

# Patterns of Use of Digital and Printed Information Sources in Higher Education Institutions in Israel

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## Abstract

The recent technological developments that have enabled academic libraries to transmit digital information to the homes or workplaces of university students and researchers, represent a revolutionary change in the habitual manner in which information has hitherto been located and consumed. This change confronts us with difficult questions and dilemmas concerning the functioning and form of the academic library of the future. The central issue is the various roles that libraries play today, and whether they will gradually be transferred to the Internet and other future communications systems so that, as in many other contemporary social and commercial interactions, we will not have to leave our homes or offices in order to gain access to information. Indeed, will the academic library of the early 21<sup>st</sup> century become "a library without walls" that no longer needs an actual physical location, as a result of these changes and developments?

The objective of the present study was to examine the extent of use of digital information by the academic community in Israel, to establish the ratio between the amount of digital information used and that of printed material, and to investigate how recourse to digital resources affects the frequency of visits to academic libraries, if at all. On the basis of this data platform, the question of the future form of academic library is discussed, as well as whether it is reasonable and/or desirable that as the process continues computer stations will replace bookshelves, or whether there will still be a need for a combination of the two. Perhaps virtual libraries providing digital information without being located in a physical site will exist side by side with libraries that hold collections of printed material, with clients free to choose the service appropriate to his or her needs.

To examine these questions through a quantitative research method, a structured uniform questionnaire was developed in order to determine the patterns of usage of digital and printed resources by the Israeli academic community for their learning and research requirements. In addition, the questionnaire examined the mutual relationships between the university populations and the academic libraries, as well as the users' expectations of libraries of the future. It also included a section on the demographic data of the library users. Some 1,000 questionnaires were distributed during the second semester of the 2005 academic year at the five large universities in

Israel; 721 students and researchers at all levels responded. Since the researches focused on the student population, most of the respondents were undergraduate, graduate or doctoral students, and the minority were faculty members who served as a control group.

In the light of the digital revolution and predictions of the growth of the digital library, the primary research hypothesis was that a negative correlation would be found between the frequency of use of digital and printed information sources. Surprisingly, this presumption was refuted and it emerged clearly that respondents who used heavily digital information sources, made also frequent use of printed sources, and vice versa. This finding may be explained by the fact that users do not necessarily see digital information as a substitute for traditional printed, but rather as a complement to it, since there is no functional identity between the two. Moreover, the research findings indicate a clear preference on the part of the users (some 88%) for a combination of the two forms.

Another hypothesis related to the previous one, was that a negative correlation exists between the frequency of use of digital sources and the frequency of visits to academic libraries. That is to say, that increased use of digital information would entail fewer visits to academic libraries. This presumption too was refuted and findings attest to a positive correlation between these two variables: Respondents with a high frequency of recourse to digital information spent slightly more time in academic libraries than those who use digital information less frequently. This too can be existence of a directed material and accordingly, since the bulk of printed information is to be found in libraries, it is only logical that the frequency of visits to libraries is greater amongst these users. This explanation is supported by the finding that 70 percent of the responders asserted that their main purpose in visiting the library was to acquire printed information (and not to access digital information or any other reason). The research findings indicate that the most frequency used information sources were the free Internet (some 80%) and printed books (some 60%). Since the digital source does not require actually visiting a library and the printed one does require physical presence at the library, no negative correlation was found between the frequency use of digital information and the frequency of visits to the academic library.

The two salient findings of the research – that students and researchers who make frequent use of digital information also tend to reason often to printed information and to visit libraries – indicate that printed information is apparently not about to pass from the world, in the near future. The clear tendency of information consumers in the present era to resort to printed material (especially books) in parallel with their use of digital information (mostly the internet and digital data bases), and the explanations offered above for this phenomenon make it possible to venture a prediction as to the future functions and roles of the academic library. it will be based on both

components of information, the printed and the digital. It is possible that as time passes there will be changes in the relative weight of each component but it is very reasonable that we shall continue to see the worlds, digital and printed, coexisting and complementing each other, with the users deriving benefit from both.

