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ONLINE COMPONENTS OF SOCIAL CAPITAL
TOWARDS A COMPREHENSIVE THEORY

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Abstract
Increasingly widespread online presence has significantly changed typical ways of contacting others and maintaining social connections. Traditionally, social capital has been described as a resource that lies in a person's social connections, or – as a collective characteristic – social networks, which lead to reciprocity, solidarity and trust. The advent of social media fundamentally has challenged sociologists' views on what the components of social capital are and how social ties build up networks and indicate the resources within an individual's networks. I argue that for a better understanding of online social capital, we have to differentiate between two different types of online connections: connections based on mutual acquaintance and connections based on online activities. While the characteristics of network capital (defined as productive combinations of social connections, technology, and technological skills) can be found in both types of online connections, it is latent ties that are more characteristic of connections based on online activities.

The appearance of new online platforms has led to a significant change in the typical ways of connectivity, engaging in and maintaining social connections. For Internet users (especially young Internet users), it has become more and more difficult to avoid adding an online dimension to their connections, both in terms of maintaining previously offline relationships through online means, and forming new connections online. This remarkable shift in the field of community formation has led to the question of social capital. How can already existing theories of social capital be applied in an environment with fundamentally different features? What kind of new aspects should be added to the theory in order to understand the formation of social capital? In the following paper, I present an overview of some relevant approaches and develop a synthesized concept of the online components of social capital.

Interpretational frames – digital natives as main beneficiaries of new technologies?
Before turning to our main question, it is important to recall Prensky's famous concept of digital natives and digital immigrants. The concept lies on two basic assumptions: one is that young people are familiar with current technological developments, while the other is that since technology is part of their growing up, it affects their learning skills and preferences. Bennett, Maton & Kervin 2008). According to criticisms of this theory these assumptions lack of empirical evidence, however it is often accepted as an unquestionable fact, while there might be quite significant differences between how and what for young people use the internet and in a wider sense the digital devices. "[T]here also appears to be a significant proportion of young people who do not have the levels of access or technology skills predicted by proponents of the digital native idea. Such generalisations about a whole generation of young people thereby focus attention on technically adept students. With this comes the danger that those less interested and less able will be neglected, and that the potential impact of socio-economic and cultural factors will be overlooked." (Bennett, Maton & Kervin 2008, pp. 778-779). One of the most recent empirical findings on this topic suggests that criticisers are correct. Among other findings that fundamentally challenge the undifferentiated view of the "net-generation" the EU Kids Online Project has shown that "[o]n average, one third of 9-16 year olds (36%) say that the statement, »I know more about the internet than my parents«, is 'very true' of them, one third (31%) say it is 'a bit true' and one third (33%) say it is 'not true' of them." (Livingstone et al. 2011, p.28).
The possible limits of the digital natives theory are one of the most important reasons why dealing with online aspects of social capital is essential.

Network capital and technical capital as a starting point
Social capital can be viewed either as a collective feature (as in the theories of Putnam or Fukuyama) or as an individual resource (Bourdieu, Coleman), but, as Molnár (2003) argues, the two approaches can be integrated to highlight two important components of social capital. These are "*social network*: meetings of friends, visits, neighbourly connections, social events; and *civic engagement*: willingness in community participation, expression of opinions, membership conditions, participation in elections, etc." (Molnár 2003, p.115.)
The online aspects of social capital can be considered from two different perspectives. The concept of network capital, as defined by Ágnes Czakó and Endre Sik (1995) can lead to a good framework to bring a common denominator of online and "offline" social capital. "Network capital is the common part of social capital and knowledge capital. Social capital is a resource that comes from, »derives« from interpersonal relations and it can be utilized according to one's knowledge capital. (Knowledge capital is the sum of all abilities and skills that enable an actor to behave in accordance with situations, creatively.)" (Czakó & Sik 1995) Although the authors use their concept of network capital to describe Hungary in the era of the democratic transition, the theory can be applied to online connections too, because knowledge capital may include the creative utilization of computer-mediated communication. Paul Resnick gives a highly similar description of the concept he calls SocioTechnical Capital. In his use, the term refers to:

