

THE INCREASING USE OF THE INTERNET AND ITS POTENTIAL IMPACT ON THE FUTURE OF THE CITY – WITH SPECIAL REFERENCE TO CAIRO, EGYPT

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Abstract

Rapid advances in Information and Communication Technology (ICT), the increased accessibility and use of the Internet have fueled academic debates about the future of urban design and city planning. These debates have discussed such issues as the future of relations and distinctions between residential, work, shopping, the future of urban public spaces, and the importance of distance or proximity in the future. However these debates have tended to remain speculative lacking sufficient empirical background.

This study investigates the potential impact of the increased accessibility and use of the Internet on the future of the city in general and more particularly in the context of Cairo, Egypt. Based on a model that considers the city dweller, rather than the city itself, as the unit of analysis, the study attempts to identify changes in individual daily activity patterns that can aggregate to affect the way we will need to rethink urban design and city planning. The study relies on a survey questionnaire administrated in November and December 2015 to samples of professionals (n=81) and university students (n=65) all residing in Cairo. The questionnaire was designed to inquire about patterns of access and use of the Internet. Also, the questionnaire asked the participants about patterns of daily activities and patterns of social interaction, and how those are being affected by the use of information and communication technology. Implications for urban design and city planning are discussed.

Introduction

The aim of this exploratory study is to investigate the potential impact of the increased accessibility and use of the Internet on the city and the future of urban planning and urban design in general but more particularly in the specific context of Cairo. The advent and increased use of the Internet have led to much debate about the potential impacts of this technology on the lives of people and consequently on the future of the city. Futurist and speculative arguments in popular media as well as in academic circles have suggested that by compressing space-time, Internet technology will eliminate the need for face-to-face contact, provide universal accessibility allowing anything to happen anywhere, blur the distinction between home and workplace, between public and private, and may lead to the "death of distance" (Hall, 1998; Castells, 2005). Some have even predicted that the "death of distance" will inevitably lead to the "death of the city" (Toffler, 1980; Naisbitt, 1995; Negroponte, 1995; Knoke, 1996). A growing but still limited number of research studies has begun to empirically investigate the questions raised by these futurist and speculative arguments, often exposing the too shallow and simplistic assumptions on which they were based (Graham and Marvin, 1996; 2004; Townsend, 2000). Some of the research studies that have investigated the potential impact of the Internet on the city have focused on the impact of the technology on the economy and the impact of the new economy on city form (see for example Audirac, 2005). However most have tended to investigate the impact of the Internet on patterns of social interaction and consequences for the role and importance of neighbourhoods (see for example Hampton & Wellman, 2003; Hampton, 2007) or of urban public spaces (see for example, Hampton & Gupta, 2008; Park, 2010). These studies have tended to be conducted in Western countries and to date very limited research has been conducted in Cairo or other Third-World cities.

The study presented here focuses more particularly on the impact of the Internet on the activity patterns of city residents and the potential impact of changes in activity patterns on how we will need to rethink urban design and city planning. It relies on a model that considers the city dweller, rather than the city itself, as the unit of analysis, and attempts to identify changes in individual daily activity patterns that can aggregate to affect the city.

Method

A survey questionnaire was administrated in November and December 2015 to 147 male and female participants all residing in the Greater Cairo area. Participants were intentionally selected to be well-educated due to the specific nature of the topic of investigation. They were selected from two main groups: university students and professionals. The 66 students were undergraduate students at the College of Engineering of the Arab Academy for Science and Technology and Maritime Transport, Cairo. They ranged from 17 to 24 years in age. The 81 professionals were professionals enrolled in the MBA program of the College of Business Administration of the same university. They ranged in age from less than 25 to more than 45 years. The inclusion of university students in the sample was deemed important because, as suggested by Jones (2002) and Park (2010), they are often pioneers in the use of the latest technologies and could help envision future trends in the use of the Internet. Respondents included both urban residents residing in the more established, more central districts of Cairo and suburban residents residing in the recently developed suburban districts in the periphery of the city (see Table 1). The survey questionnaire was composed primarily of close-ended, multiple choice questions. It was designed in five main sections. The first section included questions about the respondents' basic demographic information as well as relevant background information such as characteristics of the residential environment and home to work commuting time. The second section inquired about patterns of Internet use (frequency of Internet access, daily hours of use, locations of access, different purposes of use, etc...). The third section inquired about the impact of Internet use on the amount of time spent at home. The fourth section included questions to explore the impact of the Internet on patterns of social interaction with close friends and family. Finally, the last section investigated the offline to online migration of activities focusing on work or study related activities, shopping, and watching movies as an example of leisure activities.

Groups	A		B		C	
	Male	80	Students	66	Urban	121
	Female	67	Professionals	81	Suburban	26
Total						147

Table 1: Distribution of Participants among the Sample Main Sub-Groups

RESULTS

Use of the Internet

In the response to questions asking about frequencies of Internet access, a large majority of respondents indicated accessing the Internet every day (87 % of all respondents). However, for those respondents accessing the Internet every day, there was a significant difference in frequency of daily access between students and professionals with students reporting much more frequent access ($\chi^2(2, 147) = 9.001, p < 0.005$).

There was also a significant association between age of professionals and frequency of daily access ($\chi^2(6, 81) = 23.707, p < 0.005$) as younger professionals were more likely to be always connected or connected several times a day but older professionals were more likely to be connected once a day but older professionals were more likely to be connected once a day (see Table 2). Interestingly, results also show a significant difference in frequency of daily access between urban residents and suburban residents ($\chi^2(2, 147) = 5.103, p < 0.001$). Indeed, survey responses indicate that residents of newly developed suburban areas access the Internet more frequently than residents of central more established districts of Cairo (see Table 2). Beyond these differences in frequency of Internet access between the different groups, the relatively high percentage of respondents who indicated to be always connected is also quite interesting (46 % of all respondents).

