INFORMATION DISSEMINATION IN A DEVELOPING SOCIETY: INTERNET CAFÉ USERS IN INDONESIA

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ABSTRACT

The article analyses the market for Internet cafés in Indonesia and thereby studies the spread of information through the Internet in a developing society. The city of Yogyakarta was selected as the research site, due to its abundance of Internet cafés and customers. The empirical research is based on a survey comprising 270 users. Customers are typically young and educated. Males represent the majority of users but unmarried females are also regulars. User frequency is statistically associated with individual capability, electronic media exposure and financial capacity. Ten percent of customers’ total monthly expenditures are on Internet cafés. Users represent a multitude of cyber cultures, and more research is needed to assess different preferences and motives for use.

Keywords
Internet diffusion, user acceptance, user frequency, information asymmetry

1. INTRODUCTION

Short-term access to the Internet from public terminals is increasingly common worldwide. In rich countries such access points can be found in malls and airports, while privately owned Internet cafés represent major access points for people in economically poor countries. In Indonesia, two thirds of Internet users gain access through Internet cafés (Kristiansen, Furuholt and Wahid, 2003).

Huge differences exist in the accessibility to the Internet among countries and regions, reflecting a global digital divide and ‘information poverty’ in parts of the world. Also within developing countries, we see clear tendencies to increased concentration of information flows to urban and central areas (Wong, 2002; Mwesige, 2004). Economically disadvantaged countries and rural and peripheral districts within these nations tend to fall further behind in

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human resource development as well as in economic progress and political participation. Also in Indonesia, which is in the focus of our study, we see that Internet use and Internet cafés spread mainly in the larger cities on the centrally located island of Java. The spread to smaller towns and villages has been slow, partly due to a lack of awareness and demand among rural people, and partly because of weak or missing infrastructure. There is accordingly a need to facilitate the spread of information technology and related Internet access especially to the ‘outer islands’ and lagging areas of the country.

Ideally, Internet cafés in developing countries represent reasonably priced access points to sources of information for personal development, business start-up and growth, or political participation and the progress of civil society. Information has become one of the primary inputs in economic processes, and information and information and communication technologies (ICT) gradually become more crucial for the ability of enterprises, communities and individuals to participate successfully in the global economy (Hollifield and Donnermeyer, 2003). Accessibility to information and public access to the Internet also represent means to increased transparency and to the potential development of e-government in poor countries. Both are important elements in fighting corruption and the moral hazard related to information asymmetry (Transparency International, 2003; Bappenas, 1999).

Indonesia, the fourth most populous and largest Muslim country in the world with 220 million people, still suffers from the severe Asian economic crisis in 1997, and the country is at a critical stage in the process of democracy building. More than 40 million people are unemployed and there is an abundance of entrepreneurs searching for income and business opportunities. Disparities are huge between rich and poor and between ‘inner’ and ‘outer’ parts of the country. There is a concentration of economic activities and political power in the island of Java. Information asymmetry follows disparity and entry barriers into business as well as politics are persistently higher among the poor and peripherally located. The rapidly increasing numbers of Internet users represent a potential step in the direction of more equitable access to information.

In this article, we raise the simple question: Who are the users of Internet cafés in Indonesia? We try to find out what constitute the main market segments for Internet café businesses and what can be done to enhance business opportunities for Internet café entrepreneurs in more peripheral parts of the country. Previous research on Internet cafés in Indonesia has concluded that they are mostly owned by small-scale entrepreneurs and that reaching a market threshold is a major precondition for their further spread (Wahid, Furuholt and Kristiansen, 2004). Demand for Internet café services probably depends on people’s awareness and interest and on the quality and relevance of services offered.

Main objectives of this paper are to identify the user groups of Internet cafés in Indonesia today and to trace their main motives and gains from using their time and money at these venues. We thereby aim for presenting policy advice for the start-up of Internet cafés in more peripheral and information-poor areas of a developing country. A relatively progressive research site has been selected for a survey among Internet café customers. Yogyakarta is a university-city in the central areas of Java, where Internet cafés are in abundance.

