# Role of Social Media in Online Radicalization: Literature Review and Research Agenda

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**A B S T R A C T**

This study attempts to synthesize the literature on radicalization and examine the role of social media in promoting radicalization. The study is based on the review of prominent studies on radicalization in both offline and online settings. The study builds upon the literature in offline settings on radicalisation and presents a research agenda for radicalization in online settings. The study also presents a model of radicalization delineating the role of social media.

*Keywords:* Online Radicalization, Social Media, Research Agenda

## Ⅰ. Introduction

Radicalization is a result of systematic intertwining of social and ideological forces (Helfstein, 2012). Social media acts as a cross-over of social and ideological sphere, where an individual manifests his ideological behavior in a social circle. Social media provides a platform where people choose their social circle based on their ideologies (like-minded people), and their ideologies are in-turn reshaped by their social circle. A number of studies (e.g., Conway, 2012;

Conway, 2014a; Conway, 2014b; Conway, 2016; Naji, 2004) ascribe to social media's role in promoting radicalization. Terrorist organizations, such as ISIS[1] use social media sites (such as Facebook and Twitter) to spread their ideology and lure potential recruits. Evidences[1] of people joining terrorist organizations due to their social media usage increasingly warn us of persistent and diffused threat: "a state of 'hypersecurity'" (Hoskins and O'Loughlin, 2015) that the phenomenon of online radicalization holds for the society. In order to design effective interventions

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1) ISIS: Islamic State in Iraq and Syria, a radical Islamic organization that arbitrarily took over the land of Iraq and some parts of Syria. It has managed to have an impact on world affairs and geo-political stability of the region.
2) e.g., Wani, an MBA graduate from Jammu and Kashmir, joined a local terrorist group named Hizbul Mujahideen the role of social media platforms to different stages of online radicalization through the lens of social media affordances.

to counter this phenomenon, we must identify the role of social media platforms and affordances that promote different stages of radicalization process. In this study, we map the role of social media platforms to different stages of online radicalization through the lens of social media affordances.

Although social media has accelerated the pace of radicalization, the process of how it takes place online and the role of social media is not clear (Sedgwick, 2010). There is no unified theory for radicalization, although a number of studies have been conducted (e.g., Borum, 2011; Moghaddam, 2009; Precht, 2007; Silber and Bhatt, 2007; Tausch et al., 2011) on radicalization in the offline domain. These studies provide us a basis for understanding the process of radicalization. Prominent among these are 'staircase model' by Moghaddam (2009), 'pyramid model' by Moskalenko and Mccauley (2009), and 'conveyor belt model' by Baran (2005). Most studies agree that (1) radicalization is a gradual phenomenon; (2) peer group, social circle and psychological state of the victim plays a significant role in radicalization; (3) radicalization may or may not lead to violence; and (4) there is an urgent need to develop strategies to counter this phenomenon. However, most of these generalize radicalism to be the same as activism (Mcgarty et al., 2014). Moskalenko and Mccauley (2009), however, proved these to be related but distinct constructs by developing a scale to measure radicalism. In addition, previous studies (e.g., Silber and Bhatt, 2007) argue that radicalization on the internet is almost the same as what happens in the offline world except that the platform is different. In other words, social media may influence radicalization although the process by which this happens would remain the same.

Therefore, in this study, we examine the role of social media in the process of online radicalization.

We specifically seek to understand: *What are the attributes and affordances of social media that influence radicalization?* We base this study primarily on literature review which will direct us towards future empirical work. In doing so, we contribute by synthesizing the literature and guide future research on online radicalization with the aim to counter it. We use the lens of social media affordances to examine the same.

The rest of the paper is organised as follows. We take into consideration the overview of research on radicalization in offline scenario. Then we illustrate the attributes of social media in order to map them with the role of social media. Finally, research agenda and future prospects are discussed.

## Ⅱ. Literature Review

### 2.1. Radicalization

The phenomenon of radicalization has been examined by various disciplines, such as, sociology, public administration, and psychology. The term "radicalization" is poorly defined and mean different things to different people (Porta and LaFree, 2012; Sedgwick, 2010). Many definitions have been proposed in different disciplines that offer varied perspectives and cover different dimensions of the phenomenon. Due to increased complexity being added with each attempt to define this very problematic concept (Schmid, 2013), McCauley and Moskalenko (2008) identified two discourses to approach the subject, namely, descriptive and functional. The descriptive approach argues that radicalization means changes in beliefs, feelings, and behavior that justify intergroup violence in defense of the group (McCauley and Moskalenko, 2008). The

functional approach characterizes radicalization as increased preparation with higher commitment to intergroup conflict. In this study, we use the descriptive discourse of radicalization as we look at only the cognitive and behavioral aspect of radicalization on an individual using the lens of social media affordances.

