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# Minority Status and the Use of Computer-Mediated Communication: A Test of the Social Diversification Hypothesis

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## Abstract

Group differences in the use of computer-mediated communication (CMC) were investigated, to test the diversification hypothesis that argues that minorities and immigrants will be more likely to use CMC to compensate for their lack of social capital. Data were gathered from a sample of Internet users reflecting the percentage of minorities in the general population ( $n = 1,264$ ). The results provide support for the hypothesis, indicating that in multicultural societies disadvantaged groups show greater motivation to use CMC to expand business and occupational contacts, whereas members of the majority group are more motivated to use CMC to maintain existing family and friendships ties. Implications of the finding are discussed.

## Keywords

computer-mediated communication, digital divide, communication channel choice, social networking sites

Multicultural societies are characterized by the existence of different groups that hold different positions in the stratification system (natives, immigrants, and disadvantaged minorities). As access to the Internet is becoming universal it is important to know how these different groups use the Internet and if the motivations for the use of information and communication technologies (ICT) vary according to their differential position in society and their ethnic background (Jackson, Ervin, Gardner & Schmitt, 2001; Ono & Tsai, 2008; Ono & Zavodny, 2008). This

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study set out to investigate the use of the Internet in a multicultural society (Israel), with particular emphasis on similarities and differences among a disadvantaged minority (Arabs), recent immigrants (from the former Soviet Union [FSU]) and the native majority. In doing this, I expand previous studies, suggesting a comprehensive conceptual framework for understanding the association (i.e., the diversification hypothesis) between social standing and the motivations for the use of ICT. The hypotheses of this framework are tested with measures of the actual use of a variety of social media platforms (social networking sites (SNSs), chat rooms, weblogs, and email). Furthermore, previous studies on social media have two central limitations that this study attempts to overcome. First, they tend to focus on SNS (Ellison, Steinfeld, & Lampe, 2007; Hargittai & Hsieh, 2010; Steinfeld, Ellison, & Lampe, 2008). As many SNSs offer the possibility of creating a profile and creating content but also to communicate through chat and email and to post personal content, it is not clear from these studies if the correlations found can be solely attributed to the use of SNS for identity presentation and expressing opinion or the use of the communication channels embedded in the applications. As previous studies have shown, there is some overlap in the use of different communication channels, and sometimes one channel displaces others (Ramirez, Dimmick, Feaster, & Lin, 2008). To understand the motivations for use, one needs to conduct a study in which communication channel use is controlled. Second, previous studies tend to rely on samples of college students, hence cannot account for age, socioeconomic and minority status differences (Barker, 2009; Hargittai & Hsieh, 2010; Steinfeld et al., 2008). This study tests its hypotheses using a unique sample of adult Internet users who in their characteristics resemble the population of Internet users. Therefore, the findings of this study allow better generalization of the results and set the stage for further studies addressing more diverse groups of the population.

## The First-Level and Second-Level Digital Divide

As Internet access has increased in Western countries, the literature on digital inequality has moved from a focus on the first to the second level of the digital divide. Early studies centered on the socioeconomic determinants of physical access to ICTs mostly reporting differences in access according to income, education, gender, and ethnicity (DiMaggio, Hargittai, Shafer, & Celeste, 2004; Katz & Rice, 2002; Korup & Szydlik, 2005; Ono & Zavodny, 2003). However as Internet access is reaching saturation in Western countries, more scholars are calling for a shift to the study of the second level that is, from examining the extent and causes of differences in ICT access to differences in intensity and types of use (Barzilai-Nahon, 2006; Hargittai, 2002; Ono & Tsai, 2008). This shift in the research rests on the belief that differences in access are becoming less problematic as computer ownership has become widespread and as public access in libraries and community centers have made computers and the Internet widely available (Ono & Zavodny, 2008). Although inequalities in access have not completely closed, this study is located at the second level of the digital divide tradition. The central research questions that this study attempts to answer are as follows: What are the differences in the use of Internet social applications according to background origin? To the extent that they exist, is it possible to determine that the differential social position of groups in society is associated with different motivations of media choice?

This assessment is of particular importance for the understanding of the potential contribution of the ICT use to social inequality. The relevant literature indicates two alternative and contradictory predictions. According to the “normalization hypothesis” the rise of the information society and the adoption of the Internet have the capacity to reduce existing social inequalities. In affluent postindustrial societies the social profile of the online community will gradually broaden over time (Norris, 2001; van Dijk, 2005). There is some recent evidence in support of this hypothesis as the percentages of Internet use has increased over time. Furthermore, some studies conducted in recent years indicate that Internet use at home and work in the United States and certain European countries is associated with higher wages and increased access to information, governmental, and financial services (DiMaggio & Bonikowski, 2008; Dolton, Makepeace, & Robinson, 2007; Dutton, Hellsper, & Gerber, 2009). However, the “stratification hypothesis” argues that the process of ICT adoption replicates existing social inequalities, and may cause their amplification. In the early and middle stages of technology adoption, adopters are more likely to be from groups with higher income, education, and technical skills. With time, the skills required for taking real advantage of the technology become more demanding, and late adopters will face new access barriers (Barzilai-Nahon, 2006; Norris, 2001). Studies on the effect of age on patterns of Internet use have shown that age is negatively and significantly associated not just with access, but with the likelihood of using the Internet for fewer tasks. (Loges & Jung, 2001). The effect of age has been described as a generational effect, a population cohort that was not exposed to ICT at school and work and were late adopters of the technology. Yet, part of it is also an age effect as once online, older respondents differ from the young in that pursue less online activities, use fewer applications and connect from less places than the young. A recent experimental study that measured ICT skills and use, concluded that the older people perform more poorly than the younger in operating the Internet browser, finding search machines and navigating the Internet. Yet when the older people have the skills are better off than the younger in locating information, defining search options, and evaluating information sources (van Deursen, van Dijk, & Peters, 2010). The results provide support for the amplification effect, as not only the older people are late adopters but also have difficulties mastering basic navigation skills.

