Tendencies and Preferences of Choosing Information Sources in Academic Learning: Differences between Native Hebrew and Native Arabic Speakers

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Abstract

This article describes an examination of factors that dominate the preferences of Israeli native Arabic speaking (NAS) students vs. those of Israeli native Hebrew speaking (NHS) students for choosing digital, printed, written, or orally conveyed information sources for academic learning. The study included 173 students (109 NHS; 64 NAS) from two academic institutions located in northern Israel. All students participated in the same two annual academic courses. In the study, we examined the perceived attribution of eight different information sources common in academic learning. We utilized 15 information source criteria that are relevant for learning for examining the NAS and NHS students' preferences. We conclude by suggesting that differences in perception of scope, depth, accessibility, trustworthiness, clarity, and especially the perceived ability of cognitive processing from various information sources can explain the "Digital Divide" between NAS and NHS Israeli students in the context of evaluating the contribution of different information sources for their learning. Thus, a techno-socio-cultural Second Order Digital Divide emerges.

Keywords: Information Characteristics, Digital Divide, Decision Making, Native language, Cultural learning effect.

Introduction

Digital readiness is the extent to which a population, a group, or a person has the potential to acquire and integrate cognitive skills in an instrumental digital environment (Horrigan, 2014). Lack of such readiness creates a "digital divide" that is commonly susceptible to differences of gender, education, age, language skills and socio-economic status. One of the important aspects of the study about the impact of this digital divide on integrating minorities, and one that has hardly been studied, is how minorities perceive, evaluate, and implement information sources and information in general, particularly in comparison to well-based dominant socio-economic populations in a society.

Therefore, the purpose of this study was to raise some basic questions concerning the distinctive characteristics of a specific minority regarding their information perception.

Previous studies have shown some of the factors that directly or indirectly affect difficulties in using digital information sources as leverage for academic orientation, and enhance the preference for the use of certain information sources, especially by the NAS public. These factors can be divided into two main groups. First, there are factors based on the degree of implementation and assimilation of technology (computer ownership, browsing speed, etc.). These are monotype factors, i.e. indexes that focus on one issue that we wish to explain (Barzilai-Nahon, 2006). Second, there are contextual factors, which are comprehensive and based on the satisfaction of users' individual and multiple needs in their operative environments (communication, social networks, cultural interests, etc.).

The main factors associated with assimilation and implementation are related to accessibility and availability - factors causing a "first-order digital divide" and contextual factors causing a second order digital gap ("usage divide"). (Zeng, 2011).

Mastery of the language of instruction, especially when it is a second language, seems to be the dominant contextual factor. The level of such mastery should affect the preference for digital, written, printed, or oral information sources equally among speakers of Hebrew as a second language who have English as a third language. Although a certain gap in learning skills seems likely to cause difficulties for acquiring new information between NHS and NAS students when the information and its source is in Hebrew, this gap is actually not explained predominantly by the level of Hebrew mastery (Miller & Peleg, 2010). Even after gaining sufficient mastery to enable learning, the second language speakers still show no significant change in the level of textual understanding.

Although people tend to select an information source by the possibility of maximizing its utility in learning, the abundance and availability of digital information creates difficulties for such maximization. Its essence is that information richness allows the maximizing of information utility, but it also induces an association of uncertainty, thus resulting in a lack of confidence in the selection of information sources (Banker & Kauffman, 2004). Moreover, this conflict causes a heuristic bias in the selection of sources because the abundance of choices generates the thought of a potentially better choice than the one chosen, imposing more responsibility on the student's source selection. Therefore, students may often regret their choices, no matter how excellent the choices were, because the profusion of sources creates the appearance of other options that might have been better (Schwartz, 2005). For a better understanding of information source selection and the decision-making process involved, we need to examine the dominant criteria by which information sources are evaluated in academic learning.

For this study of evaluating information sources in the academic context we have adapted printed information criteria for evaluation to apply to digital information.

Therefore, the questions to which we aimed this study are as follows:

- What are the differences among NHS and NAS students regarding their preferences for educational information sources? and
- What are the differences in the criteria for preferred educational information sources between NHS and NAS students?

Method

An attitude and perception questionnaire that relates information source characteristics to learning was constructed. Data collected from a student focus group indicate a reasonable reliability of the questionnaire (Cronbach's alpha = 0.80 - 0.87 among NAS and NHS). The age range of the participants was 18 to 30 (no significant age-related differences were found in positions, perceptions, or preferences for information sources). After analyzing the pilot questionnaire items for reliability and validation, items that turned out to have low reliability were removed. the independent factors were: Availability of information source; Accessibility of information from the source; Substantiation of information about the topic; Relevance of the information; Interest and curiosity that information raises; Information trustworthiness; Contemporariness; Scope of information; Comfort level of information processing; Comfort level of additional information mining; The depth and detail of information; Comfort of reading the information; Comfort of using the information for writing; Convenient storage of information; Clarity of information; In addition, general independent factors were measured: age, gender, residency and mastery of English

The dependent factor that was examined: Learning consolidation priority: to what extent would you prefer to use this information source in learning?