		Students (n=66)	Professionals (n=81)	Professionals by age group				Urban (n=121)	Suburban (n=26)
				Less than 25 years (n=9)	25 to 34 years (n=31)	35 to 44 years (n=26)	More than 45 years (n=15)		
				Every day Internet Access		Frequency of Daily Access (For everyday users)			
Every day Internet Access	No	10%	12%	0%	12%	12%	20%	14%	3%
	Yes	90%	88%	100%	88%	88%	80%	86%	97%
Frequency of Daily Access (For everyday users)	Always connected	67%	35%	35%	35%	13%	60%	41%	66%
	Several times	33%	61%	50%	61%	53%	35%	49%	27%
	Once a day	0%	4%	15%	4%	34%	5%	10%	7%

Table 2. Frequency of Internet Usage

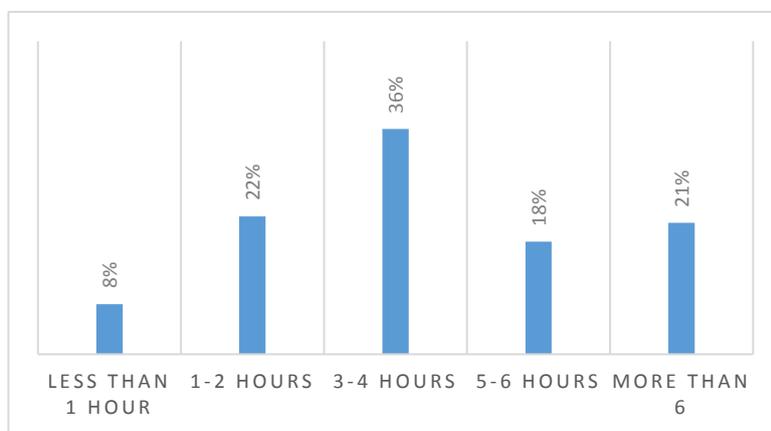


Figure 1. Number of hours spent on the Internet per day

Respondents were also asked to estimate the number of hours per day they spend on the Internet. For all groups of respondents the most frequently selected answer was “3-4 hours” (36% of all respondents). As shown in Figure 1, a relatively large percentage (21%) indicated that they spend more than six hours a day on the Internet.

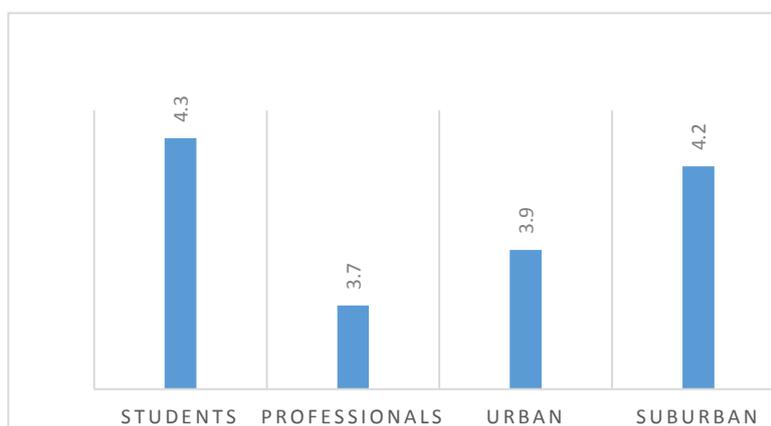


Figure 2. Approximated average of number of hours spent on the Internet per day.

Approximated averages of time spent on the Internet for the different groups of respondents show interesting differences between students (4.3 hours) and professionals (3.7 hours) and between urban residents (3.9 hours) and suburban residents (4.2 hours) (see Figure 2).

The questionnaire also investigated the different purposes for which the respondents access the Internet. Work or studying were selected by nearly all of the respondents. However there were clear differences between students and professionals in the other purposes selected (see Table 3). For students purposes selected more frequently after work or studying purposes were “communicating with friends” and “watching movies” (selected by 89% and 65% respectively). For professionals those were “reading the news” and “communicating with

friends" (selected by 80% and 64% respectively). Interestingly, a same apparently high 37% of students and professionals indicated to use the Internet for shopping.

Activity	Students	Professionals
• Communicating with friends	89%	64%
• Watching movies	65%	36%
• Online shopping	37%	37%
• Reading the news	35%	80%
• Playing games	26%	16%

Table 3. Purposes for Internet access

Mobility of Internet Access

Answers to questions related to mobility of Internet access show that respondents tend to make use of the increasingly ubiquitous nature of Internet access. 96% of respondents indicated that they use portable devices such as cell phones, tablets and laptops to access the Internet. 90% stated that they actually access the Internet outside the home and the workplace. In fact, as much as 71% of the respondents suggested that Internet service availability does or can influence decisions about going to a certain public place –or semi-public place such as a club, shopping mall, café, or restaurant (always does for 10%, frequently does for 6% and sometimes does for 55%). Furthermore, a good percentage of

respondents (40% of professionals and 46% of students) agreed with the statement: "accessing the Internet in public places offers advantages over accessing it at home". These respondents were then asked to classify these advantages. The most frequently selected choices were, in order: "it's more sociable", "can be combined with the meeting of friends", "also satisfies need for fresh air", "also satisfies need for physical movement", and then, for students "permits faster connections" and for professionals "more economical than access at home". It appears clear from these answers that for these respondents the main benefits of being able to access the Internet in public places are related to the possibility of combining the use of the Internet with various activities and the satisfaction of needs that typically occur outside home (such as social interaction, need for fresh air, and need for exercise).