There is also evidence that ethnic minorities and immigrants still face barriers in their access to, and types of use of the Internet. Whether the disparities are fully explained by socioeconomic factors or is a unique cultural effect that remains after socioeconomic factors are controlled is unclear. According to the communication infrastructure theory, ethnic communities differ in their communication opportunity structures. Some environments afford easy connections to necessary and useful communication channels, but others make it difficult to access communication channels. Differences in communication opportunity structures are associated with differential access to social, political, cultural, and social capital resources (Kim & Ball-Rokeach, 2006). A central concept in this theoretical framework is Internet connectedness, a concept, and a measure that explores the nature of individuals’ connections to ICT and how those connections are embedded in and affected by the complex and multilevel communication infrastructure in which we live (Ball-Rokeach, Kim, & Matei, 2001; Jung, Qiu, & Kim, 2001).

In a study of the incorporation of ICT in ethnic neighborhoods it was found that the Internet was more integrated into the communication infrastructure of White neighborhoods

than immigrant neighborhoods. The study suggests the possibility that in ethnic neighborhoods, ICT is creating a “magnifying glass effect,” as while it does not detract people from civic participation, ICT adds only to those people who already have connections to the communicative resources (Matei & Ball-Rokeach, 2003).

An important issue is the extent that ethnic differences in patterns of ICT use remain after socioeconomic factors are controlled. There is some evidence for this argument, a study that focused on connected individuals reported that ethnic and racial differences in use remained even after measures of socioeconomic status (SES) are controlled. The study on patterns of ICT use in ethnic neighborhoods in the Los Angeles area found that whereas socioeconomic factors explained access, ethnicity was a unique contributing factor on the Internet connectedness (Kim, Jung, & Ball-Rokeach, 2007).

Ono and Tsai (2008), studying children’s Internet use among minorities in the United States, found that as computer ownership is approaching saturation, differences in children’s Internet use reflect parental differences in SES less (measured by parental education and income) and racial origin more (Ono & Tsai, 2008). Similarly, a study in the United States found that over time, access, and use of the Internet by adults of ethnic minorities became lower than those of the majority (Ono & Zavodny, 2008). The main implication of these studies is that the differential use of the Internet by minorities and the majority population can be attributed to different motivations associated with the communication infrastructure of the ethnic group, including preferences for the use of newspapers and TV. Ethnic residential segregation contributes to the communication infrastructure of the ethnic community. People living in an ethnic neighborhood are likely to share particular Internet-related goals, including the type of services that are used and applications that are popular in their culture. More importantly, the way that cultural factors influence Internet use need to be understood as part of the specific residential setting in which different ethnic groups maintain different sociocultural relationships within their residential areas (Kim et al., 2007). Furthermore, because of the minorities’ position in society they are more likely to lack the needed social capital to draw social support for ICT help (DiMaggio et al., 2004; Ono & Tsai, 2008; Ono & Zavodny, 2008).

Thus, even universal access may lead to differential patterns of use and differential outcomes that may amplify the existing inequalities in an information-based society. Yet when ethnicity is highly correlated with SES, culture not only influences communication infrastructure and the motivations of ICT use. The position in the stratification system is associated with the development of values and attitudes to technology, which might in turn, affect the communication infrastructure. In this case, disentangling the effect of SES and ethnicity will be a difficult task.

## **Accounting for Differences in Use: Social Diversification Hypothesis**

In this study I draw on the diversification hypothesis, concerned specifically with differential use of ICT according to people’s social position in society. This hypothesis relies on existing knowledge on the nature of association in stratified and multicultural societies and the expanding literature on social capital. From the literature on social networks the assumption is that

multicultural societies are segregated according to ethnic and social class lines (Lin, 2001). In societies that reward individuals differentially according to income, prestige, and power, stratification systems result in a differential ability of individuals to gain access to jobs and residential locations (Massey, 2007). As a result, individual social associations tend to be with others of similar social characteristics such as age, gender, marital status, ethnicity, religion, and nationality (McPherson, Smith-Lovin, & Cook, 2002; Mesch & Talmud, 2006, 2010). Studies on the formation, development, maintenance, and dissolution of social relationships have emphasized the importance of homophily (McPherson et al., 2002), which maintains that “contact and friendship formation between similar individuals occurs at a higher rate than among dissimilar individuals” (McPherson et al., 2002). Homophily is the result of the opportunity structure for interaction that emerges from the social structuring of activities in society (Feld, 1981; Massey, 2007).

Minorities are disadvantaged in society; among other reasons because the segregated nature of society is a barrier to relationship formation and membership of out-groups (Massey, 2007). According to the diversification hypothesis (Mesch, 2007; Mesch & Talmud, 2010) computer-mediated communication (CMC) provides a platform to overcome the existing social and residential segregation. Residential and social segregation prevents members of minority groups from creating interactions across ethnicity and migration status. As a result segregation reduces their access to social networks that enhance ICT use and networks that provide information on available education and job opportunities (Ono & Tsai, 2008). Accordingly, this perspective maintains that disadvantaged groups (due to migration status and ethnicity) will use the Internet to expand their social circle and overcome existing physical and social barriers to information and association. At the same time, majority groups will use the Internet more to keep the existing relationships and less to expand their social ties. The advantage of the majority group is in their access to educational and job resources, so that they have much to gain from maintaining their existing ties.