"productive combinations of social relations and information and communication technology. It is thus a special case, a subset of social capital, but an important one because technological advances have opened many new opportunities that have not been examined from the social capital perspective. (…) As with purely social capital, resources are accumulated as a side effect of previous interactions. The resources may consist of artifacts created during the earlier interactions, or social ties and practices that developed. They constitute capital if they help a group of people to accomplish more together, improving the routing of information, the exchange of resources, the provision of emotional support, or the ability to coordinate and to mobilize for collective action. The resources are sociotechnical in nature if their production or use requires a combination of social relations and information and communications technologies." (Resnick 2001, p. 250.)

Sarita Yardi (2009) also talks about technical capital, but her theoretical focus differs from Resnick's. In her view "[t]echnical capital is a variation on social capital which is a measurement of access an individual may have to resources embedded in relationships with network member (…) Technical capital refers to availability of technical resources in a network, and the mobilization of these resources in ways that can positively impact access to information and upward mobility." (Yardi 2009, p.9.) Though Yardi refers specifically to the technical and technological flow of information and knowledge in the networks, the main difference is that she doesn't see the technology-mediated nature of connections as a fundamental feature, but instead as an explanatory factor. Thus the availability of technology is an independent variable of technical capital, so her theory can be interpreted in the paradigm of digital divide too.

In summary, the above discussed form of social capital can be described as productive combinations of social relations, technology, and technological skills. I will use the term network capital with this definition.

The theories presented so far refer to the social capital realized in online spaces as something that is by nature additional to the social capital of an individual. However, given the (possibly) different formation of online networks, it is premature to state that this is always the case. Online networks (at least certain kinds of online networks) can be much more mutable as offline ones. Matthew Smith's concept of Implicit Affinity Networks (M. Smith 2011) offers an explanation of this characteristic. Smith's theory was primarily created as foundation of his qualitative studies of network dynamics. Instead of the relationship-centred approach of social networks, he advocates an individual-centred approach. This means that "[w]e consider individuals as social actors characterized by a wide range of attributes and we let relationships among them emerge naturally as a result of commonalities across attributes. Unlike traditional social networks where links represent explicit relationships, the links in our approach are based strictly on affinities, or inherent similarities, among the social actors, which create implicit, and multi-faceted, relationships. We call the resulting networks Implicit Affinity Networks (IANs). Because individuals are complex entities whose attitudes and behaviors change over time, IANs are intrinsically dynamic, and
evolve naturally with such factors as their participants' age, occupation, interests, and life circumstances." (M. Smith 2011, p.8.)

Types of connectivity

Before introducing the capital that can be described with the use of IANs, it is important to note that these characteristics can only describe online networks to a certain extent. My earlier research has shown that there are two kinds of online connections. *Online connections based on mutual acquaintanceship* occur when the connections are undirected, established by mutual agreement and the aim of communication is typically phatic expression. *Connections based on online activities*, on the other hand, describe typically directed connections, while the maintenance of the connections is basically through communication functions that refer to the message (i.e.**,** referential or poetic function), instead of the connection. Thus the reason of the connection is the (not necessarily mutual) interest. It is important to note that Matthew Smith also describes a similar difference between implicit affinity networks and explicit social networks (M. Smith 2008), but since these networks can be more and more overlapping (a good example is the subscription feature of Facebook, or the social features of Tumblr that enable person-to-person communication), it might be clearer to use a distinction based on the types of connectivity, that can be interpreted as two ends of a scale instead of being dichotomous ideal types.

On this basis it is easy to understand that the dynamic networks that consist of inconstant attitudes can emerge via connections based on online activities. According to Matthew Smith, in these kind of networks the social capital eo ipso cannot be grasped, only its potential. "Social capital really accrues when individuals are aware of it, that is, when they establish explicit and intentional relationships with each other." (M. Smith 2011, p.9.)

