A Concept to Measure Social Capital in Social Network Sites

Tom Sander and Teh Phoey Lee

Abstract—**This paper describes a concept to measure social capital. The concept needs dimensions and illustrative factors to explain the existence of social capital in social network sites. This paper describes the dimensions and factors to measure social capital. The objective of this paper is to demonstrate a way to describe social capital. The description of social capital supports the measurement and gives the scientific world the opportunity to identify and to attest social capital in social network sites. The value of the paper is the concept to measure social capital with a questionnaire and gives the opportunity to identify social capital in networks with many participants.**

Index Terms—**Social capital, measurement, social network sites.**

I. INTRODUCTION

Data collection is one of the most important points for the scientific research to explain the interaction between the theory and the real world. The concept gives an overview about variables and indicators to measure social capital [1]. Social capital can be explained and measured with the outcome of ownership of social capital. The dimensions explain the different factors which have an influence on the outcomes. The illustrative factor gives the reason to be a member in a network and explain the researcher the mechanism in a network and how people can use the network.

In general explains social capital the relationship between people and the outcomes of the relationships. Social capital is part of the daily social life and explains in a logic manner the behavior of people in the society. The Figure explains the illustrative factors which are explainable by the dimensions of social capital. The outcomes of social capital for network members are the achievements [2]. The main point is social connections which affect the social life of the network member. The outcomes of social capital can be used to measure social capital and relates to the social life of individuals [3].
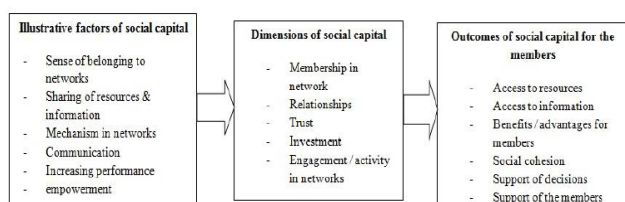

Fig. 1. Measurement of social capital cf p. 65 [4].

The limitation of this kind of measurement is that the structure of the network is not taken under consideration. That means the structural hole or the network generator [5] are not included to measure social capital with the mentioned dimensions and survey. The structure of the network has an impact on social capital but to describe the network structure and to measure the network structure with social network analysis is limited by the size of the network or the research field. The number of participant in the network analysis is limited at the moment for technical reasons and it is difficult to social network analysis tools for large networks. Only a part of the network can be described.

II. INDICATORS FOR SOCIAL CAPITAL USED FOR THE RESEARCH

The collection of data for social capital is difficult and needs creativity. That is the reason to use indicators to make social capital variables measurable and the phenomena visible. Singer writes at page 183:

"In the social sciences, where many of our explanatory concepts refer to symbolic behavior, intrapersonal processes, and other equally intangible phenomena, we need to be even more creative and diligent in our instrumentation." [1]. Social capital fulfills the mentioned attributes as it is an intrapersonal process. The research needs indicators to observe this intrapersonal process. The behavior of individuals is the visible indicator for social capital [1].

Social capital is the relationships between people and the access to resources or information. Social capital exists only if people share their resources and information. That means the people need access to each other [6]-[8]. The measurement for social capital needs variables which describes the mentioned points. The shared resources or information are benefits for a defined group of people and secure the people their situation or make their live more valuable.

At the beginning of the measurement the research has to prove if the individual is able to take part in social media or not. People who do not have access to social media cannot increase their social capital via social media. Further has to be clarified if the person has the ability and willingness to take part in social media. This two points has to be fulfilled to be an interesting individual for the research of social capital in social media [2]. That means the first point to measure social capital is to define and identify the membership of a person in a network. A person who enter a social network creates social capital because the individual diminish the distance to individuals with resources and information [9]-[11]. Further

increase any new member of a network new social capital for the network because the new member provides information and resources to the network.

The second point is the motivation to be a member in the network [12]. The motivation is influenced by the role of the person in the network and influence the behavior and relations of the person [9]. People who are not member in the network cannot take part in the beneficial action or get the advantage of the network because this people do not have the access to social capital of this network. Maybe they get a passive benefit but mainly is there a negative effect for the non-members because the network supports the members and not the non-members.

Capital needs investments to exist and people can do different kinds of investment to create social capital. They create social capital investment with their activities. Passive members cannot create or reach the same amount of social capital as people who are more involved [3]. First point is activities of the individual in the network. People can use the network to get access to resources or to give resources or information to other people. It is required that people are member in the same network to have the access and ability to share resources. Some authors define the investment as engagement or involvement [2], [3].

