

Digital Distinction: Status-Specific Types of Internet Usage*

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Objective. Sociologists of technology propose that not only a technological artifact, as such, but also patterns of usage should be considered when studying the social implications of technologies. Accordingly, we explore how people's online activities are influenced by users' socioeconomic status and context of use. *Methods.* We analyze data from the Allensbacher Computer and Technology Analysis (ACTA) 2004 survey with uniquely detailed information about people's Internet uses and context of usage to explore this relationship. *Results.* Findings suggest that high-status and low-status individuals cultivate different forms of "Internet-in-practice." High-status users are much more likely to engage in so-called capital-enhancing activities online than are their less privileged counterparts. *Conclusion.* Results suggest differential payoffs from Internet use depending on a user's socioeconomic background. Digital inequalities might be mitigated by improving people's Internet equipment and digital experience, but they do not account for all the status differential in use.

The Internet cannot be assumed to be "inherently good or inherently bad. Of course, to complicate matters, neither is the Internet neutral" (Warschauer, 2003:183). Like all other technologies, the affordances of the Internet are related to its history, its design, and the context of its adoption and usage. An important focus of scholarship on the social implications of digital media has been an investigation of how differentiated levels of use may contribute to social inequality. At first, in the 1990s, digital divide research mainly focused on access differences across varying segments of societies (e.g., Bimber, 2000; Bucy, 2000; Hargittai, 2003a; National Telecommunications and Information Administration, 1998, 1999, 2000, 2004; Norris, 2001). Subsequently, researchers started arguing that beyond the binary differentiation of users versus nonusers lie variations in what people do online, which also have implications for social inequality (Attewell, 2001; Barzilai-Nahon, 2006; DiMaggio et al., 2004; Hargittai, 2004; Kim and Kim, 2001; Korupp and Szydlak, 2005; Livingstone and Helsper, 2007; Norris, 2001; Ono, 2006; Ono and Zavodny, 2007; Selwyn, 2004; van

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Dijk, 2005; Warschauer, 2003; Zillien, 2006). In particular, several scholars have suggested conceptual reformulations of digital inequality, calling for the inclusion of much more nuanced measures about use than were traditionally included in initial investigations. What is important, then, is that the digital divide is generally regarded as a new form of social inequality, in which different patterns of media usage influence life chances to different degrees depending on the particular activities in which people engage online.

Using this as a starting point, we analyze the extent to which Internet users' social position relates to their uses of the web. What is it about users' social status that may be driving differentiated uses? Status-specific forms of Internet usage might be due to different technical equipment, varying digital experiences, or status-specific interests. There is much empirical evidence that people with higher status use better technical equipment (e.g., Zillien, 2006) and research has also shown that they tend to possess higher Internet user skills (Hargittai, 2002; Mossberger, Tolbert, and Stansbury, 2003)—both of which could explain better returns to high-status people's Internet usage. For example, someone with a broadband connection and an up-to-date computer will be more willing to use the Internet for just about any purpose than someone who has to wait for pages to load on a slow connection. DiMaggio and colleagues (2004:380) state that capital-enhancing consequences of Internet usage are also indirect consequences of apparatus quality and skills. Van Dijk (2005:117) emphasizes that material resources "keep playing their role after a physical connection is acquired." Beyond this, "the power of Internet resources remains latent to those without the skills to use them" (Ryder and Wilson, 1996). Lacking sufficient know-how about how to find information online (Hargittai, 2002, 2003b) can also inhibit people's online actions.

Due to the lack of appropriate data sets containing sufficiently refined measures of people's Internet uses coupled with details about users' background, it has been difficult for the research agenda to move forward with many of the suggestions in the literature. Namely, concepts such as skill are rarely measured in big national data sets nor are certain descriptors available about people's topic-specific interests. Thanks to access to a unique data set that includes measures on several distinct items otherwise missing from much of the literature, we are able to test the independent effect of social status for inequalities in Internet use—beyond quality of the technological equipment, digital experiences, and topic-specific interests.

The Sociology of Technology and the Study of Differentiated Media Uses

Orlikowski (2000:410) demonstrated that people engaging with computer technology draw on interpretive schemes, norms of technology use, and the technological artifacts at hand in their usage. Employing Giddens's theory of structuration, Orlikowski coined the term *technology-in-practice*,

implying that users of technology constitute and reconstitute the structure of technology use: "Continued habitual use of a technology will tend to re-enact the same technology-in-practice, thus further reinforcing it over time so that it becomes taken for granted" (Orlikowski, 2000:410). Based on this approach, the author emphasizes the ongoing and situated nature of such activities (Orlikowski, 2000:413). She argues that technologies-in-practice lead to organizational and social effects.