The article is organised as follows. After this introduction, we present an overview of the spread of the Internet and Internet cafés in Indonesia. That section is followed by a description of Internet cafés in the city of Yogyakarta, Java. Thereafter, we present a theoretical discussion of Internet user acceptance before the methodology and data collection in section five. The research model and hypotheses are presented in section six, and empirical analyses are displayed in section seven. The conclusions bring the article to a close in section eight.
2. The Spread of the Internet and Internet Cafés in Indonesia

The recent development of Internet and Internet cafés in Indonesia is previously described by Kristiansen, Furuholt and Wahid (2003) and Wahid, Furuholt and Kristiansen (2004). Valuable information on the topic is also given by Fahmi (2002) and Purbo (2002).

The number of Internet hosts per 1,000 people stand at 0.11 in Indonesia, compared to 13.45 in neighbouring Singapore (Wong, 2002) and 417 in the US (Roycroft and Anantho, 2003). The estimated annual expenditure per capita on services related to information and communication technology (ICT) is 9 USD in Indonesia and 2,348 USD in Singapore. In spite of the relatively modest ICT expenditures and the low number of Internet hosts, use of the Internet spreads fast also in Indonesia. Using Internet service providers (ISPs) as a measure of Internet infrastructure development, we find that the number of licenses increased from one in 1994 to 180 by the end of 2002 (Purbo, 2002, APJII, 2003). According to APJII (2003), the number of Internet subscribers increased from 134,000 in 1998 to 667,000 at the end of 2002. Interestingly, from 2001 to 2002 the number of home subscribers decreased and was compensated by an increasing number of corporate subscribers (from 10,539 in 2001 to 39,589 in 2002). The number of Internet users increased by more than 1400% during five years, from 512,000 in 1998 to 8 million in 2003. APJII (2004) predicted that the number would reach 12 million by the end of 2004. Considering a population of 220 million, the density of Internet users is still low, slightly more than 3.5%, which is slightly more than the density of phone lines (3%) (Directorate General of Post and Telecommunications, 2001).

The widespread public use of the Internet explains the faster growth of Internet users as compared to subscribers, and two thirds of Internet users in Indonesia today gain their access through Internet cafés.

Expansion of Internet access in developing countries is generally facilitated by arrangements for public use (Mwesige, 2004). Privately owned Internet cafés increasingly represent opportunities for ordinary people in economically poor areas to access the Internet. In such venues, computers are made available at various rates and connection speed, whereby regular or occasional customers can search information and make electronic connections with others via e-mail and chatting. Internet café employees normally provide valuable guidance in Internet use and information access to inexperienced users. The fact that mainly operational costs are incurred in the payment for Internet use represents a huge advantage in economically poor contexts. Fixed costs from the purchase of equipment and leased lines are left with the business owners and only charged to the users according to the time spent online.

Internet cafés in Indonesia are still mostly found in the larger cities, around universities and at tourist sites. The spread to smaller towns and villages has been slow. This is probably partly due to a lack of committed business entrepreneurs, and partly an impact of limited awareness and demand among potential rural customers. Another reason may be the telecommunication infrastructure, which does not always allow for the supply of Internet services at prices affordable at low-income levels and yet high enough to yield a profit to potential private investors. Solar and satellite technology development is in progress, however, potentially supplying Internet access through kiosks or cafés also in remote areas of poor countries (James, 2003, The Economist, 2002).

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2 Internet host is computer connected to the Internet that provides services such as Web pages, e-mail boxes, or data routing.
3 ISP (Internet Service Provider) is a company that provides access to the Internet, as well as other services such as e-mail account.
4 An Internet subscriber is someone who subscribes to Internet access from an ISP. An Internet user is an individual who uses the Internet and he/she is not necessarily a subscriber.

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The development of Internet cafés in Indonesia, known as warnet (warung internet), showed a remarkable growth around year 2000. According to Basuni et al. (2001), approximately 1 500 Internet cafés were in operation in the country in 2001. In 2002, Purbo (2002) found that the number was 2 000. A combined list of Internet cafés from several sources in our study supports this number. The cafés are highly concentrated and the vast majority are found in the larger cities such as Jakarta, Surabaya, Bandung, Semarang and Yogyakarta on the densely populated island of Java. Other major agglomerations of Internet cafés include the industrial city of Medan in Sumatra, west of Java, and the tourist sites of Bali and Lombok, located east of Java. According to Fahmi (2002:157), there is no other ‘efficient way to integrate the many islands of Indonesia except by the use of ICT’, and increased connectivity to the Internet through publicly accessible kiosks or Internet cafés represents a major means to narrow the digital divide. The present distribution of Internet cafés is illustrated in figure 1.