Use of the Internet and Time Spent at Home

	Increases time at home	No impact	Decreases time at home
All Respondents	44 (30%)	85 (58%)	18 (12%)
Urban	36 (30%)	68 (57%)	16 (13%)
Suburban	8 (32%)	15 (60%)	2 (8%)
Professionals	20 (25%)	48 (61%)	11 (14%)
Students	24 (36%)	35 (53%)	7 (11%)
Male	29 (37%)	40 (51%)	10 (13%)
Female	15 (23%)	43 (65%)	8 (12%)

Table 4. Impact of Internet use on amount of time spent at Home

Respondents were asked about the impact of their use of the Internet on the amount of time they spend at home. Of all the respondents, 58% suggested that there was no impact. Only 12% saw that their use of the Internet led to a decrease of the amount of time they spend at home. On the other hand, and although, as reported above nearly all the respondents indicated that they actually access

the Internet outside the home and the workplace, a sizable percentage of 30% reported that their use of the Internet led to an increase of the amount of time they spend at home. As shown in (Table 4), differences in answers of urban and suburban residents were relatively small. However, although not significant, difference between students and professionals ($\chi^2(2, 147) = 2.67, p=0.26$) and between males and females ($\chi^2(2, 147) = 4.29, p=0.11$) were more pronounced.

Differences in answers between urban and suburban residents, although small, show that relatively more suburban residents indicated that their use of the Internet was associated with greater amount of time spent at home (32% and 30% respectively). Of course, the small number of suburban residents in the sample ($n=26$) may have affected the magnitude of this difference in either direction. But if the difference detected here was to be more clearly confirmed in future research, this would suggest interesting interpretations. Could the nature of the recently developed suburban districts around Cairo (low residential densities, lack of transportation alternatives, greater distances to recreational places, and possibly greater distances between home and work) be encouraging their residents to use the Internet for more at-home online social interaction, entertainment, and/or work related activities as "conventional" substitute for out-of-home offline activities? This possibility is certainly worthy of future investigation.

Results show, perhaps more clearly, that relatively more students than professionals considered that their use of the Internet led to an increase in the amount of time spent at home (36% and 25% respectively). A couple of possible explanations could be advanced to help interpret this difference. First, as previously reported, students are much more likely to use the Internet for time consuming entrainment online activities that are more conveniently performed at home such as watching movies and playing games. Second, students may have less duties and responsibilities, more-free time or more time for optional activities, and consequently more flexibility for how and where to spend their time. On the other hand, older professionals, because of less flexibility for how and where to spend their time, may feel that their use of the Internet has less of an impact on the amount of time they spend at home or elsewhere. Of course, these two explanations are not mutually exclusive and could be operating in tandem. However, the interesting question is whether, as suggested by Jones (2002) and Park (2010), the way young people and university students of today use the Internet can be used to envision how the Internet will impact more generally people's lives in the near future. This could mean then that we might see a gradual increase in the impact of the Internet on the amount of time spent at home. Alternatively, the second explanation, if verified and of sufficient influence, would suggest that students, as they grow older, will likely tend to behave more like the professionals of today in relation to Internet use. This is an issue that needs to be investigated through longitudinal studies. Results also clearly show that relatively more male respondents than females reported that their use of the Internet led to an increase in the amount of time spent at home (37% and 23% respectively). Conversely, relatively more females than males reported that the use of the Internet did not have any impact on the time spent at home (65% and 51% respectively). These differences are somewhat surprising and seem difficult to explain. They are perhaps related to traditional norms in Egyptian society according to which females are more restricted in their going and coming than their male counterparts and thus tend to spend less time outside the home. Consequently, females would be less likely to feel that the use of the Internet has led to an increase of the time they spend at home. Nevertheless, these differences warrant further investigation in future research.

	24 hrs./day access	More private	Cheaper than going out	More alluring	More relaxing	Safer than going out
All respondents	48%	34%	32%	30%	27%	18%
Students	54%	21%	25%	42%	38%	8%
Professionals	40%	50%	40%	15%	15%	30%

Respondents who reported that the use of the Internet has led to an increase of their time spent at home were asked to explain their answer through the selection of the most relevant statements from a list of proposed statements. The most frequently selected option was chosen by 48% of the respondents (this percentage was higher for students, 54%) and reflected the idea that access of the Internet at home permits a 24-hour a day access to their online activities.

Table 5. Reasons for "use of the Internet led to an increase in the time I spend at home" (most frequently selected statements)

34% of the respondents selected the notion that access of the Internet at home affords more privacy (here, the percentage was higher for professionals, 50%). 32% of the respondents selected the statement indicating that access of the Internet at home provides a more economical entertainment option than going out (this percentage was also higher for professionals, 40%). 30% of the respondents selected the option suggesting that access of the Internet at home offered a more alluring entertainment choice than going out (this percentage was higher for students, 42%). And, 27% of the respondents selected the idea that accessing the Internet at home was more relaxing than going out (this percentage was also higher for students, 38%).

	Not to get bored at home	Not to be socially isolated	Need of physical movement
All respondents	67%	61%	44%
Students	57%	43%	43%
Professionals	72%	72%	45%

Table 6. Reasons for "Use of the Internet led to a decrease in the time I spend at home" (most frequently selected elements)

Similarly, respondents who indicated that the use of the Internet has led to a decrease of their time spent at home were asked to clarify their answers. The most frequently selected of the proposed statements was selected by 67% of the respondents (but as much as 72% of the professionals) and suggested that accessing the Internet outside the home can help avoid getting bored at home. 61% of the respondents selected the idea that accessing the Internet outside home can help avoid being socially isolated (this percentage was higher for professionals, also 72%). And, 44% of the respondents selected the statement indicating that accessing the Internet outside the home can help satisfy the need for physical movement (the percentage was about the same for students and professionals).