Because the enactment of a technology-in-practice is situated in a number of nested and overlapping social systems, people's interaction with technology will always enact other social structures along with the technology-in-practice, for example, a hierarchical authority structure within a large bureaucracy, a cooperative culture within a participative workgroup, the normative structure of a religious or professional community, or the dominant status of English as the primary language of the Internet. (Orlikowski, 2000:411)

Similarly to Orlikowski (2000), Schulz-Schaeffer (1999) also looks at the relationship of technological artifacts and their uses by way of considering the interplay between *resource aspects* and *routine aspects* of technologies. For example, one has to know the following procedures to use a car as a resource of locomotion: start the car, shift into gear, accelerate, stop, and so forth (Schulz-Schaeffer, 1999:417). This means that routines are required to use technologies as resources. This point of view has consequences for the social implications of technology use, especially regarding questions of inequality. On the one hand, technology is generally characterized by regulated mechanisms, which renders it a device of relief to any user. Take, for example, the case of arithmetic calculators. As Schulz-Schaeffer (2004:62) points out, in a world where everyone only presses buttons, there are less opportunities to profit from a specific know-how needed for certain types of arithmetic operations. Namely, as the knowledge that is required for related calculations is incorporated into the device of the calculator, the tool provides easier access to information that was earlier restricted to those possessing certain formal skills. Regarding these general functions, the calculator might therefore be regarded as a tool of equalization (Schulz-Schaeffer, 1999:421). On the other hand, however, this argument only takes into account the *resource aspect* of technologies and is thus limited. Continuing the example above, while it may be easy to punch buttons on a calculator, one still requires specialized skills to interpret the resulting output correctly. Consequently, while as a resource technology might lead to more equalization, its usage will nonetheless depend on further dispositions (Schulz-Schaeffer, 2004:62). In sum, not only the technology, as such, but also patterns of usage should be regarded when explaining status inequalities with respect to a technology's diffusion across the population.

The idea of media-based inequalities for scholars of social stratification is not new. The knowledge-gap hypothesis put forth more than 30 years ago

focusing on different levels of newspaper reading suggested that people of higher status tend to profit more from their media usage (Tichenor, Donohue, and Olien, 1970). The starting point of the original knowledge-gap research was the popular assumption that mass media would lead to an increase of knowledge in the general public. Tichenor, Donohue, and Olien (1970) challenged this ideal, suggesting, rather, that knowledge inequalities would increase instead of decrease as a result of increasing availability of media information.

As the infusion of mass media information into a social system increases, segments of the population with higher socioeconomic status tend to acquire this information at a faster rate than the lower status segments, so that the gap in knowledge between these segments tends to increase rather than decrease. (Tichenor, Donohue, and Olien, 1970:159)

That is, rather than serving as an equalizing force, media diffusion could reinforce and potentially even increase inequalities by leading to higher-status individuals digesting additional information faster than those of lower socioeconomic backgrounds. Higher media competence, a higher knowledge level, relevant social connections, and more selective media use all result in an advantageous starting position for higher-status persons concerning the utilization of media information (Tichenor, Donohue, and Olien, 1970:162).

The above basic approach of knowledge gap theory focused—in the tradition of democratic theory—on politically relevant knowledge and interpreted the lack thereof as a disadvantage. A rival hypothesis by Ettema and Kline (1977) attempted to break with this premise. It suggested that it is not status, but motivation (e.g., topic-specific interest or degree of concern) that is the decisive factor for the development of knowledge gaps. Ettema and Kline (1977) treated social status and motivation as independent factors in the process of acquiring media information and reformulated the original knowledge-gap hypothesis as follows.

As the infusion of mass information into a social system increases, segments of the population motivated to acquire that information and/or for which the information is functional tend to acquire the information at a faster rate than *those not motivated or for which it is not functional*, so that the gap in knowledge between these segments tends to increase rather than decrease. (Ettema and Kline, 1977:188, emphasis added)

This refined approach suggests that a certain piece of information is not equally relevant to each stratum of the population. Thus, the reformulated knowledge-gap hypothesis of Ettema and Kline postulates that social status as an explanatory factor of media usage competes with topic-specific interests. Topic-specific interests as explanatory factors of Internet usage so far have been largely ignored in the literature.

In sum, research on communication media over the years has found that different social strata vary in their enactment of media uses, whether due to differences in resources or interests (Bonfadelli, 1988; Cook et al., 1975; Ettema and Kline, 1977; Lenz and Zillien, 2005; Tichenor, Donohue, and Olien, 1970). This idea has also gained prominence among digital divide researchers and it is precisely this premise upon which we base our study as well. In the next section, we review literature on digital inequality, with special focus on works that have addressed similar questions even while not being able to investigate them all empirically due to lack of data.

Digital Inequality: Social Status and Differentiated Internet Uses

The ideas behind the knowledge-gap hypothesis can be applied to researching differentiated uses of digital media and, indeed, several scholars have made this connection (Arnhold, 2003; Bonfadelli, 2002; Marr, 2005; Selwyn, 2004; van Dijk, 2005). Although emphasizing the theoretical potential of the knowledge-gap perspective for Internet research, Bonfadelli (2002) also states that there are differences between the emergence of knowledge gaps concerning older media and the Internet. He argues that in comparison to print media and television, Internet usage requires not only high enabling technologies but also a much more active and skilled user (Bonfadelli, 2002:72). DiMaggio et al. (2004) hold that the lesson of knowledge-gap research for analyzing the Internet is that access to Internet technologies is never enough to ensure productive use of it; rather, a look at the context of people's uses is also of central importance.