3. INTERNET CAFÉS IN THE CITY OF YOGYAKARTA

The city of Yogyakarta is selected as our research site. The city has a population of 500,000 and more than 100 institutions of higher learning. Yogyakarta province, with a population of 3.5 million, serves as a centre of higher education for the whole country. In line with the increasing demand for Internet access recently, not least among students, Internet cafés have been mushrooming in Yogyakarta, with the highest rate of business entrants in year 2000. The business is generally characterized by relatively low capital entry barriers, due to the possibilities to adjust the technological composition and the scale of operation. Second-hand equipment is often applied, and only a hand-full of computers is sufficient to make a start. Students represent a major market segment and many Internet cafés are found in the neighbourhood of universities and other institutions of higher learning. Necessary infrastructure for reasonably priced and high-quality Internet access is generally available in the city. Prices paid by the customers per hour are relatively low, around 2 500 – 3 000 rupiah (USD 0.29 - 0.35).

In the year 2000, more than 200 Internet cafés were established in the city. At the time of our empirical study, in November 2003, the number had been reduced to 150. In addition to these, however, there are an increasing number of Internet-based game centres established...
in the city, which are excluded from our survey. In a short time, the game centres have become favourite amusement venues for young people keen on spending time and money playing online games. This activity has also been adopted by some of the existing Internet cafés as an additional service to attract and keep the younger customers. Also a number of larger-scaled Internet cafés owned by the universities are excluded from our study because their ownership, pricing and market structure is untypical for the country’s Internet cafés.

There are two main reasons for the reduced number of privately owned Internet cafés in Yogyakarta over the last few years. One is the increased competition, whereby unfavourable and badly-managed venues were forced to close down. The second reason is a contraction in the tourist market, not least following the Bali bombing in October 2002 and repeated travel warnings due to suspicions of terror attacks and violence, especially against American and Australian visitors. Especially in the Sosrowijayan and Prawirotaman areas, two major tourist centres in the central and southern parts of Yogyakarta, a number of Internet cafés have been closed down recently.

Internet cafés in Yogyakarta, as elsewhere in Indonesia, are typically found in simple premises, where costs apparently are kept at a minimum and the service is limited to cyber activities. At an average, the number of computers operated by an Internet café in the city is 17, and the number of customers served in a typical day is 90. The cafés typically have one or two staff serving their customers, mostly by assigning a computer for use and collecting the money after connection is finished. Areas for socialising are minimal, and more typical café services are normally limited to a fridge where customers can find themselves a soft drink.

4. LITERATURE REVIEW

According to Lee (1999:333), ‘empirical study of Internet users remains underutilized as an area of academic research’. Even less research is conducted on users of Internet cafés, and very few reports are from developing countries. Mwesige (2004:83) notes that ‘the worldwide boom of Internet cafés has not seen corresponding inquiry into this form of public access to the Internet’.

Numerous studies are conducted, however, on the adoption of the Internet technology in a global context (Madden et al., 2000; Kiiski and Pohjola, 2002; Grubesic, 2002). The majority of cross-national work on this topic has been limited to OECD countries, while some studies are also conducted with a specific focus on the developing world (Zhu and He, 2002; Wilson and Wong, 2003; Wolcott and Goodman, 2003). An extensive study of Internet diffusion is being executed by The Mosaic Group through The Global Diffusion of the Internet (GDI) Project, where nearly 30 countries have been studied over time [http://mosaic.unomaha.edu/gdi.html]. Per capita income seems to be the overall most important factor explaining global inter-country differences in the Internet usage rates. Other technological and economic determinants of statistically significant value include telephone and personal computer densities (Beilock and Dimitrova, 2003) and Internet access cost (Kiiski and Pohjola, 2002). A comparison of Internet diffusion in Turkey, Pakistan, India and China (Wolcott and Goodman, 2003) revealed that China is considerably more successful in enabling Internet availability for its citizens, at least for access to domestic hosts. A main reason is China’s ability to roll out extensive high-capacity nation-wide telecommunication infrastructure. Also Bazar and Boalch (1997) and Arnun and Conti (1998) have documented that telecommunication infrastructure plays a crucial role in the spread of the Internet. The extension of infrastructure for the use of the Internet in developing countries has generally been much slower than in economically rich parts of the world. This is mostly due to low demand and thereby low profitability of ICT businesses. The disparity in the intensity of ICT adoption among countries is wider than the disparities in their GDP per capita, indicating that
the digital divide is also increasing and likely to become even more severe in the future (Wong, 2002).

