

DIGITAL INEQUALITIES AMONG HUNGARIAN YOUTH

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Abstract: The study presents an empirical research carried out among Hungarian young internet users, focusing on digital inequalities. Since earlier researches with similar focus have shown important cognitive–cultural differences in use of the new technologies, the empirical research was amended with two integrating concepts – lifestyle and knowledge styles (cognitive styles). As a result of the erosion of traditional social stratification structures, the diversification of life patterns and of lifestyles, it is presumable that differences in youth’s use of technology can be captured to a smaller degree through traditional models, and to a greater degree through models supplemented with lifestyle and cognitive style.

Keywords: digital inequalities among Hungarian youth, lifestyle, cognitive style, empirical research

INTRODUCTION

This study presents the results of an empirical research concerning digital inequalities, performed in a special target group, that of young Hungarian internet users. In the first part I present briefly the theoretical framework of this empirical research, the digital inequality model and I argue that the research of the use of new technologies is worth to be supplemented with such cultural–cognitive variables like lifestyle or knowledge types. In the second part I argue why my choice was youth and in the third part I present the research questions and hypotheses. In the fourth part I summarize the research results, and in the fifth one the conclusions.

* The present empirical study is a part of the author’s PhD thesis entitled *Digital inequalities among youth: myth or reality?* The entire dissertation may be found at the following web page: <http://phd.lib.uni-corvinus.hu/89/>

BRIEFLY ABOUT THE THEORETICAL FRAMEWORK OF THE RESEARCH

Due to the empirical character of the present study, I will refer only briefly to the theoretical background of the research.¹

One of the most powerful directions of research concerning information society is the one that focuses upon social inequalities in access to and use of communication technologies. Diffusion models originating from the spread of innovations and the concept of digital gap, related to these, provide its starting point. (Those who have access vs. who have no access.²)

Subsequently to critiques of the dichotomist approach of the access to new communication technologies, the examination of inequalities in access was replaced with more nuanced approaches, which regard as a research topic the differences (digital inequalities) among persons having formal internet access, too. <http://phd.lib.uni-corvinus.hu/89/>

In establishing the most comprehensive concept of digital inequality, DiMaggio and Hargittai approach the analyses firstly to the repertory of classical sociological research of inequality,³ secondly – giving the research a wider framework – they consider necessary the study of the social impact of the internet as well. (DiMaggio and Hargittai 2002; Hargittai 2002, 2003; DiMaggio et al. 2001)

The latest research results bring to our attention the fact that neither the approaches waiting for radical changes, nor those that rely on conservation of the present state are right in respect of new technologies. New communication technologies amplify social processes already in action; they contribute to the fulfilment of changes already in progress, performing their effect through amplification of the already acting forces. (For the amplification model see: Agre 2002; Calhoun 1998)

The model of digital inequality, adopting the basic concepts of the amplification model, on the one hand removes the accent of the analyses from access to the study of the variables indicating the quality of use; on the other hand it compels us to reconsider the relationship between information technologies and society. According to this conception, the relationship between new technologies and society is rather co-evolutionary than causal. (DiMaggio et al. 2004).

The analyses concerning the digital gap have already called attention earlier to the fact that inequalities of access are caused by cultural–cognitive factors as well (Warschauer 2002; Wilson 2002; Rogers 1995; Rét 2002). Starting from these earlier research results, I considered worth admitting into the investigation of digital inequalities the concepts of *lifestyle* and *knowledge style*, too.

I have taken both of them as complex concepts defining the use of new information technologies, as independent variables, that, however, are not independent of the socio-demographic status of a person. According to my assumptions, an investigation supplemented by the concepts of *lifestyle* and of *knowledge style* comprehends digital

1 I have discussed the theoretical background of empirical research in detail in the number 1–2/2007 of the journal *Szociológiai Szemle*.

2 See mainly Norris 1999, 2001.

3 The term ‘inequality’ may be regarded itself a stereotype of the literature of sociology. (Angelusz et al. 2005).

inequalities more accurately than traditional occupation–income or other models of stratification do.

The investigation of *lifestyle* may also be motivated by individualization taking place in post-industrial (or information) societies. Because of individualization processes, *social and cultural processes of erosion and of evolution* are triggered to a considerable extent, and because of these, one may observe, among other facts, the pluralization of lifestyles.⁴

In line with these, in the course of individualization taking place in post-industrial (information – respectively knowledge-based) societies, in the actions and in life-conduct of individuals, affiliation to a social group loses its importance. During the individualization process, personal choice gains an increasingly major role, instead of “normalized” life patterns life patterns “of choice” become more and more defining ones (Kohli 1990), however, this does not mean the disappearance of all directing principles, of all social institutions, but their transformation.⁵

In the instance of *knowledge styles*, I have started from the model of cultural–interactional stratification model of Róbert Angelusz and Róbert Tardos (1991, 1992), respectively the theories concerning knowledge-types of Zsuzsa Ferge (1980, 1984) and Fritz Machlup (1962, 1984).

According to my assumptions, different cognitive styles may contribute considerably to the explanation of differences (digital inequalities) that may be found in the use of new information technologies.

THE TARGET GROUP OF THE RESEARCH: YOUTH

In the empirical analysis I have studied the use of technology of a more restricted group, that of youth. Several reasons argue for the study of digital inequalities among youth.

The first reason emerges from *the relationship between youth and new technologies*: as access to and the use of new technologies is determined first of all by age that is the reason why young generations are distinguished target groups of theories concerning information society and of empirical studies.

