

## Returned Cognitive Benefit of Modern Societies as a Result of using Social Networks

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**Abstract**—paper The role of social networks in the cognitive benefit of modern societies is explored in this paper drawing from various studies and literature review. Social networks play a crucial role in the development of positive cognitive processes of an individual. Studies have indicated the various physical and cognitive impact of social networking among individuals, and even a recent tragic event will show that mankind is inherently social and that interaction with others will improve his thinking and reasoning process. Ways to maximize social networking online and offline should be considered by societies in order to minimise aggression, crimes, and even self-destruction. the role of social networks in the cognitive benefit of modern societies is so important that it has become integrated on the way social networks are governed and developed. Social network impacts on humans are being studied from participants as young as school children to elderly such as those who are already retired or even in nursing homes. Cognitive processes are heavily affected by social networks as positive outside experiences motivate each individual to sustain mutually beneficial relationships and look for ways to reach out to more similar network members and experiences. On the other hand, negative social network experiences may build cognitive development barriers for some individuals who may be at risk for related physiological and social factors.

**Keywords**—Cognition; Cognitive; benefits; Social; networks; Modern societies.

### I. INTRODUCTION

Social networking has recently occupied the main stage in the global economic and popular trends as online networking sites became unprecedented successes across many nations. After the establishment of personal connectivity of long-distanced persons became such a hit, expansion of social networks came next, and has been able to sustain its presence and popularity until now. Social network has since then captured a wide scrutiny from

all aspects of studies: scientific, social, political, economic, and even as entertainment and trend.

The role of social networking has become inescapable social factor that have been subject of studies for a long time now. The physical changes and definition of social networks may have evolved, but the effects have proven to be consistent.

The impact of the huge success of SNS or social networking sites or services have led to linkages of its influence on the various aspects of human and even industrial developments. This paper will focus on the role of social networks in the cognitive benefit of modern societies.

The human cognitive system has complex mental processes with interrelated ideas, beliefs, and knowledge about concrete and abstract thoughts or information. These processes have been thought to be formed, influenced, strengthened, or even destroyed by social factors or characteristic of relations of a person towards others.

‘Others’ in this sense usually is formed by the social networks of an individual, from family, community, to professional and personal affiliations. In the growing interconnectivity between individuals and groups brought about by information and communication technologies (ICT), social networks have been redefined in recent times to encompass the interaction of individuals who may not have met in person but through ICT. This led to a modern society which social networks are based on ICT—such as internet platforms Facebook, Twitter, Yahoo, Google, and other sites. These are often called social network sites or SNS. Through commonalities, these social networks, although organizations on their own, built sub-groups and continue building new ones as individuals are empowered to form them.

This paper will proceed to determine the linkages between cognitive processes and social networking in a modern perspective. Also, This paper will try to define the role of social networks in the cognitive benefit of modern societies through reviewing some

of related literature. This method uses secondary analysis as previous studies will be considered to derive at a conclusion. It will try to investigate the activities in social networks of an individual in a modern society that could lead to cognitive development.

Finally, the research work presented in this paper try to answer the following:

- What kind of participation or activities do social networks conduct?
- What are the reasons that encourage participation in a group?
- What personal/social benefits or satisfaction do they attain from joining the group leading to cognitive benefits?

## II. PREVIOUS STUDIES (LITERATURE REVIEW)

Social Networks—As earlier pointed out, social networks are the linkages of an individual. Social networks change over time as new ones are formed and others abandoned. This may be caused by movement from one place to another, from one status to another, such as a student graduating to find work, professional or personal transitions, and other changes that occur to an individual. Social networks are formed at home as family members, kinship or relatives, neighbours, community, friends, schoolmates, and so on.

Current social networks have evolved over time. Aside from the organisational stages from family to school to chosen profession, it has expanded to bigger, wider communities of shared hobbies and interests so that total strangers may find themselves in similar events, with similar goals and thoughts such as in a sports competition arena. Two strangers may be seated beside one another rooting for the same basketball or softball team although they came from different states or countries. Likewise, a group may be as obscure or unlikely, such as victims of a single or common tragedy who later bond together to commemorate their loss and strengthen each other through shared experiences. This type of group includes war victims, crime victims, or even natural calamity victims. This, however, does not limit the type of a networking site that an individual may belong to. A friendship comprised of two 5-year old girls is as valid a social network as with membership to the committees of the World Trade Organization.

