Sivia Barnoy, RN, PhD
Senior Lecturer
Tel-Aviv University

Key words: Internet use, nurses, English as a foreign language, Hebrew, Internet self-efficacy.

Abstract

We explored whether speaking English as a foreign language may be one of the barriers that discourage nurses from using the Internet for professional purposes. Two hundred and three Israeli registered hospital nurses, with or without academic education in nursing, who spoke English as a foreign language, reported usage frequency and difficulty of: e-mails, searches and downloading of information, in Hebrew and English; and Internet self-efficacy. Usage frequency in Hebrew was significantly higher than English, and difficulty of usage was lower. For both languages Internet self-efficacy was associated with frequency and difficulty of Internet use. The effects of language were strongly accentuated by the level of nursing education. Language may pose a more significant barrier for nurses who are less competent in using English, and prevent their exposure to the ever-increasing growth of professional knowledge.

CITATION: Kushnir, T., Bachner, Y., & Barnoy, S. (October 2010). Exploration of the link between speaking English as a foreign language and Internet use among nurses in Israel. Online Journal of Nursing Informatics (OJNI), 14(3), Available at http://ojni.org/14_3/Kushnir.pdf



OJNI

FEATURE ARTICLE

Introduction

In recent years nurses have made significant steps in acquiring skills in utilizing information and communication technologies (ICT) (Chan, Brew & de Lusignan, 2004). Nursing practice today is information intensive (Royle & Blythe, 1998) and there is increasing dependency on the Internet as an information resource. Moreover, the Internet is also an efficient means of professional and personal communication.

Nurses' use of the Internet has been affected by changes in information seeking behaviors among the patient population. Many patients have become regular health information seekers and rely on the resources available on the Internet for health information and support (Dickerson, 2006). As a consequence, nurses are increasingly encountering patients who bring downloaded information to the clinic and expect to discuss with a nurse what they read on the net (Barnoy, Volfin-Pruss, Ehrenfeld, & Kushnir, 2008; Wilson, 1999).

Yet several studies have shown that nurses' acceptance and use of ICT is lower than physicians' (Eastbrooks, O'Leary, Ricker, & Humphrey, 2003; McCaughan,

Thompson, Cullum, Sheldon, & Raynor, 2005). A common finding is that nurses, especially older ones, prefer personal experience and communication with colleagues and patients rather than turning to on-line resources of information (Chan et al., 2004; Dee & Stanley, 2005; McCaughan, et al., 2005).

One of the possible barriers to Internet use is language, i.e. when the language spoken by the nurse and the one in which the information is presented on the Internet are different. At the moment, about 80% of all web pages are written in English (Global Reach, 2008). Much of the academic research is disseminated in English (Benfield, 2007) and this is the language in which the most prestigious scientific and medical journals are published. Therefore, beyond possessing core informatics knowledge and computer skills, and having technical access to the Internet, a good command of the English language is essential for Internet literacy in healthcare. Internet literacy is the ability "to learn, comprehend and interact" with this technology in a meaningful way (Pianfetti, 2001). Paradoxically, only 8% of the world's population speaks English today (Benfield, 2007) and only about 340 million people speak English as a first language. Even in the EU, where English is the most commonly used language, with 51% speaking it either as their mother



OJNI

FEATURE ARTICLE

tongue (13%) or as a foreign language (38%) (The European Commission, 2006) still 49% of the residents do not speak English at all.

Thus, there are countless numbers of nurses all over the world who do not speak English at all or speak English as a foreign language for whom it is difficult, if not impossible, to use the Internet for accessing updated clinical guidelines based on high quality research findings, a guiding principle of evidence-based practice (Fineout-Overholt, Hofstetter, Shell & Johnston, 2005).

Although there have been several studies of usage of ICT among nurses and student nurses in various countries such as Canada (Eastbrooks, et al., 2003), the UK (McCaughan, et al., 2005), and Nigeria (Ajuwon, 2003; Bello, Arogundade, Sanusi, Ezeoma, Abioye-Kuteyi, & Akinsola, 2004), none has referred to the language factor, probably because most of the studies involved participants who speak English as a first language.