The students' evaluations of the information source criteria were examined for eight information source domains: online scientific journal articles; online newspaper articles; scientific

videotapes/DVDs or YouTube-type videos of hands-on experiments; blog posts, wall posts, or other social networks postings; digital encyclopedias or dictionaries; scientific-based printed articles or books; summaries and notes of course lectures; and trustworthy individuals who I believe understand the issue.

Two data analyses were applied. an independent T-tests for comparing NAS and NHS students' perceived value of various domains of information sources And astepwise multi-variance regression to establish the main factors influencing the preferred information sources chosen for learning, among NAS and NHS students.

Results

The most conspicuous finding was that NAS students did not appreciate online scientific journal articles as one of the main information sources needed for academic learning, whereas NHS students regarded this information source domain as one of the two most appreciated (NAS average 3.33, NHS average 4.12). This finding is intriguing because English language mastery was not found as an influencing factor, although English is not a native language for either population. We made a similar observation regarding digital encyclopedias or dictionaries as a source for learning (NAS average. 3.11, NHS average. 3.66, sig. < 0.001). A second, but rather expected and less salient finding than the first, is that NHS students relied on printed articles or books from scientific origins as a dominant source more than did the NAS students (NAS average. 3.89, NHS average 4.19, P-value = 0.067).

The NAS students seemed to rely on trustworthy individuals who they believed understand the issue as a compensating factor for presumed difficulties in relying on scientific origins, digital or otherwise, whereas NHS students did not regard such a source as a profound or available source for learning (NAS average. 3.81, NHS average 3.40, seg.> 0.05) (table 1).

Table 1. NAS and NHS students' preferences for using different information sources

Mean learning consolidation priority of information sources: Differences between NAS and NHS students								
	online scientific journal articles	**online newspaper articles**	**scientific videotapes/DVDs or YouTube-type videos of hands-on experiments**	**blog posts, wall posts, or other social networks postings**	**digital encyclopedia or dictionaries**	**scientific-based printed articles or books**	**summaries and notes of course lectures**	**trustworthy individuals who I believe understand the issue**
NAS (N=64) Mean (SD.)	3.33 (1.13)	3.08 (1.09)	3.35 (1.11)	2.52 (1.09)	3.11 (1.17)	3.89 (0.96)	3.98 (1.14)	3.81 (1.12)
NHS (N=109) Mean (SD.)	4.12 (0.83)	3.32 (0.95)	3.56 (1.04)	2.45 (1.12)	3.66 (1.15)	4.19 (0.79)	3.97 (0.95)	3.40 (1.04)
Sig.	<0.001	Non sig.	Non sig.	Non sig.	<0.01	<0. 1	Non sig.	<0.05

For a better understanding of the causes and factors influencing the preferences of specific source domains of information for learning, two salient types of information sources for the independent factors that dominated the selections among our participants were analyzed. The

selections of online scientific journal articles [Tables 2(a), 2(b)] and trustworthy individuals [Tables 3(a), 3(b)] were examined as they were found to be the most influential information criteria.

Table 2(a). Factors effecting online scientific journal articles as a source preference among NAS students.

	Non Std. regression coefficient		Std. regression coefficient	test statistic		correlations		
independent variables	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
(Constant)	2.253	.380		5.935				
Substantiation of information about the topic	0.375	.120	0.449	3.138	<.001	.449	.449	.449

In light of the findings presented in Tables 1 and 2(a), NAS students seem likely to avoid using online scientific journal articles unless the information from this source were well substantiated for the topic at hand (r = .449).

Table 2(b). Factors affecting online scientific journal articles source preference for learning among NHS students.

	Non Std. regression coefficient		Std. regression coefficient	test statistic		correlations		
independent variables	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
(Constant)	1.453	.389		3.734				
Comfort level of information processing	.270	0.100	0.298	2.698	0.009	0.526	0.297	0.242
Substantiation of information about the topic	.205	0.082	0.255	2.512	0.014	0.471	0.279	0.225
Comfort level of additional information mining	.201	0.098	0.233	2.059	0.043	0.512	0.231	0.185

NHS students' reasons for choosing online scientific journals as information sources for learning are complex. They mostly valued the characteristics of the comfort level of information processing (r = .242), the substantiation of information about the topic (.225), and the comfort level of additional information mining (0.185) [Table 2(b)] imbedded in online scientific journal articles.