In view points of social network advantages against an individual, It has been suggested earlier that social integration is key to some health benefits such as reduced mortality risks and improved state of mental health. In one study, it has been found that social integration has a positive effect on post-myocardial infarction prognosis or functioning and longevity. In addition, social isolation and non-supportive social interactions result in lower immune function and higher neuroendocrine and cardiovascular activity. It was concluded that 'individuals' networks of social relationships represent dynamic and complex social systems that affect health outcomes'. Another study indicated that social networks modify the relation of some measures of Alzheimer's disease pathology to level of cognitive function.

Better social networks resulted to greater participation in social activities. These were linked with lower risks of cognitive decline by helping preserve cognitive function and guarding against depression or other negative effects of stress. In addition, social activities also protect cognitive function through provision of stimulation, cognitive impairment linked to depressive symptoms, restricted activities of daily living, and limitations on instrumental activities of daily living. These health conditions restrict and limit participation in social activities and further lead to poor psychological and physical health as they have fewer social connections. This kind of negative impact of the lack of social network might as well be exemplified by the recent Newtown massacre as the perpetrator has been identified to 'had left few footprints, electronic or otherwise. He apparently had no Facebook page'.

A longitudinal study on 469 elderly non-demented subjects found that participation in cognitively stimulating seizure social activities such as board games were protected against the development of dementia. Positive social contact too with children provides positive results for subjects in another study. 'Social disengagement at baseline and unsatisfying contact with children was linked to greater risks at subsequent dementia or cognitive decline'. Marriage too, another form of social networking as formal union of man and woman, was seen to be protective of cognitive function. This made Fratiglioni et al suggest that single persons are at greater risk for dementia.

A longitudinal study by Gleib et al focused on elderly participants found that participation in social activities is highly associated with reduced risk of cognitive impairment, health status, and socio-demographic characteristics. They suggested that voluntary social interactions may have a greater impact on cognitive function than family or intimate ties, but this may still need further evidence. In consideration of the various benefits that result to the physical and psychological advantages of social network participation, this paper proceeds to discuss modern society networks. Regarding the modern society networks, One of the more 'modern' and closely linked studies on this matter is the one undertaken by Ellison et al. In this study, the benefits of online or social network sites' friends as social capital are examined. Specifically, one of the more popular SNS Facebook is scrutinised. Facebook or FB is one of the most popular and widely used networking sites today. Together with other websites such as Twitter, Google, Pinterest, among others, they comprise what is now commonly accepted as networking hubs where modern society thrives. These sites are generally categorised as 'service' oriented for facilitating social networks or social relations. These relations may be in the form of real-life connections, such as family, neighbours, friends, workmates, schoolmates, and other personal encounters.

However, many groups were also facilitated beyond the real or live relations based on backgrounds, beliefs, and interests. These are encouraged and built in such sites. Religious, spiritual, travel, hobbies, personal interests, and other types of groups have grown exponentially over the past few years. The network is represented with a profile of the user or individual to which others may base their acceptance of friendship, or group membership requests and invitations. Interactions have gone beyond online messaging, real-time conversation or chat, or group posts and discussions but also towards group member meet-up or meetings, actual gatherings, conventions, and other real-life connections. In Ellison's study, in Facebook and other SNS, members use the sites to interact with people they already know offline or to meet new people. They can set up their own profile, search and add friends who, when already linked through acceptance, could post comments on each other's pages as well as view each other's profile. In this manner, existing social ties and formation of new

ones were supported. There have been indications that online to offline relationships were also formed. While modern society network shall be tightly connected with online networks or SNS, this study will proceed to understand that it will encompass both online and offline social networks of an individual.