Although young people access new technologies and use them more intensely than older ones do, the concepts of “internet generation” and of “cyber kid” have proved to be a myth. The results of Hungarian and international researches concerning the use of technology of the youth prove that access to and the use of information technology in a wider sense among youth is also unequal, and this may lead to a new inequality of

4 Researches/definitions concerning lifestyle have extended traditions in international and Hungarian literature. I will not refer to that literature in detail in this paper, but I would mention the most important authors: M. Weber, M. Kohli, U. Beck, G. Schulze, S. Hradil, Á. Losonczi, Á. Utasi, P. Róbert.

5 Angelusz and Tardos (1991) differentiated three “orders of styles” of knowledge types in their empirical researches. These three orders of style are: cognitive–instrumental knowledge, relational–self-representational knowledge and symbolic–representational knowledge. The three orders of styles are structured according to their “products”: cognitive–instrumental knowledge is manifested in object-related activities, relational–self-representational knowledge has as its result the spreading of relationships, and the results of symbolic–representational knowledge is the efficient expression of the own social position, a powerful display of identity.

chances (*Ifjúság* 2001; Török 2001; Facer and Furlong 2001; Keegan 2004; Gábor et al. 2003).

Starting from the wider use of technology by the youth, we may presume that among them not only access makes differences any more, but rather the intensity, the purpose and the quality of use. Therefore, *one may differentiate more accurately among the types of use, and consequently, analyze digital inequalities.*

The fact also argues for the choice of youth as target group that *defining phenomena of global capitalism* (information society) – as employment problems, polarization, social tensions, loss of community and incertitude of identity – *affects prominently the conditions and the circumstances of generational reproduction* (Gábor 2003; Z. Karvalics and Molnár 2004).

Observing digital inequalities among youth may also provide prognoses upon the development of digital inequalities in Hungary in a more advanced state of technological diffusion.

RESEARCH QUESTIONS, HYPOTHESES, METHODOLOGY

I have emphasized one of the five dimensions of the supplemented model of digital inequality, namely the *purpose of use*, my research questions being centered to this very dimension.

Connected to the *topic and research agenda of digital inequality* presented previously, based on empirical analyses, I will discuss the two following research questions in this study:

1. Does it have any sense among younger generations, due to wider access, to investigate whether initial inequalities are balanced, or “objects and *skills* belonging to information society themselves generate inequalities further?”(Tardos 2002) *Can in the case of these younger generations different types of internet users be observed, and if yes what socio-demographic, infrastructural, respectively lifestyle factors determine these differences?*

2. What place is held by information technology knowledge among knowledge types relevant in different extent, and what socio-cultural differences may be observed in appreciation of its relevance? The answer to this question may provide evidence in that respect which knowledge types prove valuable, relevant. Beside this, it is also an essential topic, whether *do different knowledge types define the character of internet use?*

An important question arises regarding the use of lifestyle and knowledge style concepts as explanatory variables. Since the use of information technologies has become by now an integral part of both lifestyle and knowledge style, how the observed differences in functional type of use can be explained by variables that partly form the variables to be explained? The answer lies in the novelty of the new communication technologies and in the specific target group. Considering that new communication technologies were not present when the concepts of lifestyle and style of knowledge were elaborated, they could not figure in the creation of typologies either. Therefore, it is theoretically important to examine the different functional types of uses to what lifestyle and cognitive styles they can be linked.

Applying explanatory models supplemented with lifestyles and styles of knowledge in explaining the differences in technology use is motivated by the choice of the target group, too. During the discussion of the concept of lifestyle, I have briefly mentioned the problem of vertical vs. horizontal stratification, i.e. those conceptions, according to which traditional income–occupational stratification structures become more and more irrelevant. The erosion of traditional social stratification structures, the diversification of life patterns and the pluralization of lifestyles are particularly relevant in the case of youth. Therefore, it is presumable that differences in use of technology of the youth can be captured to a smaller degree through traditional models, and to a greater degree through models supplemented with lifestyle and cognitive style.

HYPOTHESES

My hypothesis concerning the first research question is:

H1: In a higher level of access and use, inequalities linked to new communication technologies may be tracked in the type of use, i.e. we may distinguish unambiguously some patterns of user purposes, and some patterns may be rather linked to higher economic–cultural resources and different lifestyles than other ones.

My hypothesis concerning the second research question:

H2: Young internet users do not form a homogeneous stratum, at least regarding the types of knowledge taken relevant, valuable to them. On the ground of the knowledge types defined the preferred knowledge types may be distinguished unambiguously, and different types of internet use are related to different knowledge types.

METHODOLOGY

The examination of the research questions and hypothesis testing were based on the investigation of empirical evidence, applying secondary analysis of a database at my disposal. The research called *Perspective of 19-29 years old young Hungarians* was carried out by Marketing Centrum – National Market Research Institute – as a survey for the Prime Minister’s Office, in 2002. In this research a total of randomly chosen 2000 young persons born between 1975 and 1985 were asked. In the research 959 young internet users were involved. This database is representative for young Hungarians aged 19–29, using internet.

DIGITAL INEQUALITIES AMONG YOUTH

In answering the research questions, I examined first the typology of internet use. After that, I segmented young people involved into the empirical research by lifestyle and knowledge type. As a third step, using explanatory models, (regression analyses) I tried to find an answer to the question how each given internet user type is determined by individual lifestyle, knowledge type and other socio-demographic variables.

