

SOCIAL CAPITAL IN SCIENCE AND TECHNOLOGY AND ITS COMPONENTS

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Abstract:

Social capital in Science and Technology (S&T) and its components are new and important topics which need to be studied exhaustively in order to get solutions for enhancing and developing this capital source. One of its components is S&T communication which has played an important role for S&T development of the country.

1. Social capital

In the society, in addition to physical capitals such as money, land, human labor and etc, there exist other types of intangible capitals such as culture and social capital. Among them, the social capital was recognized from long time. Many authors in the world proposed different interpretation of the social capital, namely Pierre Bourdieu (France) [1], 1986; Coleman (USA) [2], 1988; Robert David Putnam (USA) [3], 1995, 2000; Fukuyama (Japan) [4], 2001, 2002 and Lyda Judson Hanifan (USA) [5], this concept had been proposed the first in 1916. The authors, however, agreed that the social capital is a source in the social network through which individuals can use to earn benefits. The most particular point is that the social capital is based on the mutual trust and reciprocity.

From features of the social capital, many authors carried out studies on the application of social capital in fields of economics, culture, education and others and they found its active impacts of the development of these fields. In addition, many authors indicated the close links among the three types of capitals, namely economic, social and human, particularly the role of the social capital in the set-up of the human capital. In the book entitled: “*The social capital in establishment of the human capital*” in 1988, Coleman emphasized that the social capital in family and community is very important in establishment of the human capital for the next generation which was interpreted as education of children. Robert David Putnam also thought that the social capital enhances the popular standards, simplifies the

cooperation, provides the cultural prototype for solution of collective actions, creates the happiness, physical and spiritual.

In addition to positive impacts of the social capital toward social aspects, many authors also indicated some negative consequences of the social capital such as mistrust toward unknown people, factions, corruption and others.

According to statistic data by Dr. Nguyen Tuan Anh (Dept. of Sociology, University of Social Sciences and Humanities, Hanoi National University), there were two groups of researchers for the social capital in Vietnam. The directions of their studies were:

- (1) Summary and introduction of the social capital theory, and
- (2) Application of the social capital theory in practical studies.

In the first direction, there were some famous authors, namely Tran Huu Dung for his article "*The social capital and economics*" (2003), Tran Huu Quang for his article "*Understanding the social capital*" (2006), Nguyen Quang A for his article "*The capital and the social capital*" (2006). In the second direction there were some famous authors, namely Nguyen Quy Thanh (Vietnam National University, Hanoi) indicated the important role of the social capital in supporting starter-ups and Nguyen Tuan Anh applied the concept of social capital to study some reforms in agricultural production.

2. Social capital in S&T

Recently Vu Cao Dam [6] (Vietnam National University, Hanoi), using the political approach, had a paper on the concept of social capital which is considered as intersection of politics and sociology. According to him, the social capital is the network to link people which are not the one in tangible resources and are not the one disconnected in the society but the one which are crystallized and which gather the spiritual values in certain social network and certain cultural traditions. They are the people harmonized in a community to form intangible resources which create the force for social development including the S&T development. In S&T activities, these intangible resources are the network to link stably researchers and trusts in S&T activities, moral standards of the S&T community, values of S&T in the society and cooperation in S&T activities.

Being based on consideration of the social capital in various aspects, namely from vision of "sustainable network" (by Bourdieu), "standards" (by Fukuyama) and "cooperation" (by Putnam) in the all three levels, namely

“micro level” (*individuals*), meso-level (*social groups*) and macro-level (*national, international*), Vu Cao Dam stated that the interaction between the levels will make the social capital “richer” or “poorer” which mean the social capital developed or exhausted. With limited social capital sources, the S&T system of the former Soviet Union and other socialist countries could not produce spectacular advances in the world’s S&T system. Their new fields of scientific research are rare also during the last time.

Therefore the study, identification and development of components of social capitals in S&T development get very necessary. It is also a new topic of research to contribute the S&T development of Vietnam.

3. Science and technology tradition - important component of social capital for S&T development

For its role of driving force for socio-economic development, large attentions and close guidelines from the Party and the State are delivered to S&T sector. The contributions of S&T, however, do not yet match the expectation of the country and this sector did not yet get an important position in the world’s S&T development. One of the reasons of these modest contributions is the limited social capital sources which even are not used in optimal way.