### III. SOCIAL CAPITAL AND SOCIAL NETWORK SYSTEM ROLE

The proliferation of social media as basis for social networks cannot be avoided as gadgets such as mobile phones and portable computers provide the services for SNS. Social media was seen to benefit children and adolescents through enhanced communication, social connection, and improved technical skills. For teens, accomplishments of tasks is aided by social media including maintenance of connections with family and friends; enhanced learning and understanding the world around them; community engagement; enhanced volunteerism and participation in community, philanthropic and even political events; enhanced individual and collective creativity through development and sharing of musical or artistic endeavours; growth of ideas through podcasts, videos, and games; and fostering individuality.

As Bandura illustrated in Appendix B, human behaviour is shaped and controlled by environmental influences and internal dispositions, of which 'this transactional view of self and society, personal factors in the form of cognitive, affective, and biological events, behavioral patterns, and environmental events all operate as interacting determinants that influence each other bidirectionally'. This is presumed due to the self-organising, proactive self-reflecting and self-regulating nature of humans who also react to environmental events and inner forces. While they are considered producers, they are also products of social systems. Bandura further explained that the advanced neural systems of humans are specialised for processing, retaining and using coded information in order to generate symbols, forethought, evaluation, reflection, and symbolic communication.

External influences are seen to affect behaviour through cognitive processes rather than directly. 'Cognitive factors partly determine which environmental events will be observed, what

meaning will be conferred on them, whether they leave lasting effects, what emotional impact and motivating power they will have, and how the information they convey will be organised for future use', Bandura explained. These symbols help humans process and transform transient experiences into cognitive models guiding human's judgment and action, provide meaning, form and continuity of their social experiences.

Personal and vicarious experiences help humans generate solutions to problems, evaluate their possible outcomes, as well as choose the best options. Likewise, symbols help them communicate with others any time, and with modern ICT, distance barriers are eliminated.

The role of social networks in the cognitive benefit of modern societies can now be determined to be wide and varied. Specifically, there is parallelism to the type of interaction as well as reaction that one individual may provide and get in return in their network. For instance, a friendly and respectful member may positively experience a reciprocal reaction, and a bully may in turn get aggressive types of behaviour from other members of a given network. Internal factors, as Bandura have discussed, however, may also retain a positive cognitive behaviour where there is a strong one. A bully may remain a strong-willed person with wide acceptance in his chosen social network if he can balance his aggression with a positive attitude such as strong sense of humour.

In finding answers to the questions on what kind of participation or activities do social networks conduct, this study turned to the previous studies already mentioned. The participation in social networks includes creation and maintenance of relationships; joining discussion and other activities including offline meet-up, gatherings, and other activities. For online groups, group discussion, posting, sharing of ideas, news, stories, and personal experiences are common. Online networks, however, should be noted to emerge from previous offline linkages such as high school mates, work mates, and other encounters. Meeting new members in a group, however, have become a prevalent phenomenon and an industry online by itself as dating sites have grown and become popular. These online-offline linkages have interlinked so that one complements the other or a continuation of unfinished online-offline undertaking or business.

The reasons that encourage participation in a modern society network were mainly due to the desire to reconnect with previously lost contact such as high school or college friends, neighbours, or work colleagues. Another reason has been to seek like-minded individuals when it comes to interests (hobbies, music, arts and crafts, sports, fashion), ideas (religion, profession), and other similarities including work or personal ventures.

The personal/social benefits or satisfaction attained by members from joining the group leading to cognitive benefits relate to the human capability to translate experiences into learning systems that guide their decision-making process as Bandura suggested. In their continuing interaction with their social networks, their cognitive capabilities of symbolising external forces or events, self-reflection, self-regulation, and vicarious capabilities are activated. Social affects imprint on the individual the various possible expectations for different stimulus coming from the social network. Here, there is a continuous learning, modelling formation, and beliefs or biases that are established within the human cognition<sup>1</sup> so that each social experience translates to the positive or negative cognitive effect on the individual.