PATTERNS OF INTERNET USE – ESTABLISHING TYPOLOGIES

Patterns of internet use can be comprehended by the purposes of the use. Perhaps maintaining relationships is the earliest function of the use of the internet, and this fact is reflected also in the character of the use. Most of those aged between 19 and 29 uses the internet for maintaining relationships and for e-mailing. The second most frequent purpose of use is information search related to study and job, which may be regarded as enhancing resource and the third, is searching for actualities, daily information. The importance of the role of the internet in information gathering has already been signalled by several studies (Angelusz et al. 2005). The early appearance of this application inside the internet as complex technology has largely contributed to the fact that it holds such a prominent position among user purposes.

Recreational, entertainment-purpose use is more peculiar to younger people than to older ones, being not only a characteristic of age, but it links also to the fact that young people, due to their age, have started to use the internet later. Entertainment functions among internet use have appeared later; they are generally related to the spread of broadband internet access as well as to the more and more powerful presence of the business sphere on the internet. The appearance of the business sphere offers an ever wider area not only to entertainment-purpose internet access, but it integrates also the traditional electronic entertainment contents from downloading movies and music to the offer of radio and television contents. By this the development of internet use itself may determine to a great extent the fact that users belonging to different age groups prefer online activities.

In order that content references, patterns of use may be explained further, I have systematized 10 purposes of use involved in the research with the help of principal components analysis. By this I succeeded to differentiate three user patterns (*Table 1*):

1. The *recreational pattern* is probable to be linked to broadband purposes, appeared later inside internet technology itself, to the activities of downloading and gaming.

2. The *information gathering–resource increasing user pattern* may be linked to maintenance of relationships and to accessing information.

3. Instrumental–business user pattern is the least characteristic, being linked to domains demanding most trust in the use of the internet, to online banking, to management of official affairs (including e-government), respectively to online commerce.

Table 1. Patterns of Internet Use– PCA Factor Analysis (Factor Weights)

	Principal Components		
	„Recreational” Pattern	„Information Gathering –Resource Increasing” Pattern	„Instrumental” Pattern
	21.7%	16.2%	11.8%
Downloading music	0.853	-0.031	0.086
Downloading films/games	0.795	0.050	0.023
Downloading software	0.611	0.235	0.304
Games	0.520	-0.145	-0.091
Work and education related information gathering	-0.033	0.667	0.114
E-mail	-0.043	0.664	0.038
Daily informationS	0.037	0.627	0.206
E-banking, e-government	0.001	0.197	0.728
Chats	0.341	0.441	-0.510
E-commerce (buying anything on the internet)	0.217	0.180	0.476
Eigen-value	2.17	1.62	1.18

Notes: N = 959

Total explained proportion: 50%

ESTABLISHING LIFESTYLE-GROUPS

In the course of the empirical analysis – in function of the disposable data – I have started from a wider interpretation of lifestyle, regarding both material and cultural aspects as well.⁶ According to this, I have defined and studied lifestyle as an organic unity of material consumption, of activities/attitudes, as well as of the system of values.

At first, in the case of each dimension I revealed the organizing patterns – related to the patterns that can be observed in the structures of consumption, the spending of leisure time and the value structures, respectively to listening to music – applying principal component analysis. Based on these patterns, the number of lifestyle-groups was defined by applying hierarchical cluster analysis, and then lifestyle groups were formed by applying K-Means cluster analysis.

CONSUMPTION STRUCTURES – CONSUMER STATUSES

The definitions of lifestyle groups through the structure of consumption expose the demonstration of social status, self-representation and recognition of other persons in similar positions as well. In the instance of the youth, consumption has a more accentuated role; they are more exposed to the coercion of consumption, starting for

6 In this complex approach of lifestyle, I have taken as authoritative the works of Á. Utasi (1982).

instance from the mere fact, that between them media, strongly promoting consumption, is a major channel of socialization.

I have applied principal component analysis in mapping the consumption patterns of internet user youth aged between 19 and 29. In the course of this principal component analysis, I succeeded to delimit unambiguously only two principal components.

1. The first consumption pattern, that I have named “*social and entertainment oriented*” pattern may be linked to social life and spectacular success; partying, entertainment, cell phones, buying clothes and shoes, car maintenance, holidays, vacations were the defining elements in forming this pattern.

2. The second principal component may be related to the consumption domains of the maintenance of everyday and home life. To forming this consumer pattern named “*home life*” the consumptions that signal the satisfaction of basic needs as dwelling and meals contributed decisively. According to this model formed, the principal components are types of consumption that can be linked to home life; spending on household equipment, on furniture and furnishing (see *Table 11* in the *Appendix*).

MUSIC GENRES LISTENED TO

Music genres listened to are a defining part of the identity of the youth. Therefore, studying the music genre they listen to cannot be excluded from the description of their lifestyles. I have succeeded in arranging the music genres listened to with the help of principal component analysis into three components. I arranged rock music genres as the first principal component, into the second the elite genres (jazz, classics, folk music), and popular genres into the third one (see *Table 12* in the *Appendix*).

SPENDING LEISURE-TIME

In exposing and systematizing differences observed in leisure time spending, similarly to consumption and listening to music, I have used principal component analysis (see *Table 13* in the *Appendix*). I have succeeded in distinguishing three principal components more or less unambiguously.

1. In forming the first principal component such activities played a role that may be linked to “high” culture, as concerts of classics, theatre, exhibitions, museums, bookstores; this is why I called it “*high cultural orientation*”.

2. In forming the second principal component the major role was played by attending parties, discos, cafés, pubs, cinemas and pop music concerts, i.e. hence I named this component “*entertainment-oriented*”.