From this discussion it follows that another important assumption at the center of the diversification approach is a conceptualization of ICTs as a space of activity and social interaction (Mesch, 2007). The Internet is not just about communication with existing ties. Although many individuals do use it as another channel of communication with existing relationships, the innovative aspect of the Internet is to provide opportunities for activities that induce social interaction, providing a space for meeting new individuals and lowering the barriers to accessing information and weak ties (Hargittai and Hsieh, 2010).

Consequently, an important motivation for minorities and immigrants to use CMC is diversification of their social network and identification of other individuals who share their interests, concerns, or problems but are not part of their face-to-face social circle.

Diversification is a concept that can be linked to social capital. Using a communication infrastructure approach, the use of ICT, newspapers and TV has been linked to a sense of belonging to the community and access to social, cultural, and political resources (Ball-Rokeach et al., 2001) and to leaders in neighborhood associations (Weare, Loges, & Oztas, 2007).

Although there are several accepted definitions and operationalizations of this concept, it is agreed that social capital refers to network ties that provide mutual support, shared language, shared norms, social trust, and a sense of mutual obligation from which people can derive value

(Huysman & Wulf, 2004). This definition emphasizes the central role of the size, structure, composition, and trust in social networks. Based on these qualities, networks provide differential access to resources that include opportunities, skills, information, social support, and sociability. In the diversification perspective, the Internet is conceived as a social arena of shared activities. Social relationships are established in social contexts that bring individuals together for purposes that create opportunities for accessing new information and new connections.

A preliminary test of the diversification approach was conducted with adolescents (Mesch, 2007). The study reported that having online friends diversified the composition of the social network according to age, gender, and place of residence. It also found support for the diversification framework, implying that social similarity is a main motivation for online friendship formation (Mesch & Talmud, 2006). Having online friends increases the diversity of residence of the members of the adolescent social network. Most importantly, the study found that Arab Israeli adolescents were more likely to make online friendships. The conditions of Arab Israeli society, which is residentially segregated in villages and cities and spatially isolated from the majority, appeared to be a strong motivation for Internet use to diversify the existing social network (Mesch & Talmud, 2006).

Recent studies of CMC also indicate that an alternative major use is for the maintenance of existing social ties (Chan & Cheng, 2004; Xie, 2008). Whereas use for diversification can be explained as an attempt to increase bridging social capital, use for maintenance of family and friend ties can be assumed to be a motivation for retaining and increasing bonding social capital. The diversification perspective is unique in pointing out the possibility that the differential use, for the formation of “bonding” and “bridging” social capital, might be directed by minorities’ and immigrants’ position in the social structure in respect of the majority. One use is to maintain existing relationships, an important function in that it facilitates the continuation of significant relations despite distance and the rapid pace of life, with transfer of information on economic and employment opportunities and exchange of social support. Another use of CMC is to expand existing ties, as the anonymity of the medium, the flattening of social hierarchies and the lowering of barriers to social interaction encourage the formation of social ties with unknown others who belong to a different social circle. Both uses, for expansion and for maintenance of social ties, are linked to the formation of social capital.

## Linking Diversification and CMC Channels

In recent years the online communication environment has become increasingly complex, as individuals combine the use of email, chat rooms, weblogs, and SNSs. The use of different social applications partially defines the structure and content of social communication and association. The use of the different applications varies as communication partners differ according to the application used. Different motivations probably lead to the use of different communication channels.

Open chat rooms and weblogs are spaces of interaction in which users maintain their anonymity by using nicknames and are more likely to interact with others who might not be known and may reside in a different city, state, or country. A study on weblogs found that

only 12% of the bloggers used their real names and 30% a partial real name. Only about half revealed photos about themselves or family. Individual postblog comments according to the topic around which the platform is defined (Qin & Scott, 2007). Writing a weblog was found to be positively associated with higher levels of personal network diversity (Marlow, 2005). The defining characteristic of the developing social interaction is the existence of common topics or interests. As the context of the interaction is based on mutual emotional or intellectual interests, much of the interaction is with unknown individuals who share concerns, hobbies, or other interests (Subrahmanyam, Reich, Waechter, & Espinoza 2008).

SNSs differ from other online communication channels in a variety of features. The adoption of the technology is social, as it results from a group of friends settling on a particular social networking system. A specific SNS is adopted because of peer pressure which helps to create a critical mass of users in a social group. Using a SNS requires having an active list of “friends” and being on a friends’ list through peers’ authorization. SNS allow users to present and make visible their social network and are primarily used for communication with people who are already part of their extended social network (boyd & Ellison, 2007). In that sense SNS use is more common with known and offline friends than with strangers. Whereas chat rooms and forums are technologies that link individuals around a shared topic of interest and concern, SNSs are technologies that link individuals who have some knowledge of each other and belong to the same social circle or to the social circle of their friends (Hargittai & Hsieh, 2010; Steinfeld et al., 2008). Given these features of channels of communication, it is reasonable to expect that the motivation for the use of chat rooms and weblogs is to expand social ties and the use of SNSs to conserve existing ties.

## The Israeli Context

Israel is a multiethnic society. Approximately 79% of the population is Jewish, the remainder Arab. Jewish immigrants have come to Israel in a sequence of waves. As a result, the Jewish population consists of various groups from different backgrounds (Lewin-Epstein & Semyonov, 1993).

The Arab minority is a distinctive minority. Different from the Jewish majority, it is an indigenous group that became a minority after the creation of the State of Israel. They have different language (Arabic), profess a different religion (the vast majority are Muslims), and preserve an autonomous cultural existence through a network of institutions (separate schools and religious institutions, mass media, and a highly cohesive family; Smootha, 1997). The continuous state of war with the Arab countries has reinforced the solidarity of the Arab minority with the Arab world. In Israel, the Arab minority is often perceived as a hostile minority sympathetic with the Arab countries with whom they share language, religion, and culture (Smootha, 2002).