This latter assumption is supported by studies of digital divide research. There have been several studies devoted to analyzing differences in the usage of the Internet, thereby trying to explain the emergence of a spectrum of digital divides (Attewell, 2001; DiMaggio et al., 2004; Hargittai, 2002; Jäckel, 2001; Kim and Kim, 2001; Mossberger, Tolbert, and Stansbury, 2003; van Dijk, 2005; Wasserman and Richmond-Abbott, 2005). These papers tend to focus on variables that determine the usage of the Internet, and social status is assumed to be one of the most important predictors of inequalities in Internet usage (DiMaggio et al., 2004; Howard, Rainie, and Jones, 2001; Livingstone and Helsper, 2007; Mossberger, Tolbert, and Stansbury, 2003; van Dijk, 2005; Warschauer, 2003; Zillien, 2006). Thus, the knowledge-gap theory and digital divide research provide a theoretical basis that points to a relationship between social status and patterns of media use.

DiMaggio and colleagues (2004) addressed the question of whether access to the Internet leads to privileges.

Are people who have access to the Internet any better off—especially with respect to economic welfare (education, jobs, earnings) or social partici-

pation (political participation, community engagement, or receipt of government services and other public goods)—than they would be without the Internet? (DiMaggio et al., 2004:381)

In the opinion of DiMaggio et al. (2004), the presumption that the Internet facilitates access to education, job opportunities, better health, and political participation is a central requirement to determining whether the digital divide should be of concern to scholars of social stratification. That is, if we were to find no relationship between occupying a more privileged position in society and benefiting from Internet usage, then “there would be little to debate other than percentage point difference in access and usage over time for various groups” (Mason and Hacker, 2003:41).

As Internet technologies gain more and more importance as resources that make it easier to take part in economic (DiMaggio and Bonikowski, 2008) and political life (Mossberger, Tolbert, and McNeal, 2007), identifying who is more or less likely to engage with such content and services on the web will be increasingly important to understanding who is benefiting from online opportunities and who is being left behind. As “an increasing number of services relevant to daily life become easiest to access on the Web (e.g., financial services, product information, government forms), then the segment of the population with low digital-literacy levels will become increasingly disadvantaged in our digital world” (Hargittai, 2005:372). Since many of these activities are not about optional aspects of life, using the Internet for certain core essential tasks can no longer be seen as simply a luxury good (Hargittai, 2008). Thus, it is mainly in the domain of “capital-enhancing” user routines that we can speak of digital inequality as a phenomenon of social inequality, and therefore as a relevant object of investigation (DiMaggio and Hargittai, 2002; Hargittai and Hinnant, 2008).

Following the premise by DiMaggio et al. quoted above and the likes of Selwyn (2004:350), who states that the social impact of Internet technologies could be seen in “terms which reflect the extent to which technology use enables individuals to participate and be part of society,” we assume that Internet users of higher social status systematically use and benefit from Internet applications, while those of lower status use the Internet in less effective and less profitable ways. It is this proposition that we test here. To ascertain an independent effect of social status on what people do online, we have to examine its relationship to different types of Internet usage while controlling for factors such as technical equipment, digital experience, and topic-specific interests.

Data and Methods

We use data on Internet usage from the Allensbacher Computer and Technology Analysis 2004 (ACTA) administered by the Institut für

Demoskopie Allensbach. The ACTA is a representative quota-sample survey of the German population administered in person in respondents' homes ($N = 10,287$). Because the sponsors of the original project were interested in reaching an especially large higher-than-average consumer-oriented segment of the population, these are overrepresented in the sample. To adjust the data to the official statistics of Germany, the Institut für Demoskopie Allensbach constructed a weight factor (e.g., age, gender, East/West Germany, household size, income). Since our goal is to be representative of the German population as a whole, we use these weights in our analyses.

Variables About Users' Background Characteristics

We look at core demographic characteristics as well as measures of people's socioeconomic status. Age is measured in four-year increments and we include these values as a continuous variable in the analyses. Instead of relying simply on measures of income and education for socioeconomic background, this data set includes an innovative scale to offer a more comprehensive measure of this respondent characteristic.

The social status variable is based on four components: educational degree, income, occupational prestige, and a subjective rating by the interviewer based on respondent characteristics and lifestyle observed and scored during the in-person interview. This measure is not simply a sum of income and education as it includes a deeper and more nuanced assessment of status. Namely, information about status markers such as foreign language and mathematical competencies, geography knowledge, credit-card possession, and the ownership of various consumer goods is also included in the calculation of the social status index. The resulting score range is then broken down by ACTA into seven status categories consistent with how the Institut für Demoskopie Allensbach usually categorizes the different segments of the population. By basing our classification on the full sample administered by ACTA that also includes nonusers, we are not biasing social status toward the higher positions of those who make up the sample of Internet users (see Table 1).

Variables Related to Internet Use

In addition to nuanced measures of people's social status, the data set also contains far more detail than is usually available about people's online browsing habits and the context of their Internet usage. Similarly to the social status variable, our measures of both technological equipment and digital experience are also based on detailed indexes. To measure the quality of technological equipment available to respondents, we created an index based on four measures of people's technical Internet use context at home:

TABLE 1

Social Status, Age, and Gender of Internet Users and Nonusers (in Percent), ACTA 2004