Use of the Internet and Social Interaction

Respondents were asked to indicate what they consider their preferred form of interaction or channel of communication with close friends and family. "Face-to-face contact" was selected by a majority (59%) of the respondents. Somewhat surprising, "texting or chatting online" was selected by as much as 24% of the respondents, surpassing "phone calls" (selected by 15% of the respondents as a preferred form of interaction with friends and family). The comparison between students and professionals reveals interesting statistically significant differences ($\chi^2(3,147) = 7.989, p < 0.05$). As shown in Figure 3, a much greater percentage of students than professionals indicated a preference for "face-to-face contact" (71% and 49% respectively). On the other hand, a greater percentage of professionals than students indicated a preference for "texting or chatting online" (29% and 19% respectively). Figure 4 examines the relationship between preferred form of interaction and the daily amount of time spent on the Internet. The relationship was not found to be statistically significant ($\chi^2(4,122) = 4.597, p = 0.331$). However, the graph appears to show slight trends with preference for "face-to-face contact" slightly decreasing with increased time on the Internet. Conversely, preference for "texting and chatting online" appears to be slightly increasing with increased time on the Internet.

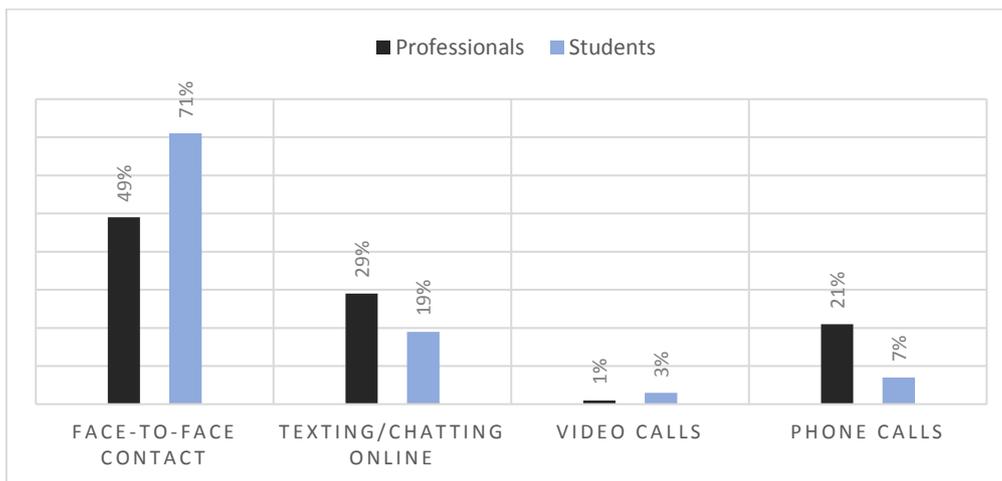


Figure 3. Preferred form of interaction with close friends and family (Students vs. professionals)

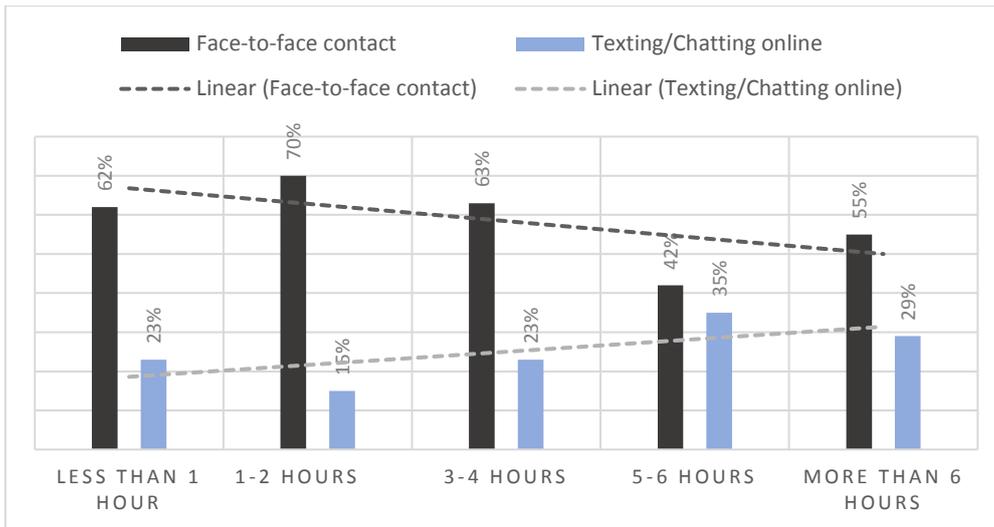


Figure 4. Preferred form of interaction with close friends and family (according to daily hours on the Internet)

Respondents were also asked to indicate the actual frequency with which they perform each of the different forms of interaction with close friends and family. As shown in Table 7, “texting or chatting online” is much more likely to be daily occurrence than other forms of interaction. It was selected as such by 81% of the respondents. On the other hand, “face-to-face contact” is on a daily basis for 46% of the respondents and on a weekly basis for 43%. And, “phone calls” is on a daily basis for 42% of the respondents and on a weekly basis for 11%.