Israeli Arabs are full citizens of Israel but are also politically marginalized and economically disadvantaged in education and SES relative to Jews (Haberfeld & Cohen, 2007; Lewin-Epstein & Semyonov, 1993). In addition, most of the Arab population resides in peripheral areas of the country and in small localities in which they form the great majority

of the population. The high residential concentration restricts the access of the Arab population to widespread networks and they tend to associate with residents of their and neighboring localities on Israel's periphery (Ali, 2006).

Another important group in the Israeli population is immigrants from the countries of the FSU. Immigration from the FSU to Israel took place in two waves. The first was 1968-1979, when 150,000 Jews entered Israel. The second large wave started after 1989 shortly after the dissolution of the Soviet Union. Since then it is estimated that 1 million immigrants from the FSU have arrived in Israel, constituting 15% of the total population and 20% of the Jewish population.

Studies report a number of differences and similarities between the first and second wave of immigrants from the FSU. Whereas those of the 1970s were more evenly distributed across regions in Israel, those of the 1990s were more concentrated in the urban centers and peripheral towns. As a group they show a high level of participation in the workforce, with 90% of the males and 80% of the females able to find jobs after 4 years in the country (Rajman & Semyonov, 1998). Regarding social integration, studies indicate that the FSU immigrants largely confine their social encounters to other immigrants from their country of origin. Five years after immigration, about 60% of the 1990s immigrants, as against 40% of the 1970s immigrants, reported meeting frequently with their former compatriots (Mesch, Turgeman, & Fishman, 2008).

The spatial distribution of the immigrants in the country is uneven and they have become the majority of the population in many towns on Israel's periphery. In the large urban centers one of the main features of the settlement of immigrants is their high residential concentration. Some sociologists have concluded that because of their high residential and social segregation, and high level of language and culture conservation, the group of FSU immigrants has become a new ethnic group (Al-Haj, 2004).

## The Penetration of ICT Into Israel

In Israel, Internet use is rapidly expanding. In 1998 only 11% of Israeli households reported having access to the Internet; the figure had risen to 30% by 2002 and 71% in 2008 (Central Bureau of Statistics, 2008). As Israel moves ever closer to becoming an information-based society, a central question for social scientists is the extent to which people from all the different groups in the society are able to enjoy the benefits of new information technologies.

Whereas Internet use is widespread it differs according to ethnic groups. Overall, 71% of the Jewish population reports access to Internet but only 50% of the Arab population do so (Central Bureau of Statistics, 2008). The ethnic gap in Internet access is wider for low-income individuals of both groups and narrower for those with more than high school education (Central Bureau of Statistics, 2008). Studies on the digital divide according to ethnic lines in Israeli society have concluded that Arab Israelis have less access to and use of the Internet (Ganayem, Rafaeli, & Aziza, 2009; Mesch & Talmud, 2010). Studies to identify the causes of low Internet access and use by the Arab population concluded that structural barriers associated with their disadvantaged status in society were the main source of the disparities. Specifically, the Arab population is concentrated in blue-collar occupations and is less exposed to ICT and social networks of support for its use. Lack of exposure contributes to the



development of negative attitudes to its use resulting in a tendency to keep away from ICT (Mesch & Talmud, 2010).

## Hypotheses

In sum, the central argument of the diversification hypothesis is that in multicultural and stratified societies immigrants and disadvantaged minorities face barriers against access to information and social networks. Accordingly, different motivations drive the differential use of ICT. The majority group has on average access to social capital and networks that provide access to information and relevant connections for exposure to advanced educational, occupational, and social opportunities. Hence we hypothesize as follows:

*Hypothesis 1:* Members of the majority (Israeli-born Jews) will be more likely to use the Internet for maintaining existing relationships with family and friends.

Minority and immigrant groups have less access to social networks that can provide information on educational, occupational, and social opportunities. To overcome their limitations, minorities and immigrants will attempt to increase social capital using ICT mainly to establish occupational and business contacts. Thus, from the theoretical argument of the diversification hypothesis arises the following:

*Hypothesis 2:* Immigrants from the FSU and Arab Israelis will be more likely to use the Internet for relationship expansion than Israeli-born Jews.

CMC is carried through a variety of channels. Some of them are more likely to be used to connect with unknown individuals (weblogs and chat rooms), others more likely to be used to sustain existing relationships (SNSs).

Following this argument, we hypothesize as follows:

*Hypothesis 3:* Immigrants and members of minority groups are more likely to use chat rooms and weblogs than members of the majority.

## Method

### *Design and Procedure*

Data for this study were collected in September 2009 from a large sample of Internet users ( $n = 1,264$ ) who replied to an online survey. It consisted of 51 items probing motivations for using CMC and the various channels of communication. A well-known highly experienced commercial online survey company in Israel (Panels Ltd.) conducted the survey. It does market research by recruiting a large panel of Internet users, and each study is conducted with a selective subsample of this panel. The company recruits online survey participants through advertisement in the major existing web portals in Israel (including the ones in Hebrew, Arabic,

and Russian languages). Once an Internet user contacts the company and express interest in participating as a respondent in online surveys, is requested to complete a short demographic questionnaire including age, gender, education, income, religion, immigrant status, and place of residence. Recruited panelists after participation in a number of surveys are provided with discount vouchers in major commercial chains. In this way the company has recruited about 32,000 panelists. For each survey, the researcher defines the relevant population and an electronic link to the online survey is sent to panelists that comply with the characteristics of the survey relevant population. The company's technology allows to close the survey whenever a required cell in the sample is filled and to verify that each panelist answers the survey only once. Each panelist is invited to participate in the survey not more than once a month.