Neumann and Kleinmann (2013) note that theoretical approaches to radicalization can be placed onto two ends of a continuum, namely, the passive (Anglo-Saxon) approach and the active (European) approach. Anglo-Saxon approach concerns itself with the behavioural aspect of radicalization and argues that any belief, however extreme or undemocratic, poses no threat to the society as long as it is peacefully expressed. European approach, on the other hand, concerns itself with behavioral as well as cognitive aspect of the process and presumes that radicalization may lead to violence. In other words, studies characterise active radicalization by violence, and passive radicalization by non-violent means of extremism (such as extreme change in belief against democratic and normative ideologies) (Ranstorp and Hyllengren, 2013). Active radicalization has been the focus of most studies in the recent times, the context being mostly Jihadism and Terrorism at both international and local level. In active radicalization, two approaches were studied (both considering internet) top-down and bottom-up. Top down approach chooses external radicalizers, terrorist group recruiters, or extremist religious personnel as central actors in the process. Bottom up approach recognizes the existence of lone wolf attackers. This phenomenon has been studied on three levels: micro, meso and macro. Micro level uses individuals as the unit of analysis; meso level uses a group or organization as the unit of analysis; and macro level considers a nation or a state to be its unit of analysis.

Radicalization is also characterised by in-group and out-group conflict. An in-group is a social group towards which an individual feels loyalty and respect, and is determined to defend the group usually due to membership in the group based on social or familial ties. On the other hand, an out-group is a social group toward which an individual feels contempt, opposition, or a desire to compete, hence there is a conflict. Studies on de-radicalization have examined intra-group conflict as a factor for disengagement from terrorist activities (Horgan, 2008; John and Braddock, 2010; Kruglanski et al., 2014). Although, Horgan (2008) asserts that when a person leaves terrorism, it is not deradicalization, but disengagemnt, for radicalization is a psychological state. In the study of radicalization, deradicalization and disengagement, major focus of studies has been on people's motivation and mechanism behind engagement.

On micro level, motivation behind participation and demographic determinants have been examined. Precht (2007) outlines three major factors: background factors, trigger factors and opportunity factors. Background factors comprise personal experiences such as encounter with discrimination, and struggle with religious identity. This may be another form of political, religious, ideological or identity crisis. Trigger factors include mentor or charismatic leader, policy change and any other factor that triggers the urgency of the issue. Opportunity factors include exposure to extremist ideas and their accessibility opportunities. Atran (2008) questions the presumptions by scholars to correlate participation with the economic status, educational levels or degree of civil liberties of participants. He argues that it is group dynamics and social networks that are critical to understand the group formation and operation and not the demographic profiles of individuals. Hence research on meso level concentrates more

on group dynamics and social networks. Not much has been explored on the macro level of motivation. In this study, we focus on micro-level, as it aims to examine the role of social media at various stages of radicalization. Each stage of radicalization when linked with social media, fulfils a particular goal of an individual. We now explain the various stages of radicalization.

## 2.2. Processes of Radicalization

To understand the mechanism behind radicalization as a process, researchers examine both behavior and attitude. Blanchard and Rambo (1994) proposed integrative seven-stage model where each stage can recursively affect another stage (Blanchard and Rambo, 1994; Rambo, 1999; Rambo and Bauman, 2012). These stages are: Context, Crisis, Quest, Encounter, Interaction, Commitment, and Consequences (Blanchard and Rambo, 1994; Rambo, 1999; Rambo and Bauman, 2012). Most of the models of radicalization used top down approach, and selected the victim and the in-group as the major actors. However, these models fail to explain the presence of lone wolf attackers and self-radicalization on social media.

Later, Helfstein (2012) proposed a simple yet powerful model <Figure 1> describing the stages an individual progresses through the process of radicalization. This model integrates the top-down and bottom up-approach, and identifies four dis-

tinct stages: awareness, interest, acceptance and implementation. Applicability of this model in the online context can be attributed to its consideration of cognitive states and the absence of in-group actor. Now we describe each stage one at a time, and understand its features.