Channel of Communication	Everyday	Once a week	Once a month	Never
Face-to-face Contact	66 (46%)	61 (43%)	14 (10%)	2 (1%)
Texting/chatting	115 (81%)	20 (14%)	5 (3%)	3 (2%)
Phone calls	60 (42%)	16 (11%)	16 (11%)	52 (36%)
Video calls	43 (30%)	30 (21%)	24 (17%)	45 (32%)

Table 7. Frequency of occurrence for the different forms of interaction with close friends and family

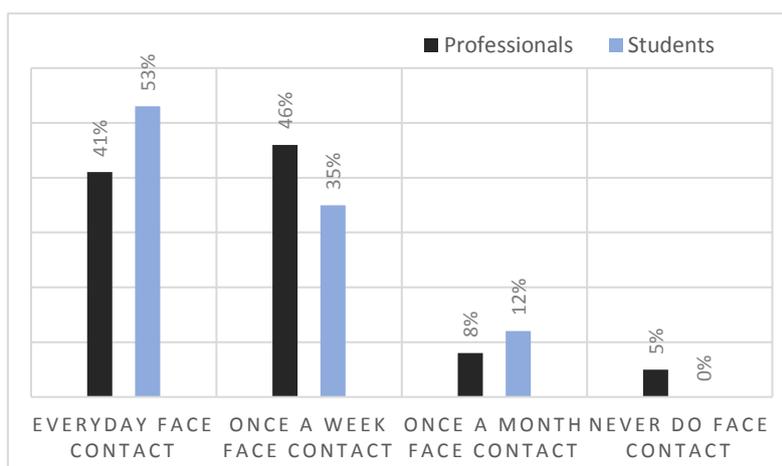


Figure 5. Frequency of face-to-face contact with close friends and family (Students vs. professionals)

The difference between students and professionals in frequency of “face-to-face contact” with close friends and family was not found to be statistically significant ($\chi^2(2,141) = 2.553, p = 0.279$). However, as shown in Figure 5, “face-to-face contact” is more likely to be a daily occurrence for students than for professionals. And, it is more likely to be a weekly occurrence for professionals than for students.

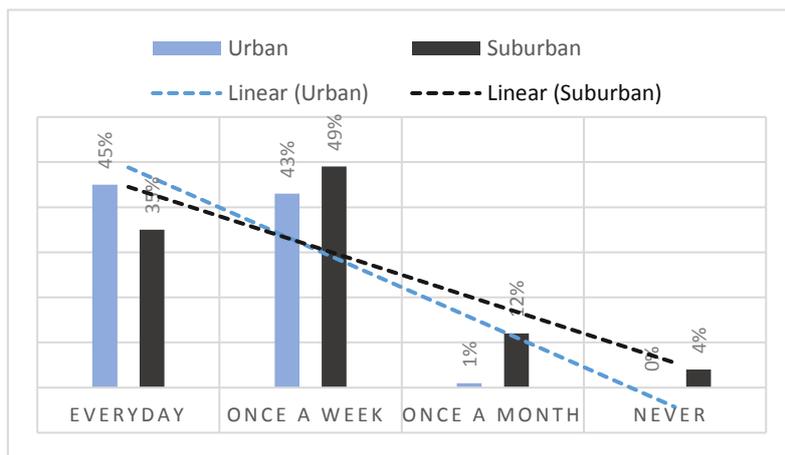


Figure 6. Frequency of Face-to-face contact with close friends and family (Urban vs. suburban residents)

Similarly, the difference between urban and suburban residents in frequency of “face-to-face contact” with close friends and family was not found to be statistically significant ($\chi^2(2,141) = 0.477, p = 0.788$). However, as shown in Figure 6, “face-to-face contact” is more likely to be on a daily basis for urban residents than for suburban residents. And, it is more likely to be on a weekly basis for suburban residents than for urban residents.

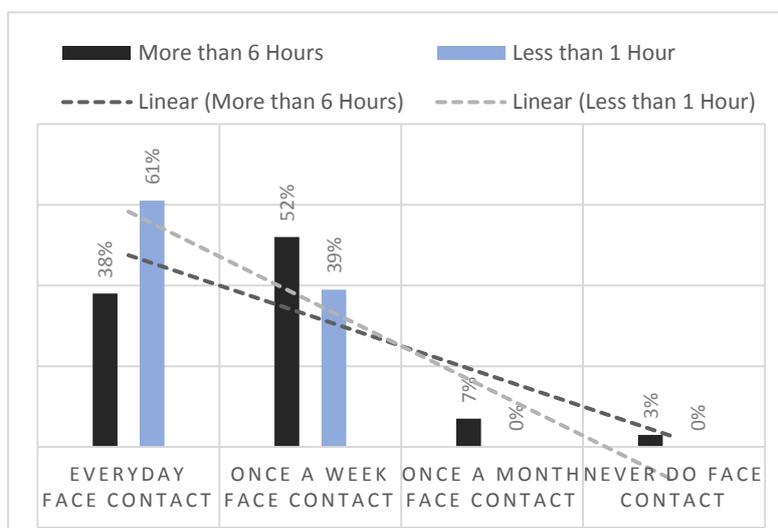


Figure 7. Frequency of face-to-face contact with close friends and family (More active vs. less active Internet users)

The difference between more active Internet users (more than 6 hours per day on the Internet) and less active users (less than 1 hour per day on the Internet) was also examined. The difference between the two groups in frequency of “face-to-face contact” with close friends and family was not found to be statistically significant ($\chi^2(1, 49) = 0.476, p = 0.490$). As shown in Figure 7, “face-to-face contact” is more likely to be a daily occurrence for less active users than for more active users. And, it is more likely to be a weekly or a monthly occurrence for more active users than for less active users.

This could suggest then that increased Internet use leads to reduced face-to-face contact with close friends and family. This proposition is supported by the findings of a number of previous research studies conducted in other countries. For example, Wallsten (2011) found that online leisure (such as video watching and social networking) comes at the expense of time dedicated to offline entertainment and social interaction. Other studies showed that increased time on the Internet tends to lead to decrease in involvement with previous social ties and reduced offline social activities and face-to-face interaction (Kraut et al., 1998; Nie, 2001; Nie et al., 2002). It should be noted, however, that there are also studies that have reported contradicting findings, suggesting that Internet use does not affect offline social involvement (Kraut et al., 2002; Katz & Rice, 2002; Bargh & Mckenna, 2004). In any case, the proposition that increased Internet use leads to reduced face-to-face interaction, if verified, would not explain all of the results presented in this section. For example, it would not explain the differences between students and professionals outlined above.