	Internet User (N = 6,053)	Nonuser (N = 3,925)	Total (N = 10,287)
<i>Social Status</i>			
Lowest status group	3.9	16.6	9.2
Second lowest status group	5.1	15.2	9.3
Third lowest status group	13.1	23.5	17.4
Medium status group	22.5	20.4	21.6
Third highest status group	21.0	12.0	17.3
Second highest status group	18.5	7.7	14.1
Highest status group	15.9	4.5	11.1
<i>Age in Years</i>			
14–24	22.4	11.3	18.0
25–34	20.8	12.2	17.4
35–44	26.9	19.9	24.3
45–54	19.1	22.6	20.5
55–64	10.8	34.0	19.8
<i>Gender</i>			
Male	54.4	43.8	50.0
Female	45.6	56.2	50.0

(1) quality of their computer equipment; (2) the age of their computer; (3) connectivity speed; (4) and Internet pricing. Those who have no Internet access at home at all receive a zero on this measure. Others receive the sum of their scores on the four factors. This variable is included as a continuous measure in the analyses. To measure digital experience, we use an additive index—included in the models as an interval-level variable—made up of four factors consistent with the literature on digital inequality (DiMaggio et al., 2003; Hargittai, 2008; Kubicek and Welling, 2000; Mossberger, Tolbert, and Stansbury, 2003; van Dijk, 2005; Warschauer, 2003): hardware-related technical proficiency, self-reported Internet-related knowledge, time spent online, and level of computer interest perceived among the people in one’s social surroundings.

The first factor, hardware-related technical proficiency, is explained by Mossberger, Tolbert, and Stansbury (2003:38) as “the skills needed to operate hardware and software, such as typing, using a mouse, and giving instructions to the computer to sort records a certain way.” Warschauer (2003:111) speaks in this context of the “basic forms of computer operation, such as turning on a computer, opening a folder, and saving a file.” Hardware-related technical proficiency in our study is measured by a self-report

of computer technical competency and the number of different computer applications a respondent is able to use.

Above these “operational digital skills” (van Dijk, 2005:76) one needs the “skills used to search, select, and process information in computer and network sources” (van Dijk, 2005:81), which we define as Internet-related knowledge. Warschauer (2003:113) speaks of “information literacy” and defines it as “the skills and understandings involved in using ICT to locate, evaluate, and use information.” Above that, Mossberger, Tolbert, and Stansbury (2003:38) say that “[i]nformation literacy is the ability to recognize when information can solve a problem or fill a need and to effectively employ information resources.” In our index, the factor “Internet-related knowledge” consists of the perceived difficulty of searching for information online, the diversity of Internet usage, general interest in computers and the Internet, and the perceived importance of Internet information in everyday life.

Hardware-related technical competency and Internet-related knowledge are hardly learned in computer courses alone. Van Dijk states that “the do-it-yourself approach is a much more important source of learning” (2005:90) and explains why time spent online is an important predictor of Internet competency. Mossberger, Tolbert, and Stansbury (2003:121) put this more pointedly: “those without skills have little need to use computers, and those without frequent availability have little chance to develop the skills that they need through trial and error and practice.” Consequently, we include information about years of use as well as frequency of use in our measure of digital experience.

Besides practice, the level of computer interest reported among the people in one’s social surroundings affects how versed someone is in using information technologies (Hargittai, 2003b). Friends, relatives, or colleagues can lend support as well as serve as a kind of role model. The factor “computer-interested setting”—the fourth component of our index of digital experience—indicates whether one has knowledgeable peers in one’s social surrounding and if friends or relatives are an information source for technical innovations.

To learn about people’s online activities, respondents were asked in what types of activities they engage online and with what frequency (the four options were “often,” “sometimes,” “not often,” and “never”), which we include as an ordinal-level measure in our analyses. Here, we analyze data about visiting websites concerning political news, economic news, travel information, stock prices, product information and price comparison, computer news, health information, and sports news. We also have measures for frequency of email use, chat use, and search engine use.

As noted in our theoretical section, interest in a particular topic can be expected to relate to what people do online. To be able to control for such motivation in seeking out certain types of material, we are fortunate to have data on people’s basic interests regarding various topic areas concerning

types of websites (but not communication with others and search engine use). To control for motivation in the logistic regression model we use a binary measure for having an interest in a topic (1 = “I am very/moderately interested in . . .”; 0 = “I am not at all interested in politics, the economy, sports, etc.”).

Methods of Analysis

To examine whether there is a relationship between socioeconomic status and usage of the Internet for specific purposes, we focus on the relationship of these two measures. First, we look at general tendencies regarding the correlation between social status and activities that people pursue online by calculating gamma correlation coefficients between the two. Second, we control for additional factors that may be related to types of Internet use by using logistic regression analyses. In the latter case, we create dummy variables for whether people engage in certain activities on the web and use these as the outcome measures.

Sample Descriptives

Table 1 contains descriptive statistics about the social status, age, and gender of the Internet users in comparison to the nonusers in the sample. Just over half (55.4 percent) of the Internet users occupy the three highest status groups, 22.5 percent are in the middle group, while about a fifth are in the three lowest ones. Nonusers' social status is generally lower: one-fourth (24.2 percent) of them are in the three highest status groups, one-fifth (20.4 percent) are in the middle group, while more than half (55.3 percent) are in the three lowest status categories.

The survey includes people ranging in age from 14 to 64 years old. The sample of Internet users ($N = 6,053$)—the people in the data set of interest to us—skews toward younger generations, with 22.4 percent in the 14–24 range, about one-fifth in the 25–34 range, just over a quarter (26.9 percent) ranging from 35 to 44 years old, and less than 30 percent the age of 45 or older. The average age of respondents is 37 ($SD = 13.1$). In comparison, the average nonuser is older, with a mean age of 46 ($SD = 14.1$). All in all, we have close to equal representation of men and women, with slightly more male respondents (54.4 percent) in the sample of Internet users, and slightly more female respondents among nonusers (56.2 percent).