Having sketched some basic conceptual frames, we can see a flow chart of the building of online social capital. As explained, connections based on online activities only mean a potential for social capital. That means the resources inherent in social connections can only be realized via explicit reflections of the members of a given network. The world of directed connections can only be converted into social capital, if the actors concerned are aware of the inherent resources of the connections. This statement raises the question: how does the "*capital as resource"* concept of networks characterised by connections based on online activity differ from a "traditional" blog (or – mentioning job search as one of the typical examples of social capital – from an advertising magazine). To answer this question it is first important to note that in the case of the advertising magazine we cannot talk about a resource based on a social network, only the meeting of supply and demand (optimistically). In general the individual's focus of interest is *a factor that can be utilized as a resource*. In the case of the directed links (remaining at the example of job search) the given possibility is connected to an already known actor with a coherent online profile (or, using Goffman's words, a coherent online front). This actor can rightly expect from the members of his or her network that they are aware of the main characteristics of his or her online profile and activities. For instance a tweet of a professor that contains information about an internship probably comes from the background assumption that it is relevant for the professor's followers. The followers probably can guess even from a laconic message what kind of tasks the intern might face. In general in this case the subject of interest is the person (or institutional actor) who *represents the connection convertible to resource.*

The above described concept of network capital can therefore be used to understand social capital in case of connections based on mutual acquaintance. If the connection is based on online activities, it is important to take into account the fact that networks built of such connections are less stable and more mutable, so it is only potential social capital that we can discuss.

On the way from potential to real

How can potential social capital be realised? This question can be answered by considering the bond theory of Caroline Haythorntwaite. The basic assumption of social bond theory is that connections have two main qualities. Strong ties occur in connections characterised by frequent interactions and strong emotional commitment (leading to what Putnam calls bonding social capital), while weak ties characterise looser, connections of acquaintances (leading to bridging social capital):
"Weak ties are much more likely to establish connections (form bridges) between local groups of people who have strong connections than strong ties. Thus the strength of weak ties is inherent in that such
relations establish connections between otherwise fragmented parts of societies, that means they integrate them." (Szántó & Orbán 2005, p. 61-62)

Haythornthwaite's bond theory (2005) refers specifically to online spaces. The author, through examining research groups and students involved in distance learning, found that stronger ties come together with diversity in the means of communication. "[M]ore strongly tied pairs make use of more of the available media" – this phenomenon is "media multiplexity" (Haythorntwaite 2005, p.130.)1. In addition, the new ways of maintaining relationships provided by new media affect the development of in-group connections too. "[I]ntroducing a new medium to a group (1) creates latent ties, (2) recasts weak ties – both forging new ones and disrupting existing associations – and (3) has minimal impact on strong ties." (Haythornthwaite 2005, p.136.) The presupposition of the theory of latent ties is the existence the existence of technologies that provide infrastructures that function as an alternative of personal relations. If these infrastructures connect with devices that provide access, the possibility of forming social networks is created. "Such infrastructures make a connection available technically, even if not yet activated socially. These technical connections support *latent social network ties*, used here to indicate ties that are *technically possible but not yet activated socially*." (Haythornthwaite 2005, p.137.) Thus weak ties can emerge among those who previously had not known each other, but the opposite can also be true: if an infrastructure disappears, weak ties can break up (regardless of the means of formation), if relationship maintaining occurred primarily through the infrastructure. It's enough to think of how much the relationship maintaining costs of active users of social networking sites would rise if the online platforms that enabled them to keep connected would disappear. But this example raises a question Haythorntwaite in 2005 could not have asked. Is the technological potential of connections enough to suppose latent ties between the members? Can we for instance say that the more than 800 million Facebook users are connected through latent ties? I would say no. The theory of latent ties needs to be supplemented with a social clause. Haythornwhite did

not reflect2 upon the fact that SNSs, in theory, provide technological possibility for each and every member to connect any other member. This social clause can be explained using an argument from Barry Wellman, made in 1990, originally about community ties and social support. Available, but unrealized connections could of course be differentiated already before the Internet age. Availability usually depends on kinship and other community memberships (e.g., school, church, workplace). Based on these assumptions Wellman estimates the number of available connections of a 40-year-old with a family to be 16,000. Out of these, states Wellman, 2,700 can be accessed directly (based mostly on social and physical proximity), while the remaining possibilities to connect can be generally realized via indirect interactions (Wellman 1990).