Kling (1999) argued that Internet use is a question of social as well as technological access. Technological access refers to infrastructure and the physical availability of computer hardware and software, while social access refers to the mix of professional knowledge, economic resources, and technical skills required for the use of ICT. It appears that the use of the Internet in developing countries in general and of Internet cafés in particular is dominated by young and relatively wealthy people, mostly well educated and predominantly male citizens of urban areas (Robbins, 2002; Mwesige, 2004). From a study of users of Internet cafés in Gujarat, India, Joshi (2001) found that more than 80% of the cyber café users are men, most of them young (15-35 years) and students or highly educated. Most of them are fluent in the English language. Similarly from Uganda, Mwesige (2004:91) found that the typical Internet café user ‘is a 25-years-old single male with no children, who has completed high school at the very minimum’. According to Oyelaran-Oyeyinka and Adeya (2004), even academics in Africa are compelled to search Internet access in cyber cafés due to the high initial investment costs of end-user equipment. The ration between incomes and costs makes Internet access in Africa remaining ‘a luxury item’ (Oyelaran-Oyeyinka and Adeya, 2004:70). From Peru, Barreto (2000) reported that the major constraint in spreading the Internet café concept is the lack of Internet knowledge and the need to create a ‘critical mass’ of users.

Davis’ (1989) concepts of ‘perceived usefulness’ and ‘perceived ease of use’ still have a dominant position in the stream of theories and models on ICT user acceptance. Perceived usefulness is defined as ‘the degree to which a person believes that using a particular system would enhance his or her job performance’. Perceived ease of use refers to ‘the degree to which a person believes that using a particular system would be free of effort’ (Davis, 1989:320). As regards Internet use, Oyelaran-Oyeyinka and Adeya (2004) have documented that ‘ease of use’ is regarded a major constraint even for academics in Kenya. Quibria et al. (2003) have found that Internet use and tertiary education show significant statistical association in Asian countries. The ease of use variable normally becomes less significant with increased experience among users (Szajna 1996).

In further developing the understanding of user acceptance of ICT, Davis et al. (1992) drew on psychological motivation theory and made a distinction between extrinsic and intrinsic motivation for use. Extrinsic motivation refers to an instrumental use of the technology, meaning that the expected outcome of an acceptance is ‘distinct from the activity itself’ (Davis et al., 1992). Intrinsic motivation, on the opposite, relates to perceived gains from using the technology in itself. In our case, the use of Internet cafés according to this distinction may be motivated by the pleasure from spending time online in the café or by the expected later outcome of this time input, such as competence for professional or business use.

Thompson et al. (1991) introduced the term ‘job-fit’ in their model of PC utilisation. The term is defined as the extent to which the new technology is believed to enhance performance, and thus very closely related to Davis’ perceived usefulness. In the same model, Thompson et al. (1991) used a variable termed ‘affect towards use’, which is related to intrinsic motivation. Affect towards use is the ‘feeling of joy, … disgust, … or hate’ by the particular act of using the technology. Also Compeau and Higgins (1995) use a similar variable, termed ‘affect’, in their social cognitive theory.

Demographic factors, like gender and age, were not included in the original technology acceptance models (e.g. Davis, 1989). They are simply not regarded as de facto explanatory variables in ICT user acceptance theories. Empirical evidence has demonstrated,
however, that both gender and age have moderating impacts on perceived usefulness and perceived ease of use (Venkatesh and Morris, 2000), and also on ‘affect towards use’ (Venkatesh et al., 2000; Morris and Venkatesh, 2000), and they should therefore be included in user acceptance models.