Looking at Internet users' technological equipment and digital experiences, we find considerable variance in the data set. Regarding the index “technological equipment” (range = 0–9), the mean score of an Internet user amounts to 4.25 ($SD = 2.5$); regarding the index “digital experience” (range 0–11), the average user's score is 6.9 ($SD = 1.97$).

Findings

Table 2 reports what percentage of the sample engages in various types of online activities for the full sample (last column) and by social status, in decreasing order of popularity. The most popular activities in general are email communication, using search engines, and looking up travel information. Next in line on the agenda of respondents are uses of the Internet for looking up product information, reading political news, and consulting computer news online. Nearly half of users report reading economic news on the web, close to half (44.5 percent) read sports news, and about 40 percent use the Internet for health-information seeking as well as chatting. Considerably lower in popularity is looking up stock prices, an activity done by just over a quarter of the sample (26.9 percent).

Table 2 also shows that there are remarkable status differences regarding different types of Internet usage. For example, while almost 60 percent of the sample as a whole reported looking at political news online, this activity is much less common among members of the lowest social status group (40.4 percent) than among those in the highest social status group (73.7 percent).

Table 3 reports gamma correlation coefficients showing whether social status is related to the frequency of each online activity at a statistically significant level. All the coefficients in Table 3 are statistically significant, suggesting that every type of activity we look at is related to people's socioeconomic background. This finding is itself interesting and confirms

TABLE 2

Incidence (Often, Sometimes, Not Often) of Different Types of Internet Usage for the Full Sample and by Social Status (in Percent), ACTA 2004

Type of Internet Usage	Social Status Category (1 = Lowest, 7 = Highest)							Full Sample
	1	2	3	4	5	6	7	
Email	79.6	86.8	86.5	89.1	91.9	93.3	94.2	90.4
Search engine (Google)	82.1	82.0	81.4	83.3	88.9	89.1	89.6	86.2
Travel information	43.0	59.5	65.0	69.9	74.6	77.9	85.3	72.6
Product info./price comparison	54.9	59.8	60.9	64.4	67.2	67.1	71.2	65.5
Political news	40.4	46.9	48.2	55.2	62.9	66.0	73.7	59.8
Computer news	46.2	48.2	46.2	49.2	52.0	51.8	55.8	50.7
Economic news	30.3	32.8	37.7	43.1	49.8	55.0	64.5	48.4
Sports news	45.5	46.5	39.4	43.4	42.0	47.4	49.5	44.5
Health information	28.5	37.6	35.1	40.3	42.3	38.4	45.1	39.9
Chat	50.2	49.5	40.1	42.9	40.7	34.5	31.7	39.4
Stock prices	7.2	12.2	16.9	22.7	26.8	32.6	44.4	26.9

NOTES: $N = 6,053$ (Internet users).

TABLE 3

Correlation Coefficient of Frequency of Different Types of Internet Usage and Social Status, ACTA 2004

Type of Internet Usage	Gamma
Stock prices	0.312***
Economic news	0.245***
Email	0.227***
Political news	0.219***
Travel information	0.205***
Search engine (Google)	0.146***
Product information/price comparison	0.098***
Computer news	0.070***
Health information	0.062***
Sports news	0.056***
Chat	-0.130***

NOTES: $N = 6,053$ (Internet users). * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

concerns about digital inequality whereby those in more privileged positions may be doing more online. However, basic correlation measures only tell us so much about the underlying reasons for these relationships. To decipher what exactly may be causing the association of social status and Internet activity, we turn to logistic regression analyses, where we are able to include more factors about people’s background characteristics and Internet user context.

Table 4 shows the results of logistic regression analyses predicting various types of online activities (1 = incidence, 0 = no incidence of the specific type of Internet usage). Here, in addition to looking at people’s social status, the logistic regression models include information about age and gender, quality of technical equipment, and digital experience. Moreover, we control for interest in the particular topic under examination. Thus, for example, in the case of looking at political news online, we consider whether a user’s social status still exhibits a significant relationship to this activity even if differences in age, gender, quality of equipment, digital experience, and political interest are all taken into consideration. We find that at each level of status, the odds of using the Internet for political information increase even when we control for the other factors. Overall, we find that many of the relationships present in the correlation statistics hold after introducing the controls. That is, even when accounting for background characteristics, the context of people’s use, and interest in the topic, socioeconomic status continues to exhibit an independent relationship with several online activities that can be deemed capital enhancing.