For this study, a two-stage sampling was used. First, the population of panelists was divided according to ethnic and migration origin. Second, from each group a sample according to their size in the total population was extracted. Each sub sample was contacted in their respective mother tongue language (Hebrew, Russian, and Arabic) and directed to the survey in their language. The company made a special effort to balance the sample to match national Internet users population parameters for sex, age, education, income, and region. The basic parameters were taken from the analysis of the 2008 Israeli General Social Survey. This survey ask a question on access to the Internet and from this item the characteristics sociodemographic characteristics of Internet users can be calculated. In particular, panelists represented the different groups (Israeli Jews, Arab Israelis, and immigrants from the FSU) according to their percentage in the population and the characteristics of Internet users.

The questionnaire consisted of 51 items inquiring into the extent and types of Internet use, extent and types of communication technologies used (email, chat rooms, weblog, and SNS), and specific questions on type and purposes of Internet use.

## Sample

A total of 1,264 respondents who were Internet users and older than 18 years old answered the online questionnaire. The full sample consisted of 817 native Israelis, 228 immigrants, and 219 Arab-Israeli respondents.

## Measures

### Dependent Variables

#### Motivations of Internet Use

*Internet use for tie maintenance.* Internet use for the support of strong social ties, respondents were asked to indicate the extent of agreement with the items "I use the Internet to conserve existing relationships with my family" and "to conserve and maintain my relationships with my friends." Responses were made on a 5-point Likert-type scale, from *not at all* to *a great extent* and higher values indicated higher agreement with Internet use for this purpose. The scale proved internally consistent ( $\alpha = .70$ ).

*Internet for tie expansion.* Respondents were asked to indicate the extent of agreement with the items “I use the Internet to expand my professional and occupational ties”; “I use the Internet to meet new people.” Responses were made on a 5-point Likert-type scale, from *not at all* to *a great extent* and higher values indicated higher agreement with Internet use for this purpose. The scale proved internally consistent ( $\alpha = .74$ ). Each scale was used as a continuous dependent variable in the multivariate analysis.

*Computer-mediated communication channels.* To investigate the effect of motivations of Internet use on the type of CMC channels used by different groups in the population I used four of the survey items. Respondents were asked to indicate whether they participated in chat-room discussions; kept an online diary (weblog); regularly used an email account for sending and receiving emails; and had an active profile in a SNS. Responses were coded as a series of dummy variables where 1 indicated “yes” and 0 indicated “no.”

## Independent Variables

*Ethnic background.* Two of the survey items were used. Respondents were asked for their country of birth. The answer “Israel” was cross tabulated with an item eliciting the respondent’s religion, to yield two variables. Israeli-born and Jewish were coded as a dummy variable, “Israeli Jewish origin.” Israeli-born and Muslim, Christian, or Druze were coded as a dummy variable, “Arab origin.” Immigrants were identified by means of two items. The first asked for the respondent’s country of origin. Those answering “former Soviet Union” were identified. Then their year of migration was determined and a dummy variable was created indicating FSU immigrants since 1989. The preliminary analysis showed that the great majority of immigrants (93%) belonged to this category. The other immigrants were excluded from the analysis as their number was very small.

*Social support.* Three items asked the respondent to indicate on a 5-point scale the extent of agreement with the following statements: “There are a number of people that I believe will help me solve my problems”; “I have a friend that I can always approach for some advice whenever I have to make an important decision in my life”; “I have friends that I can always share sad and happy moments with.” The three items were submitted to a factor analysis with varimax rotation, and resulted in a single dimension. They were combined into a single scale by summing the responses. The scale proved internally consistent ( $\alpha = .65$ ).

*Age.* The year of the survey was subtracted from the respondent’s year of birth. The resulting variable was introduced as a continuous variable in the statistical analysis.

*Education.* Respondents were asked to indicate the number of years of their formal education. This variable was introduced as a continuous variable in the statistical analysis.

*Income.* This concept was measured with a subjective evaluation of the monthly average income. Respondents were presented with the amount of gross average income in Israel in 2008. Then they were asked to indicate the extent that their income was above, about, or below average. Responses were in a 6-point scale from *no income*, *well below average*, *below average*, *average*, *above average*, and *well above average*. The measure was introduced as a continuous variable in the multivariate analysis.

**Occupation.** Respondents were asked to indicate their current occupation. Responses were in five categories: “unemployed,” “Student,” “housekeeper,” “employee,” and “manager.” The responses were converted into a series of dummy variables and were introduced in the multivariate analysis. The omitted category was “managers.”

**Marital status.** Respondents were asked for their current marital status. From their responses a dummy variable was created, with *married or living with a partner* coded 1, and *single or living alone* coded 0.

**Gender.** Gender was measured by a dummy variable, with 1 indicating male and 0 indicating female.

## Method of Analysis

In the first step of the analysis differences between Israelis, Arabs, and immigrants in sociodemographic variables were tested by one-way ANOVA. After statistically significant differences in background characteristics were found I decided to include them in the multivariate analysis to control for confounding effects that might result from these variables.

To test the hypothesis on a different motivation for Internet use, an OLS regression analysis was conducted. Each scale—Internet use to maintain ties with family and friends, and Internet use to expand business and occupation ties and meet new people—was regressed on the independent variables. To test the hypothesis on differential use of communication channels, chat room use, email communication, social networking, and weblog use were regressed on a set of independent variables.

## Results

### Descriptive Results

Descriptive statistics for the variables in the analysis are presented in Table 1.

Respondents' average age was 29.16 years ( $SD = 6.77$ ). A small majority were women (54%) and a small majority were single (56%). In terms of education, 5.5% reported less than high school education, 50.6% completed high school, and 43.8% had college and university education. The average educational level was 13.31 years of formal education ( $SD = 3.45$ ). As to the occupational composition of the sample, 42% reporting being employees, 12% managers, 31.8% were currently students, 8.2% were unemployed, and 3% housekeepers.