The aim of the present study was to explore how language might influence the extent of Internet use in a sample of Israeli nurses who speak English as a foreign language. English is usually a foreign language for most native Jews and Arabs in Israel, as well as for immigrants from the former Soviet Union. As there are no outstanding peer reviewed nursing journals

in Hebrew, and since original or translated materials available in Hebrew are often outdated, nurses wishing to be updated must read journals and web sites in English. Therefore, we intended to investigate whether the extent of performing three Internet functions (e.g. searching for information using key words) is affected by the language in which the particular function is performed (Hebrew or English). We expected that, among Israeli nurses, Internet functions in English would be less frequent and create more difficulties compared to Internet functions .in Hebrew

Since the scale for assessing Internet use in both languages has been compiled for the present study (see Methods section), initial positive indications for its suitability for the present research are warranted. Internet use self-efficacy could be such an indicator. Internet self-efficacy has been defined as "the belief in one's capabilities to organize and execute courses of Internet actions required to produce given attainments" and was found to be positively correlated with Internet use (Eastin & LaRose, 2000). Therefore we assumed that Internet self-efficacy would be associated with the frequency and difficulty of Internet use. Thus, nurses with higher levels of Internet self-efficacy would report higher frequency of use and lower levels of difficulty regarding Internet use, in both languages.



OJNI

FEATURE ARTICLE

Methods

Participants and procedure

The convenience sample included 203 nurses working in hospitals in the central region of Israel. All participating nurses spoke Hebrew fluently, and for all of them English was a foreign language. The majority (78%) spoke Hebrew as their first language, and for the rest, having been born in former USSR countries, Hebrew was the second language. Nevertheless, these nurses were assumed to be highly fluent in Hebrew as they had completed their professional studies in Israel; and furthermore, all medical and nursing staff in the Israeli healthcare system is obliged to speak Hebrew with the patients.

The mean age was 28.4 (SD= 7.46) years with a range of 35 (20 to 55 years); 177 were women (87.2%); 94 (45.9%) were registered nurses, and 111 (54.1%) were registered nurses with academic degrees (Bachelor or Masters of Science in Nursing)

The study questionnaires were distributed to the participants during working hours by a researcher. The questionnaires were self completed (about 15 minutes) by the participants who deposited them in a large envelope in the nurses' station. The questionnaires were later collected by the researcher from this

envelope.

Ethical considerations

Prior to questionnaire distribution, hospital head nurses gave their approval to the research (questionnaire distribution to staff does not require an ethical committee approval). The experienced researcher who distributed the questionnaires to the participants explained the purpose of the study and assured them of confidentiality and anonymity. Those who gave their informed consent were given the questionnaire to complete, which took about 15 minutes.

Measures

The study questionnaire included items related to socio-demographic data (age, gender, years of education, academic level), measures of frequency and difficulty of Internet use in two languages, and Internet use self-efficacy.

Internet use in two languages: The scale for assessing Internet usage in English and Hebrew was developed specifically for this study, with the help of a small sub-group of nurses, (n = 6), computer users, who were not involved in the wider study. Based on interviews with these nurses, a brief and simple structured questionnaire was compiled. It requires participants to make a general assessment of their skill level in



OJNI

FEATURE ARTICLE

terms of frequency and difficulty of performing three main Internet activities at the work place, in two languages, Hebrew and English: sending e-mails, search for professional information and search by using key-words. The scale consists of 12 items, six for each language. For each of the two languages, three items assess the frequency and three items refer to the difficulty associated with these activities. Responses to all items were given on a 5 – point Likert scale, ranging from 1, never, to 5, very often. High scores represent high levels of Internet frequency or difficulty of usage (see Table 1).