Venkatesh et al. (2003:425) have assessed the dominating information technology acceptance models and developed a ‘unified theory of acceptance and use of technology’ (UTAUT), where four main factors empirically are found to dominate the speed and rate of adoption. The four factors are ‘performance expectancy’, ‘effort expectancy’, ‘social influence’, and ‘facilitating conditions’. The first is defined as individual perception of possible gains in job performance and is closely related to ‘perceived usefulness’ and ‘job-fit’. The second is equivalent to the perceived ease of use of the new system. Social influence is ‘the degree to which an individual perceives that important others believe he or she should use the new system’ (Venkatesh et al., 2003:451), while facilitating conditions mean the perception of whether financial matters and organisational and technical infrastructure exist to support the new technology. In addition, their model comprises demographic factors. Age and gender significantly moderate the basic variables in explaining ICT user intention in their studies.

5. RESEARCH MODEL AND HYPOTHESES

In our survey, we have asked questions about Internet café user frequency, which represents our main dependent variable. User frequency is measured as online hours per month in any Internet café. According to Anandarajan et al. (2002), self-reported frequency of use is a typical and reliable measure to operationalize user acceptance where more objective criteria are not available. We have also raised questions in the survey related to the following sets of variables: individual capability, occupation, financial capacity, media exposure, and demography. The following research model forms the skeleton for statistical analyses:

![Figure 2. Research Model](http://www.ejisdc.org)

*Individual capability* is composed of the respondents’ perception of their own Internet knowledge, computer knowledge, and English language proficiency, measured on a scale
from 1 (beginner) to 5 (advanced). The three capability measures are weighed equally in our statistical analyses. This set of variables is related to the terms ‘effort expectancy’ and ‘perceived ease of use’, as discussed above. With increasing individual capability, Internet café customers will probably expect to use less effort and perceive the use to be easier. The variable represents various aspects of social access to Internet use, as discussed in the literature review above. According to Abbott (2001), English language proficiency matters, in addition to basic literacy and ICT competence, for the use of Internet, given the fact that English is the principal language of the Internet medium. Our in-depth interviews indicate that the Indonesian users apply the English language between 50% and 100% of the time when accessing the Internet.

Hypothesis 1: We expect that individual capability, measured as Internet knowledge, computer skills, and English language proficiency, is associated with user frequency.

Occupation is related to ‘performance expectancy’ and ‘job-fit’, as discussed above. Perceived usefulness for job performance, as well as ‘extrinsic motivation’, probably differs among people with various occupations. There are reasons to believe that students will have the highest perceived usefulness and performance expectancy from Internet use. Most of them could gain in their career development from access to information on the web. We also suppose that students perceive Internet café use as relatively easy (low effort expectancy) as compared to non-students. Also, we believe that students will have the highest ‘intrinsic motivation’ and most positive ‘affect towards use’ of Internet cafés.

Hypothesis 2: We expect that frequency of Internet café use is highest among students.

Financial capacity is an element of ‘facilitating conditions’, as discussed above. In an economically poor society like Indonesia, income will decide people’s ability to take Internet cafés into use. It seems that committed Internet café users are willing to pay substantial amounts of money for such services. Mwesige (2004) reported an average spending of USD 23.49 per month in Internet café fees, which is a high amount in the relatively poor context of Uganda. Du (1999) and Abbott (2001) also found that Internet users in China have higher than average incomes. It can be expected that Internet café use will decrease with higher incomes above a certain level, when people can afford connection from their homes. In our survey, we found it difficult to ask about respondents’ income and alternatively we asked them to indicate their level of monthly expenditures.

Hypothesis 3: Frequency of Internet café use is associated with customers’ general level of expenditure, up to a certain level.

Media exposure: We have asked about customers’ daily use of other information media, such as television, radio and newspapers, which is related to the terms ‘affect towards use’ and ‘social influence’ in the models presented above. Du (1999) found that adopters of the Internet in China also tend to be adopters of a variety of other media technologies or appliances (e.g. cable TV, VCR, VCD, and cell phones). This confirms the notion of technology clusters, as the adoption of an innovation is powerfully related to other functionally similar technologies. We also believe that eagerness to seek information through written media can have an impact on the frequency of Internet café use.