1- According to Haythornthwaite's results, the subject of communication depends solely on the type of the social tie and not the medium of communication. I think this question needs to be examined again, because social networking sites and the means of connection based on online activities could have led to changes.

2- This is not at all surprising given the fact that the origins of her concept date before her quoted article. Although the first website that allowed organizing one's acquaintances into lists was launched in 1997, the real expansion of social networking sites only began in 2002-2003.

In the world of online ties, where the role of localities is much less important (and the role of implicit affinity networks are more and more important), the estimated number becomes meaningless. However it is worth to think about the further limits of potentially formable connections besides the technological availability and the membership in online communities. The seemingly most evident limiting factor is language proficiency. Only those can engage in meaningful connections who speak a common language, regardless of this language is their mother tongue or a lingua franca. This also suggests that there is no permanent number of potential connections, even if we know how many network memberships an individual has.

Another important question is that whether the theoretical expansion of potential connections brings a change in the nature and quantity of the practically realized connections. While ephemeral relationships can also be transferred into online connections, the number of sustainable social relationships is obviously limited. There are several theories about this limit; one of the most famous ones is Dunbar's number. Robin Dunbar anthropologist puts this number around 150, based on his biological, anthropological, historical and sociometrical examinations (see Dunbar 1993). Dunbar's theory of course refers to offline spaces and can be applied for a deeper understanding of the theory of social ties. If we consider strong and weak ties two ends of a scale rather than a dichotomy, we can state that in this scale certain connections may move with time and geographical distance. To apply Dunbar's theory in online spaces we have to keep in mind that on social networking sites time is usually frozen, that is SNSs allow users to freeze the time and space of each confirmed connection, and that might lead to the expansion of actively maintained social connections. A 2011 study (Goncalves et al. 2011) however confirms Dunbar's findings for Twitter users: the authors found that can deal with a maximum of 100 to 200 stable connections. In a critique of a different study that led to similar consequences, Barry Wellman (2011) states that these theories are mistaken, and even before the age of the Internet there were studies that showed evidence of much larger personal network sizes. As for online spaces, "social media such as Facebook have increased the carrying capacity of relationships, with heavy Internet users having more close ties".

The views on the number of sustainable relationships are highly connected to the theories about social capital, because, we can conclude, that the accessibility of resources inherent in social relations can have cognitive and activation premises even in connections based on mutual acquaintance. The cognitive premise is the recognition of resources inherent in possibly faded (but technically still existing) relationships, while the given relationships have to be re-activated in order to take advantage of the perceived resources.

Conclusion

In summary, the theory I have presented on the online components of social capital is a combination of network capital, and the extent of activation potential and resources inherent in latent ties.

For a deeper understanding of the online components of social capital, it must be recognized that there are two fundamentally different types of online connections, and these types may have a notable effect on the composition of social capital. In the case of online connections based on mutual acquaintanceship the role of network capital is more salient, while in the case of connections based on online activities latent ties have a greater role. A qualitative approach of implicit affinity networks is needed to understand the main patterns of online community formation. As a hypothesis for further research, two kinds of communities can be sketched. "Communities based on attitudes" are long lasting, and membership requires a high level of commitment. "Communities based on actualities" (Bauer & Déri 2011) are connected to specific happenings, news, and events, and are typically active for a limited period of time. If we accept that implicit affinity networks cannot be viewed as a monolith, we can gain a deeper understanding of community formation and social capital.

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