Four indices were created that assess the frequency and difficulty in performing these activities in the two languages. Each index consists of the average score of the three respective items. The alpha Cronbach's reliability coefficients were as follows: Internet usage *frequency* (Hebrew $\alpha=0.65$ and English $\alpha=0.84$); and Internet usage *difficulty* (Hebrew $\alpha=0.75$ and English $\alpha=0.86$).

Internet use self-efficacy: Two items, one for each language, assessed the level of Internet usage self efficacy: "In general, to what extent are you capable of using the Internet in Hebrew?"; "In general, to what extent are you capable of using the Internet in English?". Responses were given on a 5-point Likert scale ranging from 1, not at all, to 5, to a large extent. High scores represent high Internet use self-efficacy in

Hebrew or English.

Statistical analysis

Differences between the mean scores of the continuous variables were tested using t-tests. The associations between variables were examined with Pearson's correlation coefficients. Internal consistencies of the different indices of the Internet use scale were assessed by Cronbach's alpha coefficients. The data were analyzed with the statistical software SPSS, PC version 15.0. Significance level was set at $p < 0.05$.

Results

Means and standard deviations for the items of the Internet use frequency and difficulty scale are presented in Table 1.

Frequency scores

Overall Internet use in English was less frequent than Internet use in Hebrew: the mean score of the English frequency index was significantly lower than the mean score of the index for Hebrew ($M=3.13$, $SD=1.12$, $M=3.34$, $SD=1.16$, $t=3.37$, $p < 0.0001$, respectively). These differences were even more pronounced when registered nurses (RNs) without academic degrees were compared with degree prepared nurses, as shown in Table 2, which shows the effects of educational



OJNI

FEATURE ARTICLE

level regarding Internet use frequency in both languages. The differences between the two educational levels in Hebrew and English frequencies were examined by *t*-tests and were found to be statistically significant for both languages, ($t = 5.68$, $p < 0.001$ for Hebrew; and $t = 5.05$, $p < 0.001$ for English),

Difficulty scores

On the whole, using the Internet in English was more difficult than using the Internet in Hebrew: the mean score of the English difficulty index was significantly higher than the mean score of the Hebrew difficulty index ($M=2.16$, $SD=1.10$, $M=1.95$, $SD=1.14$, $t=4.88$, $p < 0.0001$, respectively). For Hebrew use, the most difficult action (the highest difficulty mean score) was searching by using key-words. For English, the most difficult action was sending E-mails. As with the frequency scores, the differences in Internet use difficulty levels between the two languages were even more pronounced when comparing nurses with and without academic degrees, as shown in Table 2 (for Hebrew, $t = 4.05$, $p < 0.001$; and for English, $t = 3.62$, $p < 0.01$).

Self-efficacy

Concurrent with the above results, overall Internet self-efficacy was higher for

Hebrew use compared with English use ($M= 6.00$, $SD= 1.21$, and $M= 5.27$, $SD= 1.34$, respectively) and these differences too were more pronounced when the effect of level of nursing education was considered, as shown in Table 2. Compared with degree prepared nurses, nurses without an academic degree reported significantly lower levels of Internet self-efficacy in both Hebrew ($t = 2.83$, $p < 0.001$) and English ($t = 3.95$, $p < 0.001$).

In sum, in this sample of Hebrew speaking nurses with English as a foreign language, Internet activities performed in English were significantly less frequent and more difficult than Internet functions performed in Hebrew and the nurses were more confident of their ability to use Hebrew than English.

Correlational analysis

The correlations between the scores of the Internet frequency and difficulty indices, by language, are presented in Table 3. For both languages, high and significant negative correlations were found between frequency and difficulty of use in all three activities. Thus, the higher the level of difficulty of sending e-mails, searching the Internet for professional data, and searching by using key words, the lower the frequency of performing these activities.



OJNI

FEATURE ARTICLE

Highly significant and positive associations were found between total years of education and Internet use frequency, in both Hebrew ($r=0.278$, $p<0.001$) and English ($r=0.227$, $p<0.001$).