As to the socioeconomic composition of the sample, a cross-tabulation of ethnic origin by income reveals that the sample reflects the social stratification of Israel. Among the Jewish sample, 38% indicated an income below average, 21% an average income, and 41% an above average income. Among the Immigrants from the FSU 46% indicated a lower than average income, 22.5% an average income, and 31.5% an above average income. For the Arab Israelis 66.7% reported a low than average monthly family income, 20.2% an average income, and only 13.1% reported an above average income. These results indicate clear differences between the three groups, as the Israeli Jews are the most better off group, followed by the immigrants and lastly the Arab Israelis.

**Table 1.** Descriptive Statistics by Ethnic Origin

	<i>M</i>	<i>SD</i>	Percentage	Minimum	Maximum
Age	29.16	6.77		18	57
Single			56	0	1
Married			44		
Men			46	0	1
Women			54		
Income	2.71	1.26		1	5
Education	13.31	3.45		10	18
Unemployed			8.2	0	1
Student			31.8	0	1
Housekeeper			3	0	1
Employee			45	0	1
Manager			12	0	1
Daily Internet use	4.94	2.68		1.0	10.0
Social support	12.33	2.38		0	15
Internet use for tie maintenance	6.56	2.09		0	10
Internet use for tie expansion	5.86	2.16		0	10
Chat rooms			28	0	1
Weblogs			10	0	1
Email			85	0	1
Social networking sites			62	0	2
<i>N</i>	1,264				

As for channels of computer-mediated communication, the most frequent channel was email (95%), followed by SNSs (62%), chat rooms (28%), and weblogs (10%). On average, respondents spent about 4.94 hr a day using the Internet ( $SD = 2.68$ ). Regarding motivation for Internet use the average value of using the Internet to maintain existing ties was found to be higher ( $M = 6.56$ ,  $SD = 2.09$ ) than the use for expanding social ties ( $M = 5.86$ ,  $SD = 2.16$ )

A one-way between-group analysis of variance was conducted to explore group differences in demographic background and motivations for Internet use. Results of the analysis are presented in Table 2.

In terms of demographic characteristics, post hoc comparisons using Tukey's HSD test indicated that the three groups differed in age:  $F(2, 1261) = 31.60$ ,  $p < .001$ . The mean score for Israeli Jews ( $M = 30.25$ ,  $SD = 7.01$ ) was significantly different from Immigrants ( $M = 27.46$ ,  $SD = 5.46$ ) and Arabs ( $M = 26.87$ ,  $SD = 6.77$ ). In social support, no statistically significant differences were found between the three groups, indicating that Israeli Jews, Immigrants, and Arab Israelis do not differ significantly in their perception of having others to rely on when life decisions need to be made. The three groups were found to differ in the extent of daily use of the Internet:  $F(2, 1261) = 6.96$ ,  $p < .001$ . In post hoc comparisons by Tukey's test, Arab Israelis reported using the Internet less ( $M = 4.32$ ,  $SD = 2.42$ ) than either Israeli Jews ( $M = 5.97$ ,  $SD = 2.72$ ), or Immigrants ( $M = 5.07$ ,  $SD = 2.71$ ).

Closely related to the study hypothesis, statistically significant differences were found in the motivation for Internet use to maintain social ties:  $F(2, 1261) = 9.053$ ,  $p < .001$ . Israeli

**Table 2.** Descriptive Statistics of the Sample by Ethnic Origin

	Israeli Jews		Immigrants		Arab Israelis		F
Age	30.25	(7.01)	27.46	(5.46)	26.87	(6.77)	31.60**
Social support	12.44	(2.25)	12.21	(2.35)	12.04	(2.31)	2.97*
Daily Internet use	5.07	(2.72)	5.07	(2.71)	4.32	(2.42)	6.96**
Internet for tie maintenance	6.61	(2.05)	6.86	(2.11)	6.05	(2.12)	9.05**
Internet for tie expansion	5.86	(2.19)	5.71	(2.13)	6.01	(2.06)	8.77**
Chat rooms	.31	(.46)	.28	(.45)	.21	(.40)	4.55**
Weblogs	.09	(.28)	.09	(.29)	.15	(.36)	3.91**
Email	.99	(.08)	.97	(.14)	.97	(.16)	3.38*
Social networking sites	.82	(.38)	.90	(.29)	.84	(.36)	4.28**
N	817		228		219		

Note: Values are means, percentages (for Chat room, Weblog, E-mail and SNS use). Standard deviations are in parentheses.

\* $p < .05$ . \*\* $p < .01$ .

Jews ( $M = 6.61$ ,  $SD = 2.05$ ) and Immigrants ( $M = 6.86$ ,  $SD = 2.11$ ) reported on average a higher motivation to use the Internet for this purpose than Arab Israelis ( $M = 6.05$ ,  $SD = 2.12$ ). As for Internet use to expand social ties, a higher average on the scale was found for Arabs, but this difference was not statistically significant.

In the use of channels of computer-mediated communication some interesting differences emerged. Arab Israelis formed the highest proportion of respondents reporting using weblogs; with no difference here between Israelis and Immigrants. The proportion of respondents using email was very high and similar for the three groups. Immigrants were the highest regarding social networking, followed by Arab Israelis and lastly Israeli Jews. Comparison of the three groups showed group differences in motivations for Internet use and communication channel preference. Multivariate analysis was conducted to explain the potential reasons for this variance.