3. The third principal component had emerged in the constellation of healthy lifestyle, fitness and nature-friendliness, i.e. hence I named it “*health-oriented*” leisure time activity. The results of the analysis confirm that tendency – that may be observed also among adult population – according to which good physical condition, beauty, fitness are becoming more and more important individual and social values. In the centre of these activities actually stands the maintenance of beauty, preserving health, forming a harmonious life, i.e. caring for the body, the cult of the healthy body (Featherstone 1995).

VALUE STRUCTURE OF YOUNG INTERNET USERS

In the definition of the lifestyles of the 19–29 year old internet users, I have examined also the structure of values. The starting point of the examination of the values was the conception that values are individual and not collective units, i. e. they belong to individual life conduct and this is particularly relevant to those intermediary historical eras, when life conduct patterns formerly taken for granted get dislocated, became relative; in these cases individual choices have greater importance.

Starting from the mid-nineties, sociological researches in the domain of the youth, as well as in the domain of the whole population (Füstös and Szakolczai 1999) have registered the placement of the materialistic system of values into the centre, meaning not only the acquisition of material goods and advancement, but the increase of consumption and consumer status as well (Gábor 2003).

The change of the system of values, interpreted also as “conservative” turn does not mean equivocally de-emphasizing post-materialistic (more properly, self-expressing) values among the youth. Actually, the metamorphosis of the system of values of Hungarian youth may be comprehended by individual search of directions, the search of a new order of values, as Hungarian youth is characterized by simultaneous adherence to traditional, immaterial or material orders of values. The uncertainty of this kind was proved also empirically by several researches.

The 13 values involved in the research were organized by principal component analysis, seizing three structures of values that are sharply distinguished:

1. To the formation of the first principal component heterogeneous values contribute to the greatest extent. Such values have taken a part in this component that can be taken as traditional, as family and security. At the same time, to this principal component such values also belong that may be regarded as post-materialistic values like true friendships and inner harmony.. Most probably we succeeded in registering in this principal component the values of the “private sphere” from former value researches from Hungary, such as human relationships, emotions and attachment to personality. Emerging from this, I have called the first principal component as “*values of the private sphere*”.

2. To second principal component describes eloquently the search of the youth for a new order of values, in its formation such traditional values also play a role as national feelings, order, life useful for society, as the values, reflecting individualistic conception, like success, advancement, career, creative life. Because of this, this principal component contains the heterogeneous values and was called “*values of path finding*”.

To form the third principal component, mainly such hedonistic, individualistic, materialistic values contributed to it like partying, making acquaintances, interesting, eventful life, richness, material goods and success, advance. For this third principal component I used the term “*hedonistic-individualistic values*” (see *Table 14* in the *Appendix*).

LIFESTYLE GROUPS

We may conclude from the differences in consumption, preferences of music, leisure time spending and order of values of young internet users that these differences form a system, determining the limits of lifestyle groups.

Using the principal components, indices referring to preferences in consumption, of music, spending leisure time and values, I have distinguished by the means of shape recognition methods and cluster analyses the lifestyle groups of the 19–29 years old internet users. In the course of forming lifestyle groups my purpose was to explain the differences in the use of the internet by applying a more simple system of categories, taking into the account not only the socio-demographic background but individual choices as well.

I have defined lifestyle groups distinguishable unambiguously by applying K-Means cluster analysis on the basis of the final cluster centre values.

1. The *elite, intellectual-oriented* lifestyle-group of the youth comprises internet users preferring high cultural activities in spending their leisure time, whose consumption concentrates primarily to the domain of home life, and who prefer music genres defined as elitist. These users are characterized concomitantly by private and pathfinder values. 36 per cent of young internet users belong to this first lifestyle group.

2. The group of the *uncertain, immature* young internet users comprises such persons who, due (also) to their age, do not dispose of clear-cut, well-formed preferences. The members of this group prefer rock, respectively pop music as well, they may be described by the value order of private sphere and the hedonistic-individualistic one as well, and their consumption patterns are slightly outlined. Their use of leisure time is entertainment-oriented, but they are characterized most by “health-oriented” leisure time spending, too. 43 per cent of all internet user youth belong to this category.

3. The third lifestyle group is characterized most by entertainment-oriented leisure time spending and entertainment or enjoyment-oriented consumption; it is characterized by the hedonistic-individualist system of values, i.e. hence I named it *entertainment- or enjoyment-oriented* lifestyle-group, displaying success through extravagant consumption, characterized by a hedonistic-individualist system of values. 21 per cent of young internet users belong to this category (*Table 2*).

Table 2. Lifestyle Groups of Hungarian Young Internet Users
– Final Cluster Centers (K-Means Cluster Analysis)

	Lifestyle Group		
	Elite, intellectual oriented group	Uncertain, immature group	Entertainment or enjoyment oriented group
Percents	36%	43%	21%
High culture oriented leisure time	0.518	-0.251	-0.449
Entertainment oriented leisure time	-0.516	0.177	0.565
Health oriented leisure time	0.039	0.125	-0.326
Values of private sphere	0.283	0.447	-1.456
Values of path finding	0.190	0.024	-0.391
Hedonistic-individualistic values	-0.640	0.447	0.140
Social and entertainment oriented consumption	-0.087	-0.113	0.336
Home-life consumption	0.604	-0.311	-0.395
Rock musical genres	-0.303	0.257	0.023
Elites musical genres	0.732	-0.392	-0.474
Popular musical genres	-0.325	0.264	-0.061

Notes: N = 889

KNOWLEDGE TYPES OF YOUNG INTERNET USERS

I captured the knowledge types by structuring the knowledge/skills considered relevant by 19–29 years old, and the consumption of news of public concern. This kind of approach is closer to the simpler typologies elaborated by Zsuzsa Ferge or Fritz Machlup. By interpreting the concept of knowledge I followed the assumptions of Machlup, considering subjective interpretation, i.e. knowledge is what the “knower” defines as such, what is relevant for the “knower”.