Demographic variables associated with frequency and difficulty of use

In further analyses performed separately for each language, we examined the correlations between the respondents' ages and their scores on the Internet use frequency and difficulty indices. Age was positively and significantly associated with one index only, difficulty of usage in English ($r= .21$, $p<.05$).

Gender differences (males vs. females) in the frequency and difficulty indices in both languages were examined by t-tests. None of the differences were found to be significant. The effects of educational level regarding Internet self efficacy, and frequency and difficulty of usage in both languages have been described above.

Discussion

English has become the *lingua franca*, the common, standard language of science (Yankauer, 1998). It is important to investigate whether the predominance of

English as the main scientific language of the Internet may constitute a barrier for those who speak English as a foreign language and/or who do not have a good command of this language (nonnative speakers).

In general, the nurses in the present study reported high frequency of Internet activity in both Hebrew and English, suggesting that they incorporated the Internet as an integral activity in their professional lives. The significant correlation between the frequencies in the two languages indicates that the more the nurses performed Internet-related functions in Hebrew, the higher was their use of the Internet in English. The fact that nursing education in Israel is heavily dependent on command and comprehension of the English language may explain the relatively high extent of Internet use of English in the present sample. English language is studied from a very young age in Israel and is a mandatory subject in the secondary education matriculation exams. Proficiency in the English language is an admission requirement to all Israeli Universities. All Bachelor's Degree candidates (nowadays most nursing schools in Israel are academic) must take the standardized **Psychometric Entrance Test** that includes the **English language**. The English language requirement for admission to University is equivalent to the First Certificate in English of Cambridge



OJNI

FEATURE ARTICLE

University, England. But a higher level of proficiency is required from Medicine and all Bio-Medical Sciences candidates. Many required and supplementary reading texts (including those for nursing licensing exams) are written in English, particularly at higher degrees and in the sciences.

Despite the relatively high level of English use in the present study, it was significantly lower than the use of Hebrew, as expected. Moreover, the nurses reported significantly more difficulties in using English than Hebrew.

Since the use of technology is rather dependent on one's self efficacy, the associations found here between Internet self-efficacy and Internet usage and difficulty were expected. Furthermore, the finding that Internet self-efficacy in using English was significantly lower than self-efficacy in Hebrew is also consistent with findings of the lower Internet use and greater difficulty in English. Altogether the findings suggest that for nonnative English speaking nurses the language factor poses a potential barrier to accessing research-based evidence in healthcare on the Internet (Ciliska, Pinelli, DiCenso, & Cullum, 2001)

The positive association found here between educational level and Internet use is well-documented in the literature and replicates other findings (Hamoui, Lake, Beart, Anthone, & Crookes, 2008). Here,

Internet use was higher among registered nurses with academic education compared with registered nurses without academic education. Additionally, the level of difficulty of use was lower among nurses with an academic degree. The finding of higher scores in searching by key word in the degree-prepared nurses is especially illuminating. This could be due to greater emphasis in their educational background on searching for evidence and hence greater confidence in search techniques as well as being more comfortable with English. The latter point is supported by the higher Internet self-efficacy scores among the nurses with an academic degree.

It is probable that the present results may underestimate the potential negative impact of the language barrier on nurses working in countries where English is not mandated in schools and higher education, and nurses in healthcare organizations in English speaking countries that employ a diverse multi-national staff. Nurses in all clinical settings make many clinical decisions every day (Swan, Lang, & McGinley, 2004). Ideally, decision-making should rely on the highest quality research findings. Although there is an increasing number of clinical guidelines being developed nowadays, Francke, Smit, de Veer, & Mistiaen, (2008) have suggested that implementation should be greater when the clinical provider is aware of the



OJNI

FEATURE ARTICLE

existence of the guideline and familiar with its content; and when a guideline can be relatively easily understood. Yet, awareness of and familiarity with existing and new professional materials depends, among other factors, on the ability to both access and comprehend scientific literature. For these purposes, knowing the language in which information is encoded is crucial. Nurses who speak English as a second or foreign language are less likely to be able and perhaps motivated to routinely access the Internet and search for updated guidelines that are presented in English. The practical consequence could be reduced implementation of evidence-based guidelines in their work.