Hypothesis 4: Frequency of Internet café use is associated with the use of other information media.
In addition to these four hypotheses regarding user frequency, we shall also make an explorative study of modifying effects or the conditional (Frankfort-Nachmias and Nachmias, 1996) demographic variables of gender and age, as suggested by previous findings referred to in the literature review.

6. DATA COLLECTION AND METHODOLOGY
The paper is based on a recent survey of users of Internet cafés in the city of Yogyakarta. Our previous research on Internet cafés in Indonesia has focused on the business owners (Kristiansen, Furuholt and Wahid, 2003) and on the diffusion of the Internet café innovation (Wahid, Furuholt and Kristiansen, 2004), based on surveys among entrepreneurs. Previous in-depth interviews with business owners as well as with users in Yogyakarta and Lombok prepared the ground for developing a questionnaire (in the Indonesian language). Draft versions of the instrument were tested on a number of respondents before the final edition was decided. The questionnaire has formed the main research instrument for this study, while a number of additional in-depth interviews with customers have helped interpreting statistical findings. Some quotations from the in-depth interviews are presented in our empirical discussion.

The questionnaire respondents were all customers that we physically met in Internet cafés in Yogyakarta during November - December 2003. Game centres and university-owned Internet cafés were excluded from the sample. The area of Yogyakarta city was divided into five geographical clusters based on main lines of demarcation. A north-south distinction was made using the railway as divider. The northern area was divided into three clusters and the southern into two, based on the main road partitions. In each cluster, we randomly selected three Internet cafés. The number of venues for data collection thus became 15, which is 10% of the total number of Internet cafés in the city. In order to get the most realistic picture of Internet use, questionnaires were distributed at three different periods of time (morning = 08.00-12.00, afternoon = 13.00-17.00, and evening =18.00-22.00). Within each time period we collected responses till we reached the target of six Internet café users at each venue. Less than 10% refused to fill in the questionnaire. The total number of respondents is 270.

In examination of the survey data, we mostly apply bivariate analyses. The effects of conditional variables on expected correlations between main variables are analysed by separate correlation analyses for each conditional variable. Regression analysis is subsequently used to test the effect of all independent variables (individual capacity, financial capacity, occupation, and media exposure) on the main dependent variable, which is the frequency of Internet café use.

7. EMPIRICAL FINDINGS

7.1 Descriptive Statistics
The respondents in our survey are mostly young, at an average 22 years. 68% of the Internet café users are males. This is a lower percentage than previously documented in studies from other developing areas (Mwesige, 2004; Joshi, 2001). 73% of our respondents are students. 88% of the customers have accomplished a minimum of senior high school. The average number of years in school among our respondents is 13, compared with an average of 9.7 in Indonesia (Behrman et al., 2002). There is no significant difference in formal education between male and female users in our survey. However, the Internet knowledge, computer skills and English proficiency are significantly higher for men than for women.

As much as 50% of the customers have more than five years of experience in Internet access. Self-learning and informal competence sharing are the dominant ways of obtaining...
necessary skills for utilising the medium. As expressed by a female customer: ‘I learned how to use the Internet by asking friends of my age. Many of my friends knew a lot about the Internet’.

The average total monthly spending among our respondents is 534 000 rupiah (USD 63), which can be compared to a typical non-professional wage level in Yogyakarta around 300 000 rupiah per month (http://www.bps.go.id/sector/wages/table3.shtml). Internet café users in our survey spend 56 000 rupiah (USD 6.59) at an average per month for their Internet access in these venues. Prices paid per hour are relatively low, around 2 500 – 3 000 rupiah (USD 0.29 - 0.35), which can be compared to 4 USD per hour at Internet cafés in Uganda (Mwesige, 2004). The average café customer in Yogyakarta spends 2.5 hours connected per visit and only additional five minutes for waiting or socialising. Nine days per month is the average frequency of Internet café visits. Internet cafés represent the dominating access points for the great majority of the respondents. Internet café users in Yogyakarta also use much time on various other media, at an average 5.9 hours per day for electronic media and 4.3 hours per day for paper-based media and literature. Descriptive statistics are depicted in Table 1.