Similarly to the domain of political news, we find a positive relationship between a user’s social status and propensity to look up information about

TABLE 4
Logistic Regression Predicting Different Types of Internet Usage ACTA 2004

	Stock Prices	Information on Traveling	Political News	Economic News	Email	Search Engine (Google)	Chat	Computer News	Product Information	Sports News	Health Information
Social status	1.218*** (0.024)	1.183*** (0.020)	1.124*** (0.019)	1.140*** (0.019)	1.119*** (0.029)	1.079*** (0.025)	0.844*** (0.019)	0.949*** (0.020)	0.999 (0.019)	0.988 (0.019)	0.987 (0.018)
Gender	0.586*** (0.073)	1.367*** (0.066)	0.703*** (0.059)	0.696*** (0.059)	1.355*** (0.095)	1.285*** (0.080)	0.943 (0.060)	0.408*** (0.061)	0.737*** (0.060)	0.316*** (0.060)	1.982*** (0.058)
Age	1.084*** (0.014)	1.172*** (0.013)	1.029** (0.012)	1.013 (0.012)	0.991 (0.018)	0.938*** (0.015)	0.754*** (0.012)	0.970** (0.012)	1.047*** (0.012)	0.982 (0.011)	1.140*** (0.011)
Technical equipment	1.039** (0.016)	1.065*** (0.014)	1.068*** (0.013)	1.067*** (0.013)	1.121*** (0.022)	1.122*** (0.018)	1.127*** (0.013)	1.132*** (0.014)	1.050*** (0.013)	1.067*** (0.013)	1.056*** (0.012)
Digital experience	1.277*** (0.021)	1.266*** (0.018)	1.421*** (0.018)	1.315*** (0.018)	1.647*** (0.028)	1.377*** (0.023)	1.265*** (0.018)	1.616*** (0.020)	1.405*** (0.018)	1.228*** (0.018)	1.229*** (0.017)
Topic interest	8.864*** (0.073)	4.331*** (0.089)	2.942*** (0.069)	4.733*** (0.071)	—	—	—	3.433*** (0.124)	2.685*** (0.068)	5.680*** (0.079)	3.400*** (0.122)
Constant	0.001*** (0.262)	0.004*** (0.252)	.014*** (0.210)	0.006*** (0.216)	0.122*** (0.264)	0.359*** (0.224)	0.685*** (0.175)	0.012*** (0.301)	0.036*** (0.205)	0.040*** (0.233)	0.002*** (0.293)
Nagelk. R^2	0.386	0.206	0.256	0.282	0.200	0.131	0.241	0.366	0.194	0.290	0.130

NOTES: Odds of a binary logistic regression; standard errors in parentheses; $N = 6,053$ (Internet users); * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Statistically significant coefficients at a confidence interval greater than 90 percent are in bold. As mentioned, email communication, using a search engine, and chatting are not topic related; therefore, in these cases no corresponding variable was included in these logistic regression models.

stock prices, information on travelling, economic news, the usage of email, and use of the search engine Google. This means that concerning these forms of Internet usage, there is a positive status effect on online activity; high-status persons use the Internet to a greater extent for these activities. In contrast, even when we control for technological access, digital experience, and topic-specific interests, lower-status Internet users tend to use chat rooms to a greater extent than their higher-status counterparts.

To be sure, controlling for topical interest proves to be important across the board. As the figures in the last row of Table 4 make evident, having an interest in a topic is a strong predictor of seeking related material on the web. However, it is only in one domain of Internet use where we see a change in the relationship to social status when we introduce the controls in the logistic regression models. After controlling for age, gender, technological access, digital experience, and topic-specific interests, the influence of social status on reading about computer news online is reversed. In only three cases does the significant influence of social status cease to exist after introduction of the controls. In the case of Internet usage for product information, for sports news, and for health information, we no longer observe a significant relationship with social status when we introduce the controls. For all other activities, status differences remain significant even after accounting for several factors that existing research tells us would be the reasons behind the relationship of specific Internet activities and people's socioeconomic status.

Conclusion

Overall, we find that a user's social status is significantly related to various types of capital-enhancing uses of the Internet, suggesting that those already in more privileged positions are reaping the benefits of their time spent online more than users from lower socioeconomic backgrounds. Earlier we suggested that findings about how previous technologies have been adopted by users are relevant to the study of the Internet because its social implications, like those of other technologies before it, are influenced by the context in which it spreads to the population. Writing about the diffusion of contraceptives in developing countries, Rogers put forward the idea of the "innovativeness-needs paradox" (1995:295).

[The] paradoxical relationship between innovativeness and the need for benefits of an innovation tends to result in a wider socioeconomic gap between the higher and lower socioeconomic individuals in a social system. Thus, one consequence of many technological innovations is to widen socioeconomic gaps in a social system.

Similar to contraceptives and many other technologies, people's incorporation of digital media into their everyday lives does not happen inde-

pendent of the constraints and advantages of their existing surroundings; rather, the Internet is just one component of people's lives in which numerous social factors interact with each other. Not surprisingly, then, those with more resources—whether technical, financial, social, or cultural—end up using the web for more beneficial purposes than those who have considerably fewer assets on which to draw.

This notion is consistent with the so-called Matthew effect (Merton, 1973) whereby the rich get richer with respect to the use of digital media. The basic idea here is that the particular uses to which those in more privileged positions put the Internet give them even more resources through which they can improve their societal positions. Concurrently, there is a relatively weak relationship between lower-status background and potentially beneficial uses of the Internet, suggesting less positive payoffs for people from less privileged backgrounds. Our findings suggest that Internet users' position on the social ladder has a significant influence on the uses toward which they put the medium, even after controlling for the quality of their technical equipment, their digital experience, and topic-specific interests related to the various activities. In particular, high-status individuals carry out information-oriented activities and transactions online to a significantly greater extent than their lower-status counterparts: high-status Internet users' odds of benefiting from political and economic news online, travel information, stock prices, product information and price comparison, email, and search engines are significantly higher than those of lower-status ones. Only chat rooms and—to a slight degree—computer news online are Internet services that lower-status people tend to use to a greater extent than high-status ones. All in all, beyond differences regarding the quality of technical equipment, digital experiences, and topic-specific interests, low-status and high-status users vary in their online behavior and engage in different forms of "Internet-in-practice."