Lastly, the language barrier to Internet use may prevent nurses who do not keep updated professionally by using the Internet from becoming "knowledge broker", a new role suggested recently by Bond (2004) and Dickerson (2006). They proposed that the role of nurses in the healthcare system is in the process of shifting from traditional gatekeepers of knowledge to that of "knowledge consultants" and facilitators who assist patients in filtering Internet health information and evaluating the materials they have found.

The study has several shortcomings and should therefore be considered as an exploratory investigation. First, only a few Internet functions were involved and one of

them, sending e-mails, does not relate to professional updating as clearly as searching by key words or searching for professional data. Second, a new and unvalidated tool for assessing Internet use was used. Hopefully this study will contribute towards the overall evaluation of the new tool. Future studies should include a larger variety of professional IT functions, and further validate the Internet frequency and difficulty scale used here for the first time.

Third, the sample was not representative of nursing professionals in Israel. Moreover, the sample was heterogeneous in terms of the first languages spoken by the nurses. Although all participants spoke English as a foreign language and most of them spoke Hebrew as their native language, there was a minority of nurses who emigrated from other countries, who spoke Hebrew as a second language. As mentioned in the Methods section, the latter had a very good command of Hebrew since they had completed their professional education in this language. Yet it is advisable to address the possibility of the second language as a confounding variable in future studies.

Further studies are also needed to establish the robustness of these findings among nurses with different professional status, and those who work in different healthcare organizations (e.g. HMO's and community). It would be also interesting to



OJNI

FEATURE ARTICLE

compare the effects of the language barrier on Internet use among various health professionals and among individuals who speak languages other than English, with the items adjusted to the language spoken. For these purposes the brief measure of Internet use which was compiled for the present study seems a suitable basis.

In conclusion, the American Association of Colleges of Nursing (American Association of Colleges of Nursing, 2007) has stated that in the Internet era, it is essential for nurses to possess knowledge and skills in utilizing information technology, since these are crucial resources required for evidence-based nursing care, education, and the management and coordination of care (American Association of Colleges of Nursing, 2007). In the present paper we have suggested that above and beyond learning ICT skills, nurses who speak English as a foreign language, could find it more difficult to acquire, follow and update professional knowledge from the Internet, than those nurses for whom English is the

first language. It is also possible that the rising speed with which new technologies and treatments are being developed (Harrison & Lee, 2006) may further accentuate the effects of the language barrier. The language barrier is a challenge for educators and administrators in nursing in all countries where English is not spoken as a first language as well as for healthcare organization with a multi-national nursing staff. Developers of online evidence-based material should be well aware that there are numerous nonnative English speaking nurses and other healthcare professionals who might often be discouraged from accessing these materials on the Internet and/or find it difficult to utilize them effectively. The developers could consult with representatives of nonnative English speaking leaders in nursing as well as language experts, to facilitate the process of developing and even translating materials that should be more universally comprehensible.