### Explaining Motivations for IT Use

Hypothesis 1 was tested by an OLS multivariate analysis. I regressed the independent variables on motivations for Internet use, controlling for SES and demographic variables. The findings are presented in Table 3.

Results for the effect of ethnic/migrant origin on Internet use to maintain social ties provide support for the hypothesis. The omitted category is Arab Israelis, and the results indicate that Immigrants and Israeli Jews are more likely than Arab Israelis to use the Internet for maintaining ties with family and friends. In other words, these results provide evidence that Arab Israelis are less likely to use the Internet for the maintenance of "bonding social capital," even when sociodemographic characteristics, education, income, and occupation are controlled.

Regarding Hypothesis 2, positing Internet use to expand social ties, the results partially confirm the hypothesis. The results show that Immigrants and Israeli Jews are less likely than

**Table 3.** OLS Regression Predicting Internet Use for Maintenance and Expansion of Social Ties According to Ethnic Origin

	Use the Internet for maintaining social ties			Use the Internet to expand social ties		
	B	SE	B	B	SE	$\beta$
Age	-0.002	0.01	-0.05	0.02	0.01	.08
Marital status (1 = married)	0.16	0.13	0.03	-0.09	0.13	-.02
Gender (1 = male)	-0.08	0.11	-0.02	0.54	0.12	.12**
Education	0.01	0.06	0.007	0.09	0.06	.05
Income	-0.03	0.05	-0.01	-0.06	0.05	-.04
Unemployed	0.67	0.27	0.08*	-0.23	0.28	-.02
Student	0.52	0.22	0.11*	-0.34	0.22	-.07
Housekeeper	0.83	0.34	0.07*	-0.23	0.35	-.02
Employee	0.17	0.02	0.19	-0.54	0.19	-.12**
Social support	0.17	0.02	0.19**	0.09	0.02	.09**
Internet daily use	0.13	0.02	0.17**	0.20	0.02	.25**
Immigrants	0.60	0.20	0.10**	-0.43	0.20	-.07*
Israeli Jews	0.41	0.16	0.09**	-0.39	0.16	-.08*
Constant	2.87	0.57*		3.21	0.59**	
Adjusted R <sup>2</sup>	.08			.10		

Note: Manager is the omitted category.

\*p < .05. \*\*p < .01.

Arabs to use the Internet to meet new people and make new friends. Conversely, this finding can be interpreted as Arab Israelis being more likely than Israeli Jews and Immigrants to use the Internet to expand professional and business ties. These last two results provide support and qualification for the diversification hypothesis which holds that because of their disadvantaged position in society, minorities and immigrants will be more likely to use the technology to expand their professional and business contacts.

### Explaining Group Differences in Type of IT Use

Channels of computer-mediated communication are known to differ in the extent that they facilitate contact with similar and nonsimilar individuals. It is well known that chat rooms and weblogs are channels that facilitate contact with unknown others, whereas SNSs, because of the recruitment of “friends” through existing networks are more likely to be used for maintaining existing social ties. In the next model I tested the hypothesis that controlling for the motivation for Internet use, Arab Israelis and Immigrants would be more likely to use chat rooms and weblogs, and Israeli Jews more likely to use SNSs.

There are a number of salient findings. The first concerns the assumption presented above that communication channels are used differently for different purposes (Table 4). Regarding SNSs, the results indicate that even after controlling for sociodemographic characteristics, frequency of Internet use and social background, the more individuals seek to use the Internet

**Table 4.** Logistic Regression Predicting the Likelihood of Use of Different Communication Channels

	Social networking sites use		Chat rooms		Weblog		Email	
	( $\beta$ )	Odds ratio	( $\beta$ )	Odds ratio	( $\beta$ )	Odds ratio	( $\beta$ )	Odds ratio
Age	.01	1.01	-.00	0.99	.02	1.02	-.06	0.94**
Marital status (1 = married)	.45	1.58*	.31	1.3*	-.16	0.84	-.47	0.62**
Gender (1 = male)	-.62	0.53**	.06	1.06	.27	1.31	-.02	0.97
Education	-.10	0.89	-.01	0.98	-.20	0.81	.31	1.37**
Income	.07	1.07	-.10	0.89	-.12	0.88	.16	1.17*
Unemployed	-.56	0.56	-.42	0.65	.23	1.25	-.42	0.65
Student	.003	1.03	.13	1.14	.76	2.15	-.25	0.77
Housekeeper	-.28	0.75	-.05	0.94	-1.3	0.26	.01	1.01
Employee	-.09	0.91	-.12	0.88	.40	1.49	-.11	0.89
Social support	.10	1.11**	.01	1.01	-.03	0.96	-.09	0.99
Internet daily use	.14	1.15**	.06	1.06*	.04	1.04	.08	1.09**
Internet expand	.11	1.12*	.24	1.27**	.37	1.46**	.14	1.15**
Internet maintain	.05	1.50**	.04	1.04	.09	1.10	.38	1.46**
Immigrants	-.13	0.87	.42	1.52	-.83	0.43*	-.05	0.94
Israeli Jews	-.17	0.83	.57	1.77	-.84	0.43**	-.05	0.94
Constant	-2.2	0.10**	-3.20	0.04**	-6.1	0.02**	-1.5	0.34
$\chi^2$		304		107		108		148
df		19		19		19		19

Note: Manager is the omitted category.

\* $p < .05$ . \*\* $p < .01$

to maintain family and friendship ties, the more they use SNSs. In addition, and contrary to the diversification hypothesis, the more individuals use the Internet to expand business and professional ties, the more they use SNSs. However note that the odds ratio (OR) of SNS use of use for expanding social ties (OR = 1.12,  $p < .05$ ) is considerably lower than the coefficient for conserving social ties (OR = 1.50,  $p < .01$ ). Overall, this result is more consistent with the expectation of the diversification approach. Ethnic and migrations status is not significantly associated with the use of SNS.