Respondents were asked to select from a number of options the most important factors that they thought affected the frequency of their face-to-face interaction with close friends and family. As shown in Figure 8, Distance and time were the most frequently selected factors (selected by 73% and 70% of the respondents respectively) well ahead of others factors such as cost (21%), safety issues (11%) and health condition (10%).

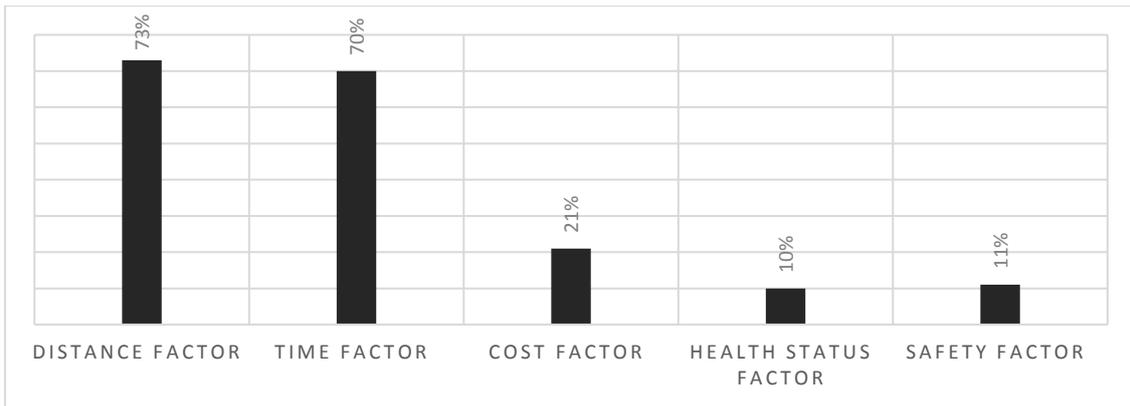


Figure 8. Factors affecting Face-to-face contact frequency with close friends and family

The distance and time factors were even more frequently selected by suburban residents (by 81% and 73% respectively) than by urban residents (by 70% and 67% respectively), As shown in Figure 9.

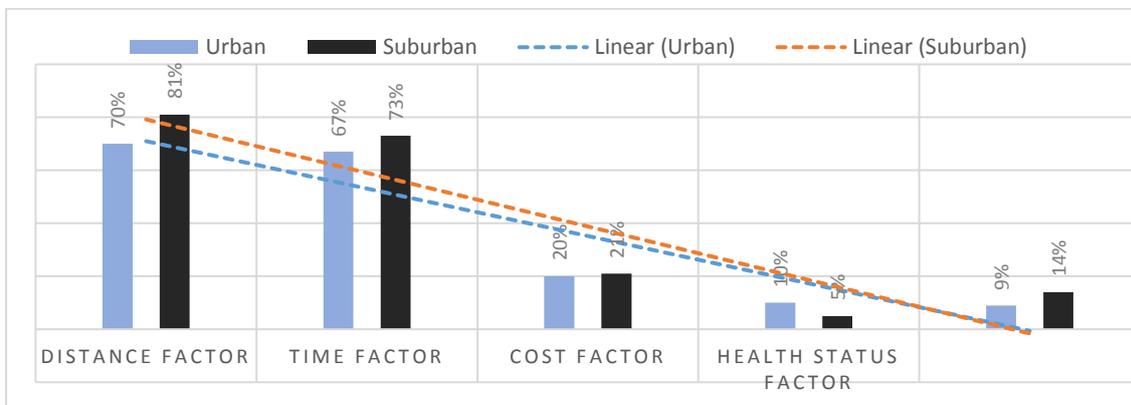


Figure 9. Factors affecting face-to-face contact frequency with close friends and family (Urban vs. suburban)

The answers to this question help suggest another interpretation for the results of this section. It is possible that distance demands and time constraints lead to reduced frequency of face-to-face interaction with close friends and family. This in turn, could lead to increased use of the Internet as a substitute for face-to-face contact and to maintain and manage social relations with friends and family. This interpretation could help explain the differences presented in this section between students and professionals and between urban and suburban residents related to frequency of “face-to-face contact” and “texting or chatting online” and reported preference for these two forms of interaction. The two propositions presented here are not necessarily contradicting. One could be more relevant for some people, the other more relevant for others. These two propositions certainly need further investigation in future research.

The Offline to Online Migration of Activities

The questionnaire included a number of questions to investigate the offline to online migration of activities. The specific types of activity investigated included work or study related activities, shopping and watching movies as an example of leisure activities. For each of these particular activities the questions asked the respondents about the frequency with which they are performed through the Internet as well as about the locations where they are performed online.

Work related activities:

AS shown in Table 8, 72% of the respondents indicated that they conduct work or study related activities online (33% frequently and 41% occasionally). These percentages were even higher for professionals. Indeed, 79% of professionals indicated that they conduct work related activities online, 34% frequently and 45% occasionally. Although not statistically significant, results show a slight difference between urban and suburban residents with suburban residents apparently more likely than urban residents to frequently perform work related activities online (38% and 33% respectively). This could possibly be due to a difference in commuting time between the two groups. Previous research suggest that there is a relationship between commuting time and teleworking (De

Graff and Rietveld, 2007). To further explore the issue, the frequency with which professionals of the sample engage in work related activities online was examined in relation to home-to-work commuting time. Figure 10 shows that professionals with long commuting times (60 to 120 minutes) are much more likely to frequently perform work related activities online (58% compared to 34% for all professionals and 25% for professionals with commuting times of less than 30 minutes).