For the elaboration of the simpler typology, 10 knowledge/skills considered relevant by the 19–29 year-old internet users were structured by principal component analysis. In the course of this structuring, three types of knowledge were differentiated more or less unambiguously among the young internet users (Table 3).

1. The first principal component called “*intellectual, symbolic*” knowledge type, may be related to the “festive” knowledge type of Ferge, or to the intellectual knowledge type of Machlup. In its formation an important role is played by the certificates meaning symbolic representation of knowledge, continuous learning, the knowledge of international languages and general culture. Continuous learning, self-instruction are essential components: theories of knowledge-based society emphasize *life-long learning*, which is connected to a new requirement of the labour market, to adaptability. Analyses from this direction attribute great importance to eliminating the lack of adaptability to the labour market and also not only to continuous learning, but to atypical employment forms as well, which are performed through intensive intermediation of new communication technologies.

2. The second principal component in fact covers the knowledge set of “*higher-level professional knowledge*” from the typology of Zsuzsa Ferge, and may be related to a great extent to the practical knowledge of Machlup, with the limitation that it comprises special practical types of knowledge, speciality skills. In forming this principal component political relationship, financial types of knowledge and high-level computer as well as information skills played a role.

3. To forming the third principal component practical types of knowledge, speciality skills also contributed, but these were general professional kinds of information. Therefore, I called the third principal component structuring the types of knowledge as “*lower-level professional knowledge*”.

Table 3. Relevant Knowledge Types – PCA Factor Analysis (Factor Weights)

	Principal Components		
	Intellectual-symbolic knowledge	Higher-level professional knowledge	Lower-level professional knowledge
		20,0%	16,1%
Diploma	0.813	0.245	-0.105
Continuous learning, training	0.802	0.153	0.168
Knowledge of international languages	0.750	0.233	0.124
Importance of general culture	0.726	-0.023	0.357
Political relations	0.094	0.776	0.014
Financial knowledge	0.155	0.757	0.259
Higher level ICT skills	0.300	0.640	0.204
Speciality skills	0.185	0.023	0.835
Driving licence	0.054	0.223	0.570
Professional/business relations	0.114	0.484	0.548
Eigen-value	2.58	2.00	1.61

Notes:

N = 959

Total explained proportion: 62%

Table 4. Index of Interest in Public Life Information, PCA Factor Analysis (Factor Weights)

	Principal Component (without Rotation)
	Interest in Public Life Information
	74.8%
Internal affairs information	0.901
International affairs information	0.896
Information regarding the EU	0.834
Economic information	0.826
Eigen-value	2.58

Notes: N = 959

EXPLANATORY MODELS SUPPLEMENTED WITH LIFESTYLE GROUPS AND TYPES OF KNOWLEDGE

In order to test the hypotheses logistic regression analyses were employed.

Given the nature of the logistic regression analysis, I could not include as dependent variables the user patterns established with the help of principal component analysis. Instead variables of the greatest importance in the formation of principal components were used as dependent ones. Although a certain loss of information results from this method, I was of the view that the logistic regression analysis could answer my questions most reliably.

I have explained three dependent variables as representative ones for the three user patterns: music downloads for the recreational-purpose user pattern, information gathering related to learning and work for the information gathering–resource increasing user pattern, and online management of banking and official affairs for the instrumental user pattern.

In the logistic regression analysis I have only registered if the variables of lifestyle and of knowledge type – controlled by socio-demographic and family background variables – included in the analysis determined the characteristics of use. Since the purpose of the research was the verification of theoretical explanations and not the prediction of a phenomenon, I have not touched upon the comparison of the explanatory forces of variables with significant effect or the analysis of the efficiency of the explanatory model, only considered the registration of the effects and their directions.

One of the knowledge types comprises information skills as well, and this may raise an important question related to the explanatory model: how could a phenomenon be explained by such factors which comprise one of the determining elements of the phenomenon itself? This apparent contradiction is solved by the fact that the variables that need explanation are differences between use and not indicators of access to digital literacy.

Explanatory models concerning user purposes signalize systematic digital inequalities along more dimensions among 19–29 year-old Hungarian internet users.

The classical, information gathering–resource increasing application is related to prominently higher cultural resources.

Information gathering related to learning and work, analyzed as representative for information gathering–resource increasing user purposes; this user purpose may be outlined at the best. In conformity with anticipated expectations and the results of former analyses performed among adult internet users (Angelusz et al. 2005), the information gathering–resource-increasing pattern is determined prominently by cultural resources. This information gathering–resource increasing pattern is not influenced significantly among the 19–29 year-old internet users either by the material status of the family they come from, or by the individual incomes of the respondent. On the contrary, the educational level, as well as the educational level of the family significantly influences the presence of the user's purpose.

The elite intellectual-oriented lifestyle, distinguished definitely in leisure-time spending, consumption preferences, music taste, and the system of values as well – even kept under control – determines the information gathering–resource increasing

type of use, increasing twice the chances that the user will look for information connected to his/her work or education on the internet.