Overall what this tells us about the broader discussion surrounding the digital divide is that digital inequalities are not only a temporary social phenomenon that will disappear once high-quality equipment and comfort with the Internet become more widespread. Even if status inequalities concerning technical equipment and digital experience were to decline, status-based differences in Internet usage would likely persist.

Decades ago, research on the knowledge gap suggested that "[t]he unintended consequence of explaining gaps due to a lack of motivation shifts the focus from social structure to individuals, perhaps unintentionally engaging in 'victim blaming'" (Viswanath and Finnegan, 1996:209). Similarly, we find that differences in Internet use cannot be attributed simply to individual variation in motivation, interest, or will; rather, just like with research on the knowledge gap, scholars of digital inequality must take into account that forms of Internet use are determined by age, gender, the quality of the technical access, digital experience, topic-specific interest, *and* something status related that we—following Bourdieu (1984)—can perhaps call

habitus. Future work will need to delve even further into the nuances of what components of people's socioeconomic status yield independent effects for inequalities in Internet use. What we have been able to show is that the causes of status-based digital inequalities are deeper and more difficult to overcome than many suggest.

REFERENCES

- Arnhold, Katja. 2003. *Digital Divide. Zugangs- oder Wissenskluffi?* München: Verlag Reinhard Fischer.
- Attewell, Paul. 2001. "The First and Second Digital Divides." *Sociology of Education* 74:252–59.
- Barzilai-Nahon, Karine. 2006. "Gaps and Bits: Conceptualizing Measurements for Digital Divide/s." *Information Society* 22:269–78.
- Bimber, Bruce. 2000. "The Gender Gap on the Internet." *Social Science Quarterly* 81:868–76.
- Bonfadelli, Heinz. 1988. "Wissensklassen durch Massenmedien? Entwicklung, Ergebnisse und Tragweite der Wissenskluffiforschung." Pp. 141–89 in Werner D. Fröhlich, Rolf Zitzlsperger, and Bodo Franzmann, eds., *Die verstellte Welt. Beiträge zur Medienökologie*. Frankfurt am Main.
- . 2002. "The Internet and Knowledge Gaps. A Theoretical and Empirical Investigation." *European Journal of Communication* 17:65–84.
- Bourdieu, Pierre. 1984. *Distinction: A Social Critique of the Judgement of Taste*. Cambridge: Harvard University Press.
- Bucy, Eric P. 2000. "Social Access to the Internet." *Harvard International Journal of Press/Politics* 5:50–61.
- Cook, Thomas D., Hilary Appleton, Ross F. Conner, Ann Shaffer, Gary Tamkin, and Stephen J. Weber. 1975. *"Sesame Street" Revisited*. New York: Russel Sage Foundation.
- DiMaggio, Paul, and Bart Bonikowski. 2008. "Make Money Surfing the Web? The Impact of Internet Use on the Earnings of U.S. Workers." *American Sociological Review* 73: 227–50.
- DiMaggio, Paul, and Eszter Hargittai. 2002. "The New Digital Inequality: Social Stratification Among Internet Users." Presented at the American Sociological Association Annual Meetings. Chicago, IL.
- DiMaggio, Paul, Eszter Hargittai, Coral Celeste, and Stephen Shafer. 2004. "Digital Inequality: From Unequal Access to Differentiated Use." Pp. 355–400 in Kathryn Neckerman, ed., *Social Inequality*. New York: Russell Sage Foundation.
- Ettema, James S., and F. Gerald Kline. 1977. "Deficits, Differences, and Ceilings: Contingent Conditions for Understanding the Knowledge Gap." *Communication Research* 4:179–202.
- Hargittai, Eszter. 2002. "Second-Level Digital Divide: Differences in People's Online Skills." *First Monday* 7.
- . 2003a. "The Digital Divide and What to Do About It." In Derek C. Jones, ed., *The New Economy Handbook*. San Diego, CA: Academic Press.