Do you perform this activity online?						
Work related activities	Urban residents (n=117)	Suburban residents (n=24)	Professionals (n=76)	Students (n=64)	All Respondents (n=140)	
	Frequently	38 (33%)	9 (38%)	26 (34%)	21 (33%)	47 (33%)
	Occasionally	50 (43%)	7 (29%)	34 (45%)	23 (36%)	57 (41%)
Never	28 (24%)	8 (33%)	16 (21%)	20 (31%)	36 (26%)	

Table 8. Frequency with which work related activities are performed online

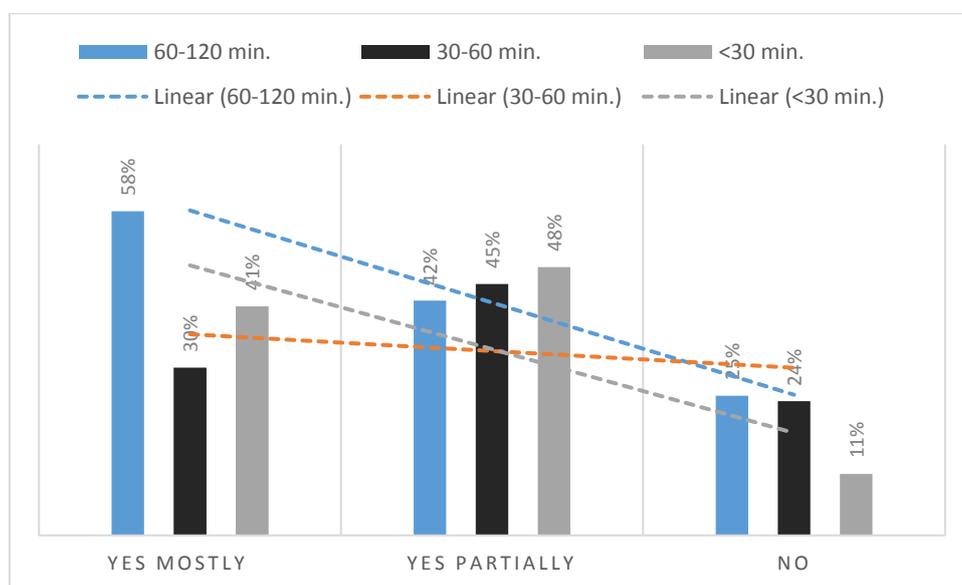


Figure 10. Frequency of online work related activities in relation to commuting time

The following Table shows that 66% of the respondents indicated that they conduct online work related activities from home. This number illustrates well the impact of the Internet on the blurring of the boundary between home and workplace by facilitating work from home options. Also to be noted is that as much as 41% of students indicated that they engage in online work related activities from public places while none of the professionals did. But, if the way students of today use the Internet is any indication about future trends (Park, 2010), this raises interesting questions about the future roles of public and semi-public urban places.

Where do you perform this online?						
Work related activities	Urban (n=88)	Suburban (n=16)	Professionals (n=60)	Students (n=44)	All Respondents (n=104)	
	Home	59 (67%)	10 (63%)	33 (55%)	36 (82%)	69 (66%)
	Public place	17 (19%)	1 (6%)	(0) (0%)	18 (41%)	18 (17%)

Table 9. Location where work related activities are performed online (beside the workplace)

Shopping:

Table 10. 10 shows that 62% of respondents indicated that they engage in shopping online (22% frequently and 40% occasionally). Like for work related activities, although not statistically significant, results appear to show a slight difference between urban and suburban residents with suburban residents more likely than urban residents to conduct online shopping (68% and 60% respectively). Although the opposite was observed in a

previous study (Farag & Schanen, 2007), it was only because of the availability of faster connections for urban residents. In fact, another study showed that teleworkers who work from home are more likely to engage in online shopping than others (Gould & Golob, 1997). In line with the findings of that study, Table shows that, for respondents in this study, online shopping is more of a home-based activity. Of the respondents who engage in online shopping, 89% indicated that they engage in it from home, 26% from work, and 19% from public places. Actually, online shopping from a public place was mainly selected by students (41% of students compared to 2% of professionals).

Do you perform this activity online?						
Shopping		Urban residents (n=115)	Suburban residents (n=23)	Professionals (n=77)	Students (n=65)	All Respondents (n=142)
	Frequently	25 (21%)	6 (24%)	16 (21%)	15 (23%)	31 (22%)
	Occasionally	46 (39%)	11 (44%)	33 (43%)	24 (37%)	57 (40%)
	Never	46 (39%)	8 (32%)	28 (36%)	26 (40%)	54 (38%)

Table 10. Frequency with which shopping is performed online

Where do you perform this activity online?						
Shopping		Urban residents (n=71)	Suburban residents (n=17)	Professionals (n=49)	Students (n=39)	All Respondents (n=88)
	Home	63 (89%)	15 (88%)	46 (94%)	32 (82%)	78 (89%)
	Work place	19 (27%)	4 (24%)	10 (20%)	13 (33%)	23 (26%)
	Public place	17 (24%)	0 (0%)	1 (2%)	16 (41%)	17 (19%)

Table 11. Locations where shopping is performed online

Watching Movies:

As shown in Table 12, as much as 80% of the respondents indicated that they watch movies on the Internet (45% frequently and 35% occasionally). This is quite an interesting number particularly if, as suggested by Wallsten (2011), every minute of online leisure replaces about half a minute of offline activity (and more specifically of offline leisure, socializing, and relaxing). Results show a statistically significant difference between students and professionals ($\chi^2(2, 141) = 16.57, p < 0.001$). 91% of students indicated watching movies online (63% frequently and 28% occasionally). On the other hand, 62% of professionals said to watch movies online (30% frequently and 42% occasionally). As for online shopping, watching movies online appears to be mainly a home-based activity (see Table 13). Of the respondents who engage in in online movie watching, 94% indicated that they do at home, 16% at work, and 14% in public places. Here also, the use of public places was highest for students (21%).