Since the worlds of digital and printed information are different and separate, information professionals will have to specialize in both of them. The skills required of a librarian in digital information are different from those demanded of a librarian in the field of printed information. Moreover, the patterns of use found in our research and the expectations of users in the present era dictate, in my opinion, the development of a new entity – the information center. This will be characterized by a duality of information (a confederation and not a federation of information) which will by the end of the process take on the form of a new model, the dual library. This new structure will be characterized by a divided framework under one roof; its physical location will contain two separate wings, the one containing the entire collection of printed material and will be based on the components of the traditional library and the other providing access to all kinds of digital information available to library users.

Between these independent wings there will be certain working interfaces, but the central concept is that there should be separation between the elements handling the information in each division, making optimal professional treatment possible in each of the essentially different worlds of content.

The research produced interesting data on the extent of the use that Israeli academic community makes of the Internet in general (not only for the purpose of locating information) and of the use made of the information on the Internet for learning and research purposes in particular. Firstly, it emerged that a large majority (some 94%) of the academic population make use of the various elements of the Internet (surfing, e-mail, location of information, shopping, etc.) at least several times a week. In addition, some 80% of the respondents reported frequent or very frequent use of the Internet for the purpose of locating free information for their studies and research. This data should cause some concern to the Israeli academic world in general, and to information professionals in particular, because the free information is not known as being high quality or as highly authoritative. By comparison, only 28% of the respondents reported frequent or very frequent use of electronic professional journals, 40% of digital data bases, and 13% of electronic books. A situation in which the consumers of information in the academia use free online material two or three times more than authoritative digital material that the library supplies them (through data bases, and electronic journals and books) raises grave questions as to the quality of information which the scholarly community prefers to use from within the world of digital content; this situation may seriously damage the quality of research and publications.

Another research hypothesis was that differences would be found between the various scientific disciplines in the extent and nature of their use of digital sources of information. Following previous research, it was assumed that students and researchers in the sciences would tend to use digital information more than their colleagues in the social sciences and in the Humanities. This was not borne out statistically although differences were found between the groups. In addition, clear differences were found in the types of data bases used or in the ways in which members of the various disciplines searched for information. The highest use of digital information was in the Life Sciences (44%), followed by the social sciences (41%), the Humanities (39.9%), and the Exact Sciences (32.4%). These findings may indicate a new tendency toward a closing of the gaps which existed between students and researchers in the Social Sciences and the Humanities on one hand, and those in the Life Sciences on the other, in using digital information.

Thus, our findings indicate that while academic community makes extensive use of both printed and digital information, the traditional physical library still maintains its central position in the academic information environment. Moreover, it emerged that the gap that existed at the start of the digital information age between the Natural Science and the Social Sciences and the Humanities in the level of use of digital information has gradually decreased and today the extent of the use of, and exposure to digital information in the various disciplines is fairly similar. In addition, our findings reveal a problematic tendency of the academic community to use free online information for the purpose of learning and research, despite the fact that this information is not considered to be of high quality. The framework of this research did not allow for a fundamental clarification of the motives of the students and researchers to recourse significantly to free online Internet material in their search for information, but it may be associated with the ease and convenience of the use of Internet search engines.

It is recommended that further studies will reexamine the central trends revealed by the present research. Thus, it is necessary to deepen the research regarding factors and possible explanations for the positive relationships found between the extent of the use of digital and printed information, and between the use of digital information and the frequency of visits to academic libraries as well as to the closing of the gap between various disciplines in the level of digital information used. Similarly, attention must be given to the relatively high level of use, at all levels of the academic community, of free online information for the purpose of both learning and research. It would be desirable to clarify in depth the degree of reliability that academic users ascribe to information derived from the free Internet.

In addition, serious in-depth discussion should be conducted between information professionals and consumers about the concept of the dual library

as a possible model for the future. In this framework, it is important to debate the advantages and disadvantages of the new information world, which includes the traditional library and the new digital one.

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