OJNI

FEATURE ARTICLE

References

- Ajuwon, G. A. (2003). Computer and Internet use by first year clinical and nursing students in a Nigerian teaching hospital. *BMC Medical Informatics and Decision Making*, 3: 10, doi:10.1186/1472-6947-3-10.
- American Association of Colleges of Nursing. (2007). *White Paper on the Education and Role of the Clinical Nurse Leader*. [cited 1 July 2008]. Available from URL: <http://www.aacn.nche.edu/Publications/WhitePapers/ClinicalNurseLeader07.pdf>
- Barnoy, S., Volfin-Pruss, D., Ehrenfeld, M., & Kushnir, T. (2008). *Factors affecting nurses' attitudes towards patients who present them with Internet medical information*. *Nursing Outlook*, 56, 314-321.
- Bello. I. S., Arogundade, F. A., Sanusi. A. A., Ezeoma, I.T., Abioye-Kuteyi, E.A. & Akinsola, A. (2004). Knowledge and utilization of Information Technology among health care professionals and students in Ile-Ife, Nigeria: a case study of a university teaching hospital. *Journal of Medical Internet Research*, 6(4): e45, doi: 10.2196/jmir.6.4.e45.
- Benfield, J.R. (2007). Cardiothoracic surgeons divided by a common language. *The Annals of Thoracic Surgery*, 84, 363-364.
- Bond, C. S. (2004). Surfing or drowning? Student nurses' Internet skills. *Nurse Education Today*, 24, 169-173.
- Chan, T., Brew, S., & de Lusignan S. (2004). Community nursing needs more silver surfers: A questionnaire survey of primary care nurses' use of information technology. *BMC Nursing*, 3, 4 . doi:10.1186/1472-6955-3-4
- Ciliska, D. K., Pinelli, J., DiCenso, A., & Cullum, N. (2001). Resources to enhance evidence-based nursing practice. *AACN Clinical Issues: Advanced Practice in Acute & Critical Care*. 12(4), 520-528.
- Dee, C., & Stanley, E. E. (2005). Information-seeking behavior of nursing students and clinical nurses: Implications for health sciences librarians. *Journal of Medical Library Association*, 93, 213-222.
- Dickerson, S. S. (2006). Women's use of the internet: What nurses need to know. *Journal of Obstetric, Gynecologic, and Neonatal*, 35, 151-156.
- Eastin, M. S., & LaRose, R. (2000). Internet self-efficacy and the psychology of the digital divide.

CITATION: Kushnir, T., Bachner, Y., & Barnoy, S. (October 2010). Exploration of the link between speaking English as a foreign language and Internet use among nurses in Israel. *Online Journal of Nursing Informatics (OJNI)*, 14(3), Available at http://ojni.org/14_3/Kushnir.pdf



OJNI

FEATURE ARTICLE

[Cited 9 March 2008]. *Journal of Computer Mediated Communication*, 6(1). Available from URL: <http://www.jcmc.indiana.edu/vol6/issue1/eastin.html>.

- Fineout-Overholt, E., Hofstetter, S., Shell, L., & Johnston, L. (2005). Teaching EBP: Getting to the gold: How to search for the best evidence. *Worldviews on Evidence-Based Nursing* 2(4), 207-211.
- Francke, A. L., Smit, M. C., de Veer, A. J. E., & Mistiaen, P. (2008). Factors influencing the implementation of clinical guidelines for health care professionals: A systematic meta-review. *BMC Medical Informatics and Decision Making*, 8:38. doi: [10.1186/1472-6947-8-38](https://doi.org/10.1186/1472-6947-8-38).
- Global Reach, (2008). *Global Internet statistics (by language)*. [Cited 9 February 2008]. Available from URL: <http://www.gltreach.com/globstats/index.php3>.
- Hamoui, N., Lake, J., & Beart, R.W., Anthone, G. J. & Crookes, P. F. (2004). Patterns of internet use: Bariatric versus colorectal patients in a private institution. *Journal of American College of Surgeons*, 199, 223-228.
- Harrison, J. P., & Lee, A. (2006). The role of E-health in the changing health care environment. *Nursing Economics*, 24(6), 283-288.
- McCaughan, D., Thompson, C., Cullum, N., Sheldon, T., & Raynor, P. (2005). Nurse practitioner and practice nurses' use of research information in clinical decision making: findings from an exploratory study. *Family Practice*, 22, 490-497.
- Pianfetti, E. S. (2001). Teachers and technology: Digital literacy through professional development. *Language Arts*, 78, 255-262.
- Royle, J., & Blythe, J. (1998). Promoting research utilization in nursing: The role of the individual, organization, and environment. *Evidence Based Nursing*, 1, 71-72.
- Swan, B A. Lang, N. M., & McGinley, A.M. (2004). Access to quality health care: Links between evidence, nursing language, and informatics. *Nursing Economics*, 22, (6), 325-332.
- The European Commission. (2006). *Europeans and their languages*. Special Eurobarometer 243/ Wave 64.3 – TNS, Opinion & Social, [Cited 2 February 2009]. Available from URL: http://ec.europa.eu/public_opinion/archives/ebs/ebs_243_sum_en.pdf.
- Wilson, S.M. (1999). Impact of the Internet on primary care staff in Glasgow. *Journal of Medical*