As for chat rooms, the results support the diversification approach, indicating that the higher the motivation for using the Internet for expanding social ties, the higher the use of chat rooms ( $\beta = .22$ ,  $p < .01$ ). Note that the coefficients for Israeli Jews and immigrants were not statistically significant for the use of either SNS or chat rooms.

The results for weblogs provide the strongest support for the diversification hypothesis. First, the greater the motivation to expand business and professional ties, the higher the likelihood of the use of weblogs, indicating that they are used by individuals motivated to expand



**Table 5.** Distribution of the Use of Internet Applications According to Ethnic/Migration Status and Income

	Below average			Average			Above average		
	Immigrants			Immigrants			Immigrants		
	Jews	FSU	Arabs	Jews	FSU	Arabs	Jews	FSU	Arabs
Social networking sites use	58.3	67.4	64.4	63.4	71.1	52.5	62.4	63.5	53.8
Chat rooms	33.8	31.5	22.0	32.4	26.7	15.0	28.6	19.0	30.8
Weblog	9.4	6.5	<b>18.9</b>	10.3	13.3	<b>12.5</b>	6.6	7.9	<b>7.7</b>
Email	86.8	69.8	78.8	89.7	75.6	85.0	93.0	82.5	73.1
N	266	92	132	145	45	40	287	63	26

their social circle to new people in their profession and occupation. In addition, in this model the effect of Immigrants and Israeli Jews is statistically significant and negative, indicating that Arab Israelis are more likely than the other two groups to use weblogs.

As a criterion for comparison of the results of social media, I also included the model predicting email use. As with the use of SNS, the results indicate that both motivations were statistically significant, reflecting the idea that email is used both to expand and to conserve social ties. Ethnic origin and migration was not statistically significant.

The results until now seem to indicate a cultural rather than a socioeconomic effect. In order to increase the robustness of the results, I investigated whether the use of the Internet differs within the ethnic groups according to income (see Table 5).

The results of this analysis provide support for the study hypothesis. Regarding chat rooms support is partial. For the income categories below average and average, a higher percentage of Israeli Jews report using chat rooms than FSU immigrants and Arab Israelis. However, in the high income category, Arab Israelis report a higher use than the other two groups. The most salient result is regarding the use of weblogs. In any category of income, a higher percentage of Arab Israelis report using weblogs than the percentage of Israeli Jews and FSU immigrants. Thus, regarding the use of weblogs, the findings indicate a cultural effect, as regardless of income category Arabs are more frequent users of this communication channel. For other applications, the association is less clear.

## Discussion

As the Internet has become increasingly accessible to the population in Western countries, research has moved from first-level studies of the digital divide (understanding access or lack of it) to second-level studies, directed to understanding differences in types of use and skills of population groups. This study is on that second level, investigating group differences in the motivations and use of various channels of computer-mediated communication.

Taking advantage of Israel's multiethnic society, divided along ethnic and immigrant lines, I tested the diversification hypothesis with a large sample of Internet users that resemble the country's population of Internet users. According to the diversification hypothesis, in socially segregated societies disadvantaged groups have deficits in social capital, particularly bridging social capital. Their use of channels of online communication will be motivated by an attempt to compensate for their disadvantage, and will direct the use of IT to expand their occupational and business ties. From this argument two hypothesis were derived. First, minority and immigrants will be more likely to choose the use of the IT best suited to this task. The findings of the study mostly support this hypothesis. Controlling for sociodemographic and minority status, it was found that people who are motivated to use the Internet to expand business and professional contacts are more likely to use chat rooms and weblogs. At the same time those motivated to use the Internet to maintain ties with families and friends are more likely to use SNSs. This finding indicates that each IT application is perceived by users to be suited to a different task.

As for the specific hypothesis that minorities and immigrants will be more likely than Israeli Jews to use chat rooms and weblogs to expand their social ties, the results (see Table 3) are mixed. Regarding chat rooms, there is only support for immigrants being more likely than Arab Israelis to use chat rooms. Regarding weblogs, the latter proved more likely to use them than immigrants and Israeli Jews. The three groups did not differ from their use of SNSs.

Second, a more direct test of the diversification hypothesis was conducted. The hypothesis that Arab Israelis and Immigrants have different motivations for the use of IT was tested by means of OLS regression multivariate analysis. The findings here indicated that the main difference was between Israeli Jews and Immigrants on the one hand and Arab Israelis on the other hand. Immigrants and Israeli Jews proved more likely than Arab Israelis to use IT for maintaining family ties and to sustaining ties with existing friends. At the same time Arab Israelis were shown as more likely to use IT to make new contacts and to expand their business contacts.

Taking the results together the strongest support of the diversification hypothesis seems to apply to the Arab Israeli population than to the immigrants. This difference might be explained through the differences existing between the two groups in society. As shown in the descriptive analysis, the Arab population of Israel is more disadvantaged in human capital than the immigrant population. Furthermore, the Arab population, perceived as part of the Arab world with which Israel is in a constant state of war, faces more discrimination than the new immigrants. This difference in social standing might be reflected in the more consistent pattern of motivations and usage by the Arab population than by the immigrant groups.

## Study Limitations

The main limitation is that the study was designed and directed to the investigation of group motivations for IT use. In that sense, the findings represent an important step in our understanding of the second-level digital divide and of how social position in society shapes motivations for IT use. At the same time, the final goal of motivation is the achievement of material goals. Future studies should expand the analysis of motivations and their achievement. For this purpose longitudinal studies on group differential motivations for use, and

the extent that they are achieved, are important for our understanding of the ways in which IT can lead to compensation in social capital for disadvantaged groups of the population.

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