The regression model performed on knowledge types confirmed the assumption that the observed differences in internet use could be linked to different lifestyles and different types of knowledge. This also maintains our assumptions upon the effect of these knowledge types: the more relevant the intellectual-symbolic knowledge among users is, the more likely they are to use the World Wide Web to increase their resources. The same can be stated about the interest for political information: the more increased interest about political news among 19–29 year-old users is the more likely they are using the World Wide Web for their work and study (see *Tables 6 and 9*).

The recreational purpose of use may be related to higher economic resources, technological equipment.

Music downloading analyzed as representative for the recreational pattern is determined independently by the following: information and communication technologies (ICT) index, the user's gender and age, settlement type, economic situation of the family he or she comes from and the household's endowment with new technologies, and by lifestyle groups and knowledge type synthesizing individual choices as well. This allows us to conclude that recreational user pattern among youth is primarily rather a characteristic of age and lifestyle than a function of cultural factors. There is a greater chance that young men figure among those who download music from the internet than young women. Taking into consideration that downloading of different files requires specific skills as well, we can detect a special inequality between genders in digital skills. The effect of age is negative, i.e. the older the internet user the less likely it is that he will use the World Wide Web for recreational purposes.

The recreational pattern is more specific to young people with more favourable economic background: the higher the index measuring the degree of new technology availability of a family is – including broadband internet access – the more characteristic it is that the young respondent uses the internet to download music files. The subjective indicator of the family material background (index of subjective well-being) also reinforces the importance of economic aspects: youth experiencing financial difficulties in their families, or originating from families where income is just enough to make a living are much less likely to use the internet for recreational purposes than youth from families without financial difficulties. The effect of the settlement type is also significant, i.e. the youth of Budapest are less likely to use the World Wide Web for recreational purposes than youth from the countryside.

Downloading music considered in the context above is determined significantly by individual lifestyle: if the respondent belongs to the uncertain, immature lifestyle group characterized by values of individualism–hedonism and of private sphere but low consumption, he/she is 1.5 times likely to use the internet for downloading music than those users characterized by the so-called “enjoyment-oriented” lifestyle (*Table 5*).

The assumption observing differences in the internet use can be linked to different lifestyles and different types of knowledge was confirmed by the logistic regression analysis: young people who consider intellectual, symbolic knowledge to be relevant – independently of their age group, level of education or family background – are less likely to use the internet for recreational purpose (*Table 8*).

The pattern of the instrumental user is the least delineated application, and can be linked to higher cultural resources and to active labour market status.

This instrumental user pattern, like the information gathering–resource increasing one, can be linked to higher cultural resources. Users with already higher or secondary education are more likely to use the internet for their official business or bank transactions than users with vocational qualification at the most. Economic activity also has an effect on this user pattern: wage earners are more likely to use the internet for their activities than inactive internet users. That result, according to which interest in politics (public life information) has a positive effect upon the instrumental user pattern, also increases the defining role of cultural resources (*Tables 7 and 10*).

Reference categories used in the logistic regression are as follows: in the case of education maximum 8 forms; in the case of economic activity the inactive category; in the case of education level of the respondent's maximum vocational school; type of settlement those not from Budapest, in the case of subjective well-being they live without concerns; monthly income or budget to use, wealth position of the family, ICT index were scale variables.

*Table 5. Model for Explaining the Recreational Pattern–
Results of Logistic Regression Analysis*

	Downloading Music (Representative for Recreational Pattern)		
	B	Sig	Exp (B)
Elite, intellectual life-style group	-0.215	0.421	0.807
Uncertain, immature group	0.442	0.049	1.557
Age	-0.111	0.002	0.895
Gender	-0.925	0.000	0.396
Vocational School	0.609	0.137	1.838
High-School graduation	0.099	0.799	1.104
College or university education	-0.031	0.947	0.969
Still studying	0.124	0.707	1.132
Economically active	-0.165	0.607	0.848
Budapest	-0.480	0.033	0.619
Mother– high school graduation	0.192	0.358	1.212
Mother – higher education	0.195	0.446	1.215
Wealth position of family	-0.076	0.119	0.927
Monthly income (or budget to use)	0.000	0.072	1.000
Subjective well-being of the family		0.018	
The family regularly have financial problems	-0.953	0.033	0.386
They just make a living	-0.859	0.010	0.424
They live economizing much	-0.305	0.285	0.737
ICT-index	0.012	0.009	1.012
Constant	2.382	0.016	10.829
Cox&Snell R2	0.126		
Nagelkerke R2	0.182		

Notes: N = 878

*Table 6. Model for Explaining the Information Gathering
– Resource Increasing Pattern– Results of Logistic Regression Analysis*

	Work and Education Related Information Gathering (Representative for Information Gathering – Resource Increasing Pattern)		
	B	Sig	Exp (B)
Elite, intellectual life-style group	0.707	0.006	2.028
Uncertain, immature group	0.284	0.204	1.328
Age	-0.019	0.581	0.982
Gender	0.208	0.256	1.232
Vocational School	0.148	0.696	1.160
High-School graduation	1.035	0.004	2.815
College or university education	1.759	0.000	5.807
Still studying	0.932	0.003	2.539
Economically active	0.050	0.859	1.052
Budapest	-0.167	0.419	0.846
Mother– high school graduation	-0.154	0.428	0.857
Mother – higher education	0.813	0.004	2.255
Wealth position of family	0.048	0.320	1.050
Monthly income (or budget to use)	0.000	0.311	1.000
Subjective well-being of the family		0,701	
The family regularly have financial problems	-0.102	0.807	0.903
They just make a living	0.042	0.902	1.043
They live economizing well	0.196	0.532	1.217
ICT-index	0.005	0.238	1.005
Constant	-1.003	0.287	0.367
Cox&Snell R2	0.160		
Nagelkerke R2	0.223		