CITATION: Kushnir, T., Bachner, Y., & Barnoy, S. (October 2010). Exploration of the link between speaking English as a foreign language and Internet use among nurses in Israel. *Online Journal of Nursing Informatics (OJNI)*, 14(3), Available at http://ojni.org/14_3/Kushnir.pdf



OJNI

FEATURE ARTICLE

Internet Research, 1:e7 published online 1999 November 19. doi:10/2196/jmir.1.2.e7.

Yankauer, A. (1999). American Medical Association manual of style: A guide for authors and editors. *Journal of the American Medical Association*, 279, 1752-1753.

Authors' Bios

Talma Kushnir, M.Sc., PhD

Dr. Kushnir is an Associate Professor, Department of Sociology of Health, Faculty of Health Sciences, Ben-Gurion University of the Negev, Israel. She has been involved at all levels of academic education and training of health professionals. Her main research interests are occupational health psychology in the medical and nursing sectors, focusing on stress, burnout, safety and health promotion; caregiver-patient communication in the era of the Internet; and medical and nursing education.

Yaacov G. Bachner, PhD

Dr. Bachner is a senior lecturer in the Department of Sociology of Health at the Faculty of Health Sciences, Ben-Gurion University of the Negev, Israel. His main research interests include doctor-patient relations, formal and informal care-giving of terminally-ill patients, end of life issues, and methodology.

Sivia Barnoy, RN, PhD

Dr. Barnoy is a senior lecturer in the Nursing Department at Tel-Aviv University, Israel. Her main research interests include: nursing and genetics focusing on psychological characteristics that may impact the interest in genetic testing; and the impact of Internet technologies on patient-caregiver relationship.

CITATION: Kushnir, T., Bachner, Y., & Barnoy, S. (October 2010). Exploration of the link between speaking English as a foreign language and Internet use among nurses in Israel. *Online Journal of Nursing Informatics (OJNI)*, 14(3), Available at http://ojni.org/14_3/Kushnir.pdf



OJNI

FEATURE ARTICLE

Table 1: Means and standard deviations for the items representing Internet use frequency and difficulty, by language. (For all items the range is 1-5).

Item	Frequency				Difficulty			
	Hebrew		English		Hebrew		English	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sending E-mails	3.31	1.50	2.35	1.31	1.92	1.30	2.35	1.35
Search for professional data	3.37	1.32	3.49	1.41	1.80	1.04	2.06	1.23
Searching by using key-words	3.33	1.33	3.57	1.37	2.14	1.24	2.06	1.17

Table 2: Comparisons between registered nurses with and without academic degrees regarding Internet use indices (frequency, difficulty and self-efficacy), by language

Internet use indices	Registered nurses (n=94)		Registered nurses with academic degrees (n=111)		t
	Mean	SD	Mean	SD	
Internet frequency (Hebrew)	2.91	1.08	3.70	0.90	5.68*
Internet frequency (English)	2.72	1.17	3.48	0.95	5.05*
Internet difficulty (Hebrew)	2.27	1.16	1.68	0.85	4.05*
Internet difficulty (English)	2.48	1.28	1.91	0.89	3.62*
Internet self-efficacy Hebrew)	5.72	1.65	6.29	1.14	2.83*
Internet self-efficacy English)	4.80	1.93	5.74	1.37	3.95*

* $p < 0.01$



OJNI

FEATURE ARTICLE

Table 3

Correlations between Internet use frequency and difficulty, by language

	Hebrew	English
Sending E-mails	-0.69*	-0.55*
Search for professional data	-0.43*	-0.71*
Searching by using key-words	-0.66*	-0.69*
Total scale	-0.71*	-0.76*

* $p < 0.01$