7.2 Bivariate Analyses of User Frequency

_Individual capability_, measured as Internet knowledge, computer skills and English language proficiency combined, are significantly correlated with user frequency (r=0.34, p<0.01), measured as online hours per month. Using partial correlation test by including gender as a controlling variable, we find that correlation between individual capability and user frequency is stronger for male users (r=0.38, p<0.01) as compared to females (r= 0.22, p<0.05). The correlation between individual capability and user frequency is also somewhat higher for younger users (below the average age) (r=0.32, p<0.01) compared to older users (r=0.30, p<0.01). The strongest correlation (r=0.43, p<0.01) between individual capability and user frequency is found when the conditional variables gender and age interact; that is among male and younger users.

The average score on our capability variable is 2.76. One of our interviewees, Kamal, is a 25 years old male Indonesian lecturer and editor. His score on individual capability is high, 4.0. He spends four hours per day, every day, on the Internet in cafés, which gives a frequency more than four times the average among our respondents. Tia, on the contrary, is an 18 years old, female student and has an English language proficiency score of 2. According to herself: ‘A lack of language knowledge limits my use of the Internet.’ We hereby find that hypothesis 1 is supported.

_Occupancy_: Our empirical data show that user frequency is highest among employees in private companies (40 hours per month) and business entrepreneurs (39 hours). Surprisingly, the user frequency among students is much lower, 23 hours per month. Means comparison between groups of users according to their occupation shows that student usage is significantly lower than for employees in private companies and private entrepreneurs. Hypothesis 2 is thereby falsified, while there is still an unexpected statistical association between occupation and user frequency.
Table 1. Descriptive Statistics

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</tr>
<tr>
<td>Monthly expenditure (rupiah)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ≤ 250,000</td>
<td>80</td>
<td>34.2</td>
</tr>
<tr>
<td>- 250,001-500,000</td>
<td>103</td>
<td>44.0</td>
</tr>
<tr>
<td>- 500,001-750,000</td>
<td>21</td>
<td>9.0</td>
</tr>
<tr>
<td>- 750,001-1,000,000</td>
<td>9</td>
<td>3.8</td>
</tr>
<tr>
<td>- ≥ 1,000,000</td>
<td>21</td>
<td>9.0</td>
</tr>
</tbody>
</table>

**Financial capacity:** Internet café user frequency is significantly correlated with monthly expenditure (r=0.13, p<0.05). The degree of correlation is higher (r=0.18, p<0.05) when comparing user frequency with the lower expenditure group (below average). Correlation is negative but not significant for the higher expenditure group. Controlling for gender, we find that the correlation between average monthly expenditure and user frequency is significant for female users (r=0.27, p<0.05), while not for male users. Age is separately not a conditional variable for this relationship, but the strongest correlation between average monthly expenditure and user frequency is found among older, female users (r=0.46, p<0.05).

An in-depth interview with Dwi, a 25 years old woman from Yogyakarta, illustrates associations between financial capacity and user frequency. She lost her job and now uses the Internet for job seeking, among other things. She has currently no income and lives from savings. Dwi spends 5 000 rupiah per month on Internet café fees. 'For me, costs represent the main factor limiting my Internet use today.' We find that hypothesis 3 is supported.
**Media exposure:** The frequency of Internet café use and the time spent looking at television and video (electronic media) are significantly correlated ($r=0.12$, $p<0.1$). Including age as a conditional variable, we only find a significant correlation between user frequency and time spent watching television and video among older users ($r=0.18$, $p<0.05$), and not among the younger ones. Gender has no impact as a conditional variable on this relationship. There is no correlation between time spent on paper-based media and user frequency.

One of our interviewees, Iwan (25) watches television five hours per day and listens to the radio for seven hours. According to himself, *‘the only written literature I read is school literature before exams. I don’t like reading.’* His Internet café frequency is four days per week, four hours per time, which gives a total of 64 hours per month. This can be compared to the average of 22.5 for our survey respondents. Hypothesis 4 is partly supported.