Notes: N = 878

*Table 7. Model for Explaining the Instrumental Pattern
– Results of Logistic Regression Analysis*

	E-banking, e-government (Representative for Instrumental Pattern)		
	B	Sig	Exp (B)
Elite, intellectual life-style group	0.367	0.344	1.443
Uncertain, immature group	0.397	0.294	1.488
Age	0.061	0.217	1.063
Gender	0.139	0.581	1.149
High-School graduation	1.211	0.005	3.355
College or university education	1.742	0.000	5.710
Still studying	0.795	0.172	2.215
Economically active	1.037	0.050	2.820
Budapest	-0.152	0.579	0.859
Mother– high school graduation	0.133	0.639	1.142
Mother – higher education	0.189	0.578	1.208
Wealth position of family	-0.041	0.525	0.960
Monthly income (or budget to use)	0.000	0.178	1.000
Subjective well-being of the family		0.586	
The family regularly have financial problems	-0.097	0.872	0.908

Table 7 continuous Model for Explaining the Instrumental Pattern
– Results of Logistic Regression Analysis

	E-banking, e-government (Representative for Instrumental Pattern)		
	B	Sig	Exp (B)
They just make a living	-0.443	0.341	0.642
They live economizing well	0.024	0.949	1.024
ICT-index	0.008	0.199	1.008
Constant	-6.662	0.000	0.001
Cox&Snell R2	0079		
Nagelkerke R2	0.153		

Notes: N=878

Table 8. Model Explaining the Recreational Pattern Completed with Knowledge Types
– Results of Logistic Regression Analysis

	Downloading Music (Representative for Recreational Pattern)		
	B	Sig	Exp (B)
Intellectual, symbolic knowledge	-0.297	0.004	0.743
Higher level professional knowledge	0.029	0.753	1.029
Lower level professional knowledge	-0.029	0.737	0.971
Index of interest in public information	-0.001	0.989	0.999
Age	-0.136	0.000	0.872
Gender	-0.869	0.000	0.419
Vocational School	0.702	0.088	2.018
High-School graduation	0.416	0.299	1.515
College or university education	0.378	0.430	1.459
Still studying	0.304	0.353	1.355
Economically active	-0.083	0.787	0.920
Budapest	-0.573	0.009	0.564
Mother– high school graduation	0.210	0.309	1.234
Mother – higher education	0.213	0.399	1.238
Wealth position of family	-0.069	0.146	0.934
Monthly income (or budget to use)	0.000	0.221	1.000
Subjective well-being of the family		0.087	
The family regularly have financial problems	-0.744	0.097	0.475
They just make a living	-0.617	0.057	0.540
They live economizing well	-0.167	0.545	0.846
ICT-index	0.013	0.004	1.013
Constant	2.542	0.010	12.699
Cox&Snell R2	0.120		
Nagelkerke R2	0.173		

Notes: N = 899

Reference categories used in the logistic regression are as follows: in the case of education maximum 8 forms; in the case of economic activity the inactive category; in the case of the level of education of the respondent's mother maximum vocational school; type of settlement those not from Budapest, in the case of subjective

well-being they live without concerns; Monthly income or budget to use, wealth position of the family, ICT index were scale variables. Principal components synthesizing knowledge types were included in the model as indexes.

Table 9. Model Explaining the Information Gathering – Resource Increasing Pattern Completed with Knowledge Types – Results of Logistic Regression Analysis

	Work and Education Related Information Gathering (Representative for Information Gathering – Resource Increasing Pattern)		
	B	Sig	Exp (B)
Intellectual, symbolic knowledge	0.463	0.000	1.589
Higher level professional knowledge	0.045	0.620	1.046
Lower level professional knowledge	0.062	0.479	1.064
Index of interest in public information	0.204	0.036	1.226
Age	-0.026	0.436	0.974
Gender	0.272	0.141	1.312
Vocational School	0.085	0.823	1.089
High-School graduation	0.676	0.068	1.966
College or university education	1.267	0.005	3.550
Still studying	0.544	0.094	1.723
Economically active	0.024	0.932	1.024
Budapest	-0.002	0.992	0.998
Mother– high school graduation	-0.232	0.235	0.793
Mother – higher education	0.566	0.045	1.762
Wealth position of family	0.048	0.319	1.050
Monthly income (or budget to use)	0.000	0.402	1.000
Subjective well-being of the family		0.482	
The family regularly have financial problems	-0.392	0.362	0.676
They just make a living	-0.180	0.609	0.835
They live economizing well	0.043	0.893	1.044
ICT-index	0.005	0.303	1.005
Constant	0.166	0.862	1.181
Cox&Snell R2	0.183		
Nagelkerke R2	0.257		

Notes: N = 899

Table 10. Model for Explaining the Instrumental Pattern Completed with Knowledge Types
– Results of Logistic Regression Analysis

	E-banking, E-government (Representative for Instrumental Pattern)		
	B	Sig	Exp (B)
Intellectual, symbolic knowledge	-0.043	0.764	0.958
Higher level professional knowledge	0.085	0.498	1.088
Lower level professional knowledge	-0.011	0.928	0.989
Index of interest in public information	0.294	0.040	1.342
Age	0.059	0.229	1.060
Gender	0.141	0.568	1.151
High-School graduation	1.124	0.010	3.077
College or university education	1.697	0.000	5.457
Still studying	0.834	0.168	2.302
Economically active	1.247	0.024	3.480
Budapest	-0.096	0.714	0.908
Mother– high school graduation	0.147	0.602	1.158
Mother – higher education	0.286	0.391	1.330
Wealth position of family	-0.053	0.399	0.949
Monthly income (or budget to use)	0.000	0.610	1.000
Subjective well-being of the family		0.393	
The family regularly have financial problems	-0.273	0.648	0.761
They just make a living	-0.658	0.153	0.518
They live economizing well	-0.094	0.792	0.911
ICT-index	0.006	0.331	1.006
Constant	-6.013	0.000	0.002
Cox&Snell R2	0.090		
Nagelkerke R2	0.172		