Do you perform this activity online?						
Watching movies		Urban residents (n=116)	Suburban residents (n=25)	Professionals (n=77)	Students (n=64)	All Respondents (n=141)
	Frequently	54 (47%)	9 (36%)	23 (30%)	40 (63%)	63 (45%)
	Occasionally	40 (34%)	10 (40%)	32 (42%)	18 (28%)	50 (35%)
	Never	22 (19%)	6 (24%)	22 (29%)	6 (9%)	28 (20%)

Table 12. Frequency with which watching movies is performed online

Where do you perform this activity online?						
Watching movies		Urban residents (n=92)	Suburban residents (n=17)	Professionals (n=55)	Students (n=56)	All Respondents (n=111)
	Home	88 (96%)	16 (84%)	49 (89%)	55 (98%)	104 (94%)
	Workplace	14 (15%)	4 (21%)	7 (13%)	11 (20%)	18 (16%)
	Public place	14 (15%)	1 (5%)	3 (5%)	12 (21%)	15 (14%)

Table 13. Locations where watching movies is performed online

General Discussion and Conclusion:

Much of the differences and associations suggested by the results of this exploratory study were not found to be statistically significant. This, of course, does not necessarily imply the absence of differences or associations. This could possibly be due to the relatively small size of the sample and, consequently, the small size of some of the sub-groups that compose it (the small number of suburban residents for example). In any case, the generalization of the results presented above needs to be extremely cautious and must remain tentative until they are further confirmed in future studies. Another issue related to generalization has to be explicitly pointed out. The sample used in this study cannot be claimed to be representative of the entire population of Cairo and its wide range of socio-economic levels. In fact, respondents could be considered to be exclusively from a relatively narrow, well-educated, upper-middle socio-economic level. Nevertheless, this being said, several points suggested by the results about the potential impact of the Internet on the future of the city and thus on the future of urban planning and urban design can be discussed to provide direction for further research.

Results suggest that for residents of Cairo, at least for those better represented by the sample, the use of the Internet has become an important aspect of daily life. It is used of course for work related activities but also to be always informed of the latest news, to be constantly in touch with friends and family, and apparently increasingly for leisure and shopping. Answers of respondents also indicate that they do make use of the increasing ubiquitous nature of Internet access. Nearly all of them access the Internet in public places through portable devices. And, as much as 71% indicated that Internet access availability can influence decisions about going to a certain public or semi-public place. For the respondents, accessing the Internet in public places rather than from home and the workplace offers some advantages. It is more sociable and can permit to combine online activities with offline activities and the satisfaction of needs that typically occur outside the home – such as face-to-face interaction with friends and family and the need for fresh air or physical exercise (see also Hampton & Gupta, 2008).

The majority of the respondents suggested that their use of the Internet has no impact on the amount of time they spend at home. However, a sizeable 30% indicated that their use of the Internet has led to an increase of the amount of time spent at home. This is important because, obviously, time spent at home is time not spent elsewhere. The influence of this on the use of urban public and semi-public places certainly needs to be investigated as urban design theories often emphasize the importance of the liveability of public places for the shaping and maintenance of social networks, cohesion, opinions, and democracy (Hampton & Gupta, 2008).

Results point to the increasing importance of the Internet as a form of interaction with close friends and family, perhaps even surpassing phone calls. It appears that, with the increasing time constraints and distance demands of urban life, face-to-face contact with friends and family becomes more of a weekly event and texting or chatting online is increasingly used to maintain and manage relationships on a daily basis (see also Hampton & Wellman, 2003; Hampton, 2007).

Results also suggest that the conduct of work related activities, shopping, and leisure activities online are increasingly becoming common options for city residents and that these online activities are often conducted from home. This begins to raise questions about the increasing transformation of residential areas into arenas for most urban activities. This aspect of the influence of the Internet could be the final and ultimate blow for modern planning theories with their emphasis on the separation of land uses. The potential impact of the increase of online working, shopping, and leisure from home on traffic, on the importance of downtown areas, and on commercial areas of the city are issues that need to be further researched (see also De Graff & Rietveld, 2007; Farag & Schanen, 2007).

If as suggested by Jones (2002) and Park (2010), the ways university students of today use the Internet can help envision future trends, differences between students and professionals revealed by the results of this study could suggest two possible future trends that appear contradictory in their potential impact on public places. First, students were found much more likely to indicate that their use of the Internet is leading to an increase in the

time spent at home. This is possibly because students are much more likely to engage in time consuming online leisure activities that are more conveniently performed at home – such as online movie watching and online game playing (see also Wallsten, 2011). But, at the same time, students were found to be much more likely to conduct various online activities from public places, including, online socializing, online work related activities, and online leisure activities (see also Park, 2010). Again, the potential materialization of these differences into more general trends and their potential impacts on the use of public places should be addressed in future research.

The focus of this study has been on the potential impacts of the use of the Internet on the city. However, as suggested by some of the results presented in the previous section, the city or aspects of urban life may actually be influencing the ways with which the Internet is used. It appears that time constraints and distance demands placed on city residents (which could be quite significant in a heavily congested and sprawling city like Cairo) do encourage them to engage in online activities as a more convenient substitute for their conduct offline. In many instances, the Internet seems to offer more practical ways of doing old things rather being a technology that is changing the manner people live their lives (Tyler, 2002). The bi-directional nature of the interaction between the use of Internet and the city should not be ignored.

Finally, any study related to the use of a rapidly evolving technology cannot claim to be more than a snapshot at a very specific point in time (compare for example Kraut et al., 1998 & Kraut et al., 2002). The investigation of the potential impact of the Internet on the city certainly needs continuous research to track probable changes in time.

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