- . 2003b. "Informed Web Surfing: The Social Context of User Sophistication." In P. E. N. Howard and S. Jones, eds., *Society Online*. Thousand Oaks, CA: Sage Publications.
- . 2004. "Internet Access and Use in Context." *New Media & Society* 6(1):137–43.
- . 2005. "Survey Measures of Web-Oriented Digital Literacy." *Social Science Computer Review* 23(3):371–79.
- . 2008. "The Digital Reproduction of Inequality." In David Grusky, ed., *Social Stratification*. Boulder, CO: Westview Press.
- Hargittai, Eszter, and Amanda Hinnant. 2008. "Digital Inequality: Differences in Young Adults' Use of the Internet." *Communication Research* 35(5):602–21.
- Howard, Philip N., Lee Rainie, and Steve Jones. 2001. "Days and Nights on the Internet: The Impact of a Diffusing Technology." *American Behavioral Scientist* 45: 383–404.
- Jäckel, Michael. 2001. "Inclusion, Exclusion and the Diversity of Interest: Is 'Digital Divide' an Adequate Perspective?" Presented at the IAMCR and ICA Symposium on the Digital Divide. Austin, TX.
- Kim, Mun-Cho, and Jong-Kil Kim. 2001. "Digital Divide: Conceptual Discussions and Prospect." In Won Kim, Tok-Wang Ling, Yoon-Joon Lee, and Seung-Soo Park, eds., *The Human Society and the Internet Berlin*. New York: Springer.
- Korupp, Sylvia E., and Marc Szydlík. 2005. "Causes and Trends of the Digital Divide." *European Sociological Review* 21(4):409–22.
- Kubicek, Herbert, and Stefan Welling. 2000. "Vor einer digitalen Spaltung in Deutschland? Annäherung an ein verdecktes Problem von wirtschafts- und gesellschaftspolitischer Brisanz." *Medien- & Kommunikationswissenschaft* 48(4):497–517.
- Lenz, Thomas, and Nicole Zillien. 2005. "Medien und soziale Ungleichheit." Pp. 237–52 in Michael Jäckel, ed., *Mediensoziologie. Grundfragen und Forschungsfelder*. Wiesbaden.
- Livingstone, Sonia, and Ellen Helsper. 2007. "Gradations in Digital Inclusion: Children, Young People, and the Digital Divide." *New Media and Society* 9:671–96.
- Marr, Mirko. 2005. *Internetzugang und politische Informiertheit. Zur digitalen Spaltung der Gesellschaft*. Konstanz.
- Mason, Shana M., and Kenneth L. Hacker. 2003. "Applying Communication Theory to Digital Divide Research." *IT&Society* 1:40–55.
- Merton, Robert King. 1973. *The Sociology of Science: Theoretical and Empirical Investigations*. Chicago, IL: University of Chicago Press.
- Mossberger, Karen, Caroline J. Tolbert, and Ramona S. McNeal. 2007. *Digital Citizenship: The Internet, Society, and Participation*. Cambridge: MIT Press.
- Mossberger, Karen, Caroline J. Tolbert, and Mary Stansbury. 2003. *Virtual Inequality: Beyond the Digital Divide*. Washington, DC: Georgetown University Press.
- National Telecommunications and Information Administration. 1998. *Falling Through the Net II: New Data on the Digital Divide*. Washington, DC: NTIA.
- . 1999. *Falling Through the Net: Defining the Digital Divide*. Washington, DC: NTIA.
- . 2000. *Falling Through the Net: Toward Digital Inclusion*. Washington, DC: NTIA.

- . 2004. *A Nation Online: Entering the Broadband Age*. Washington, DC: NTIA.
- Norris, Pippa. 2001. *Digital Divide: Civic Engagement, Information Poverty and the Internet in Democratic Societies*. New York: Cambridge University Press.
- Ono, Hiroshi. 2006. "Digital Inequality in East Asia: Evidence from Japan, South Korea and Singapore." *Asian Economic Papers* 4:116–39.
- Ono, Hiroshi, and Madeline Zavodny. 2007. "Digital Inequality: A Five Country Comparison Using Microdata." *Social Science Research* 36(3):1135–55.
- Orlikowski, Wanda. 2000. "Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations." *Organization Science* 11:404–28.
- Rogers, Everett M. 1995. *Diffusion of Innovations*. New York: Free Press.
- Ryder, Martin, and Brent G. Wilson. 1996. "Affordances and Constraints of the Internet for Learning and Instruction." Presented to the Association for Educational Communications Technology. Indianapolis, IN.
- Schulz-Schaeffer, Ingo. 1999. "Technik und die Dualität von Ressourcen und Routinen. Zur sozialen Bedeutung gegenständlicher Technik." *Zeitschrift für Soziologie* 6:409–28.
- . 2004. "Technik als altes Haus und geschichtsloses Appartement." Pp. 47–65 in Jörg Ebrecht and Frank Hillebrandt, eds., *Bourdieu's Theorie der Praxis. Erklärungskraft - Anwendung - Perspektiven. 2. durchgesehene Auflage*. Wiesbaden.
- Selwyn, Neil. 2004. "Reconsidering Political and Popular Understandings of the Digital Divide." *New Media and Society* 6(3):341–62.
- Tichenor, Phillip J., George A. Donohue, and Clarice N. Olien. 1970. "Mass Media Flow and Differential Growth in Knowledge." *Public Opinion Quarterly* 34:159–70.
- van Dijk, Jan A. G. M. 2005. *The Deepening Divide*. London: Sage Publications.
- Viswanath, Kasisomayajula, and John R. Finnegan Jr. 1996. "The Knowledge Gap Hypothesis: Twenty-Five Years Later." *Communication Yearbook* 19:187–227.
- Warschauer, Mark. 2003. *Technology and Social Inclusion*. Cambridge, MA: MIT Press.
- Wasserman, Ira M., and Marie Richmond-Abbott. 2005. "Gender and the Internet: Causes of Variation in Access, Level, and Scope of Use." *Social Science Quarterly* 86:252–70.
- Zillien, Nicole. 2006. *Digitale Ungleichheit. Neue Technologien und alte Ungleichheiten in der Informations- und Wissensgesellschaft*. Wiesbaden: VS Verlag für Sozialwissenschaften.