*Awareness* is the precursor to any other stage of radicalization. A person may be exposed to information, or may gradually seek information over time. People may update their information over period of time, but it becomes impossible for them to unlearn the information. Once they reach threshold on sufficiency of information, they move to other stages in the process of radicalization. This threshold on sufficiency of information is different for every individual. Some people may have relatively low threshold, and are easily intrigued by an idea, radical goals and methods, while others may need more information to reach the threshold and be compelled by an idea.

*Interest* is deeper than intellectual curiosity or quest for knowledge. After awareness, an individual must decide whether these ideas are of interest to him or not. Interest involves a person's belief system. It is the interest of people that distinguishes casual observers with intellectual curiosity from those who seek association with the ideological doctrine. This interest may result in willingness to modify one's belief system or social norms to reflect the ideological doctrine. As this willingness evolves, individuals



<Figure 1> Helfstein's Four Stage model (Helfstein, 2012)

progress to the next stage acceptance.

*Acceptance* is adoption of ideological doctrines by reshaping one's belief system, and understanding that violent and undemocratic means are not immoral in the pursuit of the ideological goal that they are seeking. If someone accepts extremist doctrines, they are primed to justify or attempt violence (Horgan, 2008). Some radicals conduct violent actions, while some do not. Violent extremists act on their belief, while non-violent extremist fail to do so due to constraints of resources and time. This difference, however may also be evident during the early stage of awareness, whereby a person eschew violence as a means to achieve target, but may justify use of other non-violent but undemocratic methods for the attainment of the same. Hence, there are people who non-violently support radical doctrines, people who adopt radical doctrines, and people who conduct terrorists acts in the name of radical doctrines.

*Implementation* stage is the advanced stage, wherein a person takes action in the pursuit of ideological objective. This stage requires appreciable time, effort and resources. These acts are carried out through intensive planning and may seek to achieve other objectives along with the main ideological objective. For non-violent radicals, this stage consists of putting efforts and arguments in defense of the radical practice and ends up justifying the same.

Helfstein's model is quite simple, but past observations and studies (e.g., Hafez and Mullins, 2015) suggest that the process of radicalization is not always strictly linear. It is iterative, with feedback loops. As people acquire and update new information, their approach towards the radical doctrine may change. Scarcity of resources at a later stages may also diminish a person's motivation to continue with the radical belief. However, political, psychological or personal grievances and ideological or identity crisis are found to be one of the motivating factors for people to follow radical doctrines. People often learn from narratives and past experiences of other people which may motivate or demotivate them towards following a radical doctrine during any stage of the process. A few studies (e.g., Andre and Harris-Hogan, 2013) have also noted that some people have bypassed certain stages and progressed directly to advanced stages in the process of radicalization. Peer group influence or exposure to a radical leader could be the reasons behind such a phenomena. This may be attributed to greater exposure to new social relationships. The trigger factors and opportunity factors may also lead a person to hasten towards action. These instances are generally marked by shallow understanding of radical ideologies.

All studies ascribe that radicalization is a gradual process. Hence, opportunities of interventions do exist. Process of radicalization is non-linear, hence there is a good chance that people may become disengaged, if proper interruptions to the process is appropriately designed and timed. However, since people may skip stages, this adds complexity to design such interventions.

Proper interventions would mean that the barriers to entry at each stage must be increased significantly. This would slow down the process and make it more sequential. We observe that barriers to entry reduce as we move to more intense stages, thus giving us lesser opportunities for interruption.

## 2.3. Attributes of Social Media

Social media provides a platform to its users for interaction where they can share their opinions, explore new perspectives among people of their choice. Social media improves political participation, thus playing a part in framing users opinions. This can