Notes: N = 899

SUMMARY

Empirical analyses have confirmed the hypotheses concerning digital inequalities:

- Differences concerning new communication technologies may be displayed in the characteristics of use, user patterns may be distinguished unambiguously.
- Differences in internet use follow the usual patterns of socio-cultural differences.
- Young internet users do not form a homogeneous stratum, at least in respect to the knowledge types they regard as relevant, valuable; these can be distinguished unambiguously.
- Lifestyle and knowledge type define the characteristics of internet use, even independently from socio-demographic and income factors.

As conclusion digital inequalities are systematic and are added to already existing social inequalities.

It can be assumed that a positive effect of the use of technology on the level of individuals can take place in the case of classical, information gathering–resource increasing internet applications. Since here one may observe the most prominent cultural determination, and such relatively slowly changing factors as lifestyle and

knowledge style also determine it, we may presume that there will appear such inequalities in this field that would lead towards a new type of social exclusivity.

This level of cultural determination of the information gathering–resource increasing pattern makes many governmental measures targeting the elimination of digital inequality uncertain. Insofar as youth with more restricted cultural resources use new technologies with considerably less chance to increase their resources, the success of the initiatives promoting online labour market access or programs promoting on-line access to government services becomes disputable together with the development of educational contents. It is suggested that governmental measures targeting the elimination of digital inequalities should be integrated with other social and educational policies, so that digital gap and digital inequality could be minimized.

In all probability the digital inequalities detected among the youth will appear sharper in the whole population in a later diffusion phase of the widespread of new technologies.

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APPENDIX

Table 11. Consumption Structure
 – PCA Factor Analysis (Factor Weights)

	Principal Components	
	Social and Entertainment Oriented Pattern	Home Life Pattern
	25.5%	23.8%
Using of mobile phone	0.726	0.135
Entertainment, partying	0.655	-0.258
Buying clothes, shoes	0.639	0.160
Driving, car maintaining	0.635	0.198
Vacation	0.633	0.300
Hairdresser, personal care	0.436	0.268
Spending on household equipments	0.101	0.775
Spending on household furniture, furnishing	0.077	0.736
Household maintaining	0.127	0.732
Spending on meals/food	0.409	0.630
Eigen-value	2.55	2.38

Notes:

N = 959

Total explained proportion: 49%

Table 12. Listened Music Genres
 – PCA Factor Analysis (Factor Weights)

	Principal Components		
	Rock	Elite Genres	Popular Genres
	20.7%	19.4%	14.9%
Metal	0.828	0.062	0.061
Punk	0.827	0.028	0.081
Rock	0.636	0.211	-0.070
Classical music	0.007	0.822	0.050
Folk music	0.085	0.741	0.075
Jazz	0.207	0.636	-0.087
Popular folk music (lakodalmas)	-0.039	0.082	0.739
Pop	-0.045	0.104	0.649
Electronic genres	0.200	-0.226	0.592
Eigen-value	1.86	1.74	1.34

Notes:

N = 959

Total explained proportion: 55%

*Table 13. Spending Leisure Time
– PCA Factor Analysis (Factor Weights)*

	Principal Components		
	High Cultural Orientation	Entertainment Orientation	Health Oriented
	22.0%	14.8%	13.6%
Attending classical music concerts	0.787	0.070	-0.041
Going to theatres	0.734	0.154	0.196
Opera	0.730	0.076	-0.117
Exhibitions, museums	0.704	0.025	0.322
Bookshops	0.637	-0.075	0.294
Going to parties, discos	-0.102	0.743	0.001
Going to pubs, cafés	-0.004	0.687	0.076
Film-clubs, cinema	0.354	0.516	0.132
Pop music concerts	0.353	0.473	0.192
Hiking/excursions	0.128	-0.124	0.766
Sports	0.090	0.246	0.647
Swimming pool, strand	0.076	0.390	0.573
Eigen-value	2.88	1.78	1.63

Notes:

N = 959

Total explained proportion: 52%

*Table 14. Value Structure of Young Internet Users
– PCA Factor Analysis (Factor Weights)*

	Principal Components		
	Values of Private Sphere	Pathfinding Values	Hedonistic- Individualistic Values
	20.1%	17.9%	16.1%
Peaceful life	0.805	0.105	-0.115
Inner harmony	0.792	0.168	-0.026
Security	0.731	0.177	0.029
Family	0.666	0.216	0.022
True friendship/friends	0.566	0.154	0.167
National feeling	0.079	0.783	0.040
Order	0.221	0.741	-0.056
Useful life for society	0.239	0.680	-0.018
Success, career	0.110	0.581	0.363
Creative life	0.223	0.559	0.193
Partying	-0.068	-0.078	0.818
Flirting/making friends from the opposite sex	-0.168	-0.032	0.780
Interesting diversified life	0.192	0.160	0.657
Wealth, material goods	0.105	0.263	0.577
Eigen-value	2.82	2.51	2.26

Notes:

N = 959

Total explained proportion: 54%