IV. DIAGRAMS

A. Social networking sites or SNS by 2009 ranking

Top 25 Social Networks Re-Rank

(Ranked by Monthly Visits, Jan '09)



Rank	Site	UV	Monthly Visits	Previous Rank
1	facebook.com	68,557,534	1,191,373,339	2
2	myspace.com	58,555,800	810,153,536	1
3	twitter.com	5,979,052	54,218,731	22
4	fixster.com	7,645,423	53,389,974	16
5	linkedin.com	11,274,160	42,744,438	9
6	tagged.com	4,448,915	39,630,927	10
7	classmates.com	17,296,524	35,219,210	3
8	myyearbook.com	3,312,898	33,121,821	4
9	livejournal.com	4,720,720	25,221,354	6
10	imeem.com	9,047,491	22,993,608	13
11	reunion.com	13,704,990	20,278,100	11
12	ning.com	5,673,549	19,511,682	23
13	blackplanet.com	1,530,329	10,173,342	7
14	bebo.com	2,997,929	9,849,137	5
15	hi5.com	2,398,323	9,416,265	8
16	yuku.com	1,317,551	9,358,966	21
17	cafemom.com	1,647,336	8,586,261	19
18	friendster.com	1,568,439	7,279,050	14
19	xanga.com	1,831,376	7,009,577	20
20	360.yahoo.com	1,499,057	5,199,702	12
21	orkut.com	494,464	5,081,235	15
22	urbanchat.com	329,041	2,961,250	24
23	fubar.com	452,090	2,170,315	17
24	asiantown.net	81,245	1,118,245	25
25	tickle.com	96,155	109,492	18

Fig. 1. Source: Kazeniak, 2009

B. Triadic Reciprocal Causation in the Causal Model of Social Cognitive Theory

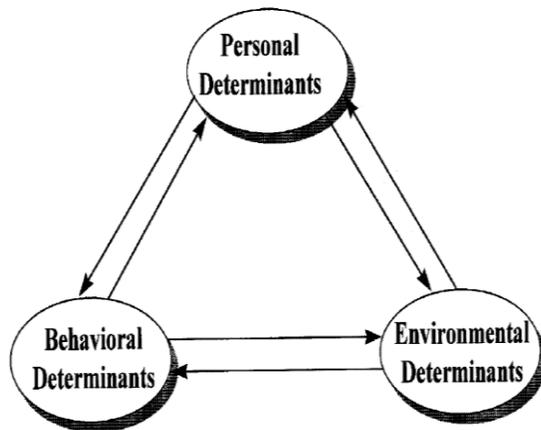


Fig. 2. Source: Bandura, 2011, p. 266

V. CONCLUSION AND FUTURE WORK

Social networks based on the Internet as well as offline networks continue to thrive and mutate over time not only due to the relentless marketing and economic efforts of industries and organisations to outdo one another, but due to the social nature of mankind. Cognitive processes, on the other hand, will continue to be influenced by the social network of every individual. In fact, recent events that point to ‘isolation’ and lack of social networking could not have been far exemplified by the case of 20-year-old shy although intelligent Adam Lanza who had been described as uncomfortable in social situations. He was also described as ‘he just didn’t really connect with our high school, and didn’t really connect with our town’.

There is always a downside for every commercial, entertaining, and hugely popular phenomenon everywhere such as the social networking sites and their offline effects. Privacy, security, bullying, and even adverse isolation issues have been pointed out. However, positive effects have been shown by various studies to outweigh the negative effects including cognitive benefits. Positive experiences on social networking indeed result to positive self-understanding and positive contribution to society. As more people enjoy the benefits of networking, SNS will continue expanding and thriving, and hopefully, reduce the type and number of people who are being isolated and marginalised. Further studies should focus on streamlining and maximising positive social networking activities and relationships in order to minimise the negative impacts on networking members and become inclusive of all types of peoples and personalities. By expanding on the types of networking as well as activities, it is hoped that the world will be a friendlier and better place to live.

Based on the above discussion, the role of social networks in the cognitive benefit of modern societies is so important that it has become integrated on the way social networks are governed and developed. Social network impacts on humans are being studied from participants as young as school children to elderly such as those who are already retired or even in nursing homes. Cognitive processes are heavily affected by social networks as positive outside experiences motivate each individual to sustain mutually beneficial

relationships and look for ways to reach out to more similar network members and experiences. On the other hand, negative social network experiences may build cognitive development barriers for some individuals who may be at risk for related physiological and social factors. This could lead to anti-social behaviour, isolation, and aggression. The presence of support groups and professionals that specifically address these socially linked cognitive problems help reduce incidences that may lead to these challenges.

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