As the concept of social capital is presented above for S&T, the key components of social capital are organization structure, network structure (organizations or individual scientists), standards, cooperation, etc. In this paper, the most attention is focused on the cooperation in field of information, and more concretely the S&T communication.

The S&T communication is the network to link all the S&T related groups of media actors. This network connects these actors in multiple forms of links, namely hosting organizations, clubs, vocational associations, socio-political associations, religious/political/cultural organizations, and etc. These always changing actors create large sources of social capital for S&T sector, locally and internationally.

Similarly to other social links, the communication network has the vertical and horizontal links. The vertical links have place in top-down structure as it is observed in administrative control mechanism in press organizations. The horizontal links prevail in equal and voluntary relations between individuals who are not bound by any hierarchic mechanisms (for example, between S&T communicators and researchers). These two types of links are beneficial for S&T communication which is a component of S&T social

capitals if provided with a reasonable and smart strategy/plan for communication activities.

The problem is how to build a good relation between S&T sector and S&T communication agencies as well as to have a proper evaluation and enhancement of the role of S&T communication toward S&T development. For this purpose, S&T management agencies have to build up and support the relation links between reporters, scientists and S&T managers then the S&T information is exchanged between them. This will facilitate the direct sharing and transmission of S&T information without passing intermediate links. The adequate realization of the role of S&T communication is also important to connect social communities and researchers for better application of research results and enhancement of awareness about the role and contribution of S&T sector.

As it is seen through the example of S&T advanced Japan, there were times when the population did not pay much of attention on S&T communication. Facing this situation, the Japanese Government made many decisive and concrete policies for S&T promotion and made S&T a veritable culture. Since 1960, every year Japan has conducted S&T Week by April, since 1992 Japan has also conducted S&T festival for young people (*Youngsters' Festival*), and since 2006 Science Agora has become the largest science communication event in Japan. This event conducted annually in November lasts for 3 days in the Academic Park in Tokyo and gathers millions of participants. In addition, Japan pays attention to build up the image of the Scientist and conducts various communication events such as regular training courses of S&T communication in universities and set-up of more than thousand of science cafes over the whole countries.

Another example of adequate investment for S&T communication is the fact that Japan Science and Technology Agency (JST) under Ministry of Education, Culture, Sports and S&T made USD105.5 million investment for S&T communication which made 7.2% of the total 2011 budget of JST (USD1,474 million). As result, the S&T communication activity of this agency turned out very effective which bridge scientists, reporters and the population.

In Vietnam, S&T communication gets special attention and investment from the State agencies. It is among the 6 main solutions for implementation of the S&T Development Strategy, 2011 - 2020 periods. The relevant organizations also set up concrete programs of activities to promote the S&T communication. In fact, many information agencies have specific pages for S&T. Other events are also held for dissemination of S&T knowledge such as workshops, conferences, training courses, roundtables

and etc. Recently, since 2012 Ministry of S&T delivers the annual S&T Press awards in efforts to push up S&T communication activities. It is also a measure to encourage reporters to enter S&T sector. In addition, Techmart, a S&T fair, has got more attention to promote S&T communication. Even with these great efforts the S&T sector cannot yet build up a long-vision strategy for S&T communication.

Assessing S&T communication activities, Mr. Nguyen Quan, Minister of S&T, said that during the last years the activities in this field did not come up to the level of requirements of enhancement of effective State management in S&T sector. S&T communication activities are not integrated, have no focused targets and coordination mechanisms between the agencies of the Ministry of S&T, S&T organizations and the large media. The number of papers, TV and radio broadcasts of S&T topics still remain very limited. The most problem is the fact that Vietnam does not have any scientific magazine to meet international standards (Scopus, ISI). Actually, Ministry of S&T assigns the S&T Communication Research and Development Center to build up the S&T Communication Strategy, up to 2020 and vision to 2030. This master plan would promote further S&T communication activities for S&T development and international integration of S&T fields.

Hopefully the master policies for S&T development, the adequate investment for S&T communication and the enhanced role of S&T reporters will make the S&T communication an important component of social capitals for S&T development and therefore, the socio-economic development of the country./.

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