Table 3(a). factors effecting the reliance on trustworthy individuals who understand the issue as a source preferred for learning among NAS students

	Non Std. regression coefficient		Std. regression coefficient	test statistic		correlations		
independent variables	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
(Constant)	–0.036	0.534		–.067				
Availability of the information source	0.720	0.109	0.686	6.599	<0.001	0.739	0.722	0.665
Interest and curiosity that the information raises	0.244	0.114	0.223	2.144	0.038	0.388	0.321	0.216

NAS students seemed likely to approach a scholar for obtaining information due to two main factors: availability of the scholar (r = .665) and intrigue level of the topic – to some extent, the students' interest and curiosity (.216) [Table 3(a)]. Among NHS students, specific attention to an individual scholar's knowledge and information depends mainly on the direct relevance to the topic or issue at hand (r = .431) [Table 3(b)]. While NAS students sought for available individuals who possess scholarly or expert knowledge, and they also seemed to look for the scholars' opinion and guidance on the topic the students' were learning about, the NHS students tended to refer to those presumed scholars or experts according to relevance.

Table 3(b). factors effecting the reliance on a trustworthy individual who understands the issue as a source preferred for learning among NHS students.

	Non Std. regression coefficient		Std. regression coefficient	test statistic		correlations		
independent variables	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
(Constant)	1.794	.403		4.453				
Relevance of the information	.456	.112	.431	4.085	<.001	.431	.431	.431

Discussion

In light of the findings presented in Tables 1 and 2(a), the NAS students seemed likely to avoid using online scientific journal articles for learning, unless the information from the source were well substantiated for the topic at hand. As this domain of information becomes more common for academic learning, educators should concern themselves with the issue of substantiating online information sources. The issue of substantiation, or rather students' perception of substantiation, should be explored further for what sort of substantiation is perceived as convincing enough, beyond rigorous study methodologies. Among the NHS students, this factor also affected using online articles, but it was combined with two other factors: their comfort level with information processing and their comfort level with additional information mining. Although for both student populations the correlations were medium-low and thus have a

limited explanatory value ($20\% < R^2 < 26\%$), still the correlations reveal a critical perception about students' attitude towards online scientific articles.

The NAS students tended to seek information that was processed and constructed into a body of knowledge and that was orally conveyed by a scholar, whenever they were available and raised interest and curiosity ($40\% < R^2 < 48\%$, Table 3(a)). This reliance on a scholar as a mediator of information was more prominent among NAS than NHS students (sig. < 0.05, Table 1). However, NHS students will consider using an orally-presenting scholar as a source if the information is relevant to learning ($R^2 = 19\%$, Table 3(b)). Those findings, among others, led us to construct two sets of explanatory perspectives for the "second-level digital divide" (Zeng, 2011) among minorities, both global and local.

From the global perspective of socio-cultural “digitally divided” minorities, the NAS students’ reliance on an information and knowledge mediator is not merely a technological one. Minorities, native or immigrant, rely on trustworthy mediators and facilitators whom the minorities consider to be part of the well-established techno-social population. This observation seems to be common among many multicultural societies in the USA with differences between particular minorities (Kress, 2009), in India concerning the Muslim minorities (The Report on the National Consultative Summit, 2011), and in Finland concerning international students (Habib, Johannesen, & Øgrim, 2014).

From the local Israeli perspective, the differences between NHS and NAS students can be explained by two sets of reasons: socio-educative and cognitive-linguistic norms. The socio-educative reasons could include previous findings that NAS K-12 students study in an authoritative and traditional environment that emphasizes the need to respect the wisdom of the elders. Thus, the learning environment does not prompt curiosity and does not encourage the students to ask questions, to research, or to be creative (Abed, & Dori, 2013). Furthermore, the NAS undergraduates seem to learn patterns in a similar way to their learning patterns in the K-12 system (Peled & Khaldi, 2013), which Abed & Dori (2013) described as a simple and linear learning pattern. The cognitive-linguistic set of reasons can suggest differences in working memory (Miller & Peleg, 2010), deficiency in using the right hemisphere while reading in one’s native language and especially when evoked bilaterally (Ibrahim & Eviatar, 2012) or decision making preferences that are subjected to "avoiding the worst" while managing a tangling abundance of information (Merdler, 2012).

The practical implication of these findings may be a contribution to maximizing minorities' learning potential. We suggest that in order to utilize the minorities' fullest learning potential, socio-technological-cultural mediation is needed to bridge the digital divide.

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