### 7.3 Multivariate Analysis

Turning from bivariate to multivariate analysis by using regression analysis, we find that only individual capability ($\text{Beta}=0.34$, $p<0.01$) and electronic media exposure ($\text{Beta}=0.13$, $p<0.05$) contribute significantly to explaining user frequency. The independent variables explain only 13% ($F(3,223)=12.68$, $p<0.01$) of the variance in user frequency. Including age groups and gender as dummy variables into the regression model does not affect the degree of variance explained.

### 8. CONCLUSIONS

This study aimed to identify characteristics of Internet café customers in Yogyakarta, Indonesia. An overall objective has been to recognize mechanisms in the spread of information in a modernising society by enhancing our understanding of the market for Internet café services. The typical customer is young, 22 years at an average. 68% are males, which is a lower percentage than could be expected in a poor, dominantly Muslim society. 73% of the respondents are students, and the remaining are also well educated. The majority of customers have already long-time experience in Internet use. Necessary skills are mostly obtained by self-learning and informal competence sharing. Living in a relatively poor and crisis-hidden context, the typical customer uses substantial amounts of money for online activities in Internet cafés, normally 10% of his or her total expenditures. The average café customer spends 2.5 hours connected per visit, nine days per month.
Based on ICT user acceptance theory, a research model was developed, and four main hypotheses were set forth accordingly, to analyse determining factors behind the frequency of Internet café use. Internet knowledge, computer skills, and English language proficiency, combined in a variable termed individual capability, are significantly correlated with user frequency, measured as online hours per month in Internet cafés. Individual capability has the highest influence on user frequency among young and male customers. Our data reveal, surprisingly, that the user frequency is lower among students compared with employees in private companies and business entrepreneurs. One reason may be that many students have access to on-campus data-labs with Internet connection. Six of the seven students we interviewed before the survey stated that they used alternative (and cheaper) Internet access at the campus. The result may also be explained by financial capacity. Internet café user frequency is significantly correlated with monthly expenditure, and students normally have lower total expenditures than people with permanent employment. In the higher expenditure group, there is no statistical association between total expenditure and the frequency of Internet café use, which may be explained by online access at home or at work. Also, when controlling for gender, there is a significant correlation between average monthly expenditure and user frequency for female users, but no correlation for male customers. There is also a significant correlation between time spent on electronic media (radio, television, and video) and time spent in Internet cafés, especially among older users. Proven statistical associations between variables are depicted in Figure 3.

The multivariate analysis reveals little explanatory power of the research model (13%). One main reason may be that Internet café use is far from a single undertaking. Many demands can be met in an Internet café, and there are probably substantial differences among groups of customers searching for information for professional use, political purposes, or business development, or simply for amusement, chatting, or downloading of music or pornographic sites. Internet café use is not only the adoption and application of an information-related technology but it is also a cultural phenomenon, which needs to be
studied from a social perspective. We therefore propose to look more deeply into the various forms of Internet café use and the cultures, preferences and cyber behaviours that are related to the application of that technology.

A second reason for the limited explanatory power of the research model might be the theoretical basis, the ICT user acceptance theories, which may be better suited for explaining differences between users and non-users than among more or less frequent users, who already have accepted the Internet café technology and concept. We presently lack the necessary data for making comparison between users and non-users. However, this study might be followed up by collecting data from a sample of non-users in the same economic and social context.

Also, more research is needed to offer the best policy advice on how to utilise Internet cafés for enhancing the spread of useful information in society. Already at this stage, however, some policy recommendations can be made for facilitating the further spread of Internet cafés in Indonesia, of importance for reducing information asymmetry and bridging the digital divide. In addition to infrastructure development, government institutions should play a more prominent role in awareness creation among main potential user groups. Young people and students are obviously pioneers in Internet café use and could easily be targeted through schools and institutions of higher learning. High numbers of youngsters and students in towns and even villages all over Indonesia could constitute a critical mass for profitable Internet café establishments. In some areas, tourists may also be an important additional market segment. A threshold level of users could be established whereby private entrepreneurs could see the profit opportunities and move into more remote areas with their capital and proved skills to serve an increasing demand for information also from professionals and small-scale business people.

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