The scale and indicators for this variable are time, frequency and activity. These indicators give information about the importance and time investment of members in the network or the ability to mobilize resources. This indicator is supported by the question how long people using social media per day. This two indicators – how often and how long people use social media – gives a feedback regarding the importance of the network. The scale is measured in hours and minutes to get a comparable result.

Trust is another important variable for social capital. Already the further indicators can describe trust in social networks because people do not share content with other people if they do not trust each other [13], [14]. Healy writes in his paper:

"Networks based on the provision, receipt or exchange of unpaid help…" [3]

The exchange of resources and information needs trust. A further indication is if people following the advice which is given in the network and if they use the information from the network for their advantage or if they trust people in their network.

Another indicator for trust is the duration of the relationship because people who do not trust each other would not have a long relationship. The duration shows that the member of the network has a positive experience with the network. They are continuing the relationship of exchange because they have a benefit with the network.

Further indicator for trust is the questions if people would ask actively questions or ask for help on the social media platform to get access to resources and information. Nobody would ask for help or information if the information is wrong or the advice of the network negative.

Important for trust in social media is the generation of the user. Shah et al. found out that the level on trust depends on the generation of the member [12]. That is one reason to collect demographic data from the participants in the survey to observe differences between generations.

One more point is the number of contacts of an individual in a network. The numbers of relationships gives an indication about the impact of the member on other members. People with many contacts have more chances to get access to resources and information and they have more chances to give advice and support to other members. Further is a person with many contacts a demanded character in the network [3]. The number of relationships is an indicator to explain the involvement and engagement of a member in a network [10], [5].

Some key background and demographic characteristics can explain social capital too. The reason for this part is the behavior of different generations and their experience with social capital. This factors have an impact on the variables and has to be under consideration for the analysis [12]. Another reason is the skills and resources which depend on the person. Individuals who do not have the required resource cannot create social capital. Glaeser et al mention in their article that the connection between social capital and human capital is one of the most robust empirical regularities in the social capital literature [9].

III. THE DIMENSIONS OF SOCIAL CAPITAL

This part explains the indicators for the different dimensions and is used to create the questionnaire for the research. The figure explains the different dimensions which influence social capital. The mentioned dimensions exist in social media and can be used to measure social capital in social media.
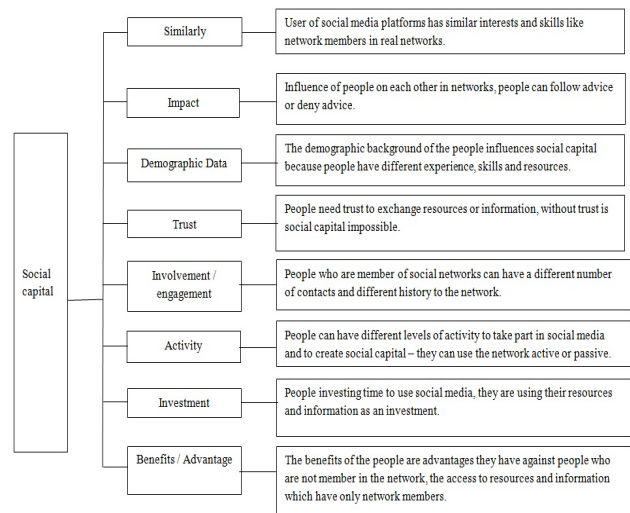

Fig. 2. The dimensions of social capital with the indicators.

IV. THE METHODOLOGY

With the above framework provided, the reporting paradigm will be based on Chin's [15] Structural Equation Modeling (SEM) reporting structure. Results are covariance based Partial Lease Square (PLS) analyses. Eights construct of the Fig. 2 is used for the modeling analyses. Results can be ascertained as first approximation by determining the specific portion of the model that has the largest number of predictors for a particular dependent variable, and Cohen's power tables

[16] is referred for the effect sampling sizes. Both latent construct of reflective indicators and formative indicators will be used to predict the measurement. It is to weight the best variety or construct score such as it maximally correlates with the neighboring constructs.

V. Conclusion

The paper describes a new way to measure social capital and to identify social capital in social network sites. This measurement gives the opportunity to improve the research for the social capital theory and to attest the existence of social capital in networks especially in social media networks. That measurement construct with the dimensions has to be tested and verify. Further has to be created questions to measure the dimensions and has to be defined the relationship between the questions and the dimensions. One point is the relationship between the dimensions and the question regarding the different power of influence of the dimension on social capital. This task will be done with surveys for different populations and gives the opportunity to test the dimensions and method.

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