be attributed to various features of social media, like its wide reach and availability, immediacy, anonymity, free flowing information, low cost of participation and weak policing. A number of studies point to the Internet's ability to reduce geographical, linguistic, cultural and temporal barriers to help 'reach' those individuals who otherwise would not have been reachable by radicalizers (Neumann et al., 2012), as it diminishes self-constraints. Reticent individuals can benefit from the access that the social media gives them to radicalization (Suyin and Park, 2010; Torok, 2010). It helps users overcome societal and personality barriers, thus leading them to be more expressive on social media. The digital persona of users provides "supposed anonymity" (Weimann, 2007) and "a degree of protection and security from detection" (Gray and Head, 2009). It also provides acceptance: information is non-censured and non-hierarchical (Bartlett and Miller, 2011). The internet allows individuals to gain easier access to the resources in which they are interested, which is costly and hard to do in the physical world where we more regularly come across individuals with different opinions or access material exposing different views (Briggs and Strugnell, 2011). It allows individuals to connect instantaneously and continuously. This has resulted in the Internet being referred to as a 'conveyor belt' (Bergin et al., 2009).

## Ⅲ. Role of Social Media

Social media plays a vital role in the process of online radicalization. Almost all studies assert that internet plays a significant role in promoting radicalization (Precht, 2007). Most studies suggest that the internet is a reinforcing agent or an accelerant, as it removes the traditional barriers for individuals

wanting to become radicalised (Pantucci, 2011). A handful of studies suggest that the internet is a driver of radicalisation (Briggs and Strugnell, 2011; Homeland Security Institute, 2009). The differing degree to which authors suggest the internet has a causal role in radicalisation is signified by the terms used in the literature, from 'facilitative' (broadening of opportunity) or 'reinforcing', to a more enhanced role as an 'accelerant' or the 'primary or sole driver' of radicalisation. We argue that social media plays a different role at every stage in the process of radicalization. We adopt roles identified by von Behr, Reding, Edwards, and Gribbon (2013) namely: Enabler, Facilitator, Accelerator, Dissolver and Driver to further understand the role of social media in the process of online radicalization by virtue of its affordances.

### 3.1. Enabler

The Internet serves as a social space for both public and private dialogues on issues of concern. Dialogues in the form of threads in discussions can be used to debate or comment on the latest issues to influence the actions of others, or to answer questions (Marie et al., 2014). Due to its wide reach, low cost of participation, access to information and people, social media becomes an enabler of radicalization. Greater adoption of the Internet is found to be a means for information gathering and political discourse (Baker-Beall et al., 2014; Dozier et al., 2016a; Dozier et al., 2016b; Sweetser and Kelleher, 2011). Perceived cognitive affordance of social media is user's appraisal about the existence of the platform's cognitive opportunities (Zhao et al., 2013). Some of the examples of cognitive affordances of social media are that it provides information such as news, and reminders. People also perceive that social media supports their

problem solving, analytical and conceptual processes. Thus, in the first stage of radicalization, namely awareness, social media acts as an enabler due to its perceived cognitive affordances.

## 3.2. Facilitator

Social media acts as an 'echo chamber' (Ramakrishna, 2015; Stevens, 2009): a place where individuals find their ideas supported and echoed by other like-minded individuals. The Internet has also been described as a 'mental reinforcement activity' (Silber and Bhatt, 2007). Bjelopera and Randol (2010) highlight the internet's role as normalising behaviours and attitudes that otherwise may appear unacceptable or inappropriate in the physical world. The internet provides supposed anonymity (Weimann, 2007) and a degree of protection and security from detection (Gray and Head, 2009). Hence, social media platforms eliminate the societal and personality constraints in order to help individuals pursue their interests. The literature converges in that the internet allows individuals to gain easier access to the material in which they are interested where regularly comes acrosses individuals with different opinions or access material exposing different views (Briggs and Strugnell, 2011; Shetret, 2011). The information is non-censured and can be shared with specific target and at the same time conceal the identity of the users. The flow of information is non-heirarchical, and can be reinforced to audiences any number of times. Social media can trigger and stimulate user's emotional reactions through its percieved affective affordances (Zhao et al., 2013). Social media can also lead the user to develop interest in a radical ideology, through its reinforcing character and features analogous to echo chamber. This facilitates the process of radicalization.

## 3.3. Accelerator

A feature which supports the notion of social media as an accelerator in radicalization is the fact that it offers a 'one-stop shop' for all the information that an extremist may seek out, or by which they may be influenced. Moreover, social media can give the illusion of 'strength in numbers', as Haythornthwaite (2005) points out. Hence, structure of social media appears to intensify belief of people and spread their words and opinions. It also provides acceptance: information is non-censured and non-hierarchical (Bartlet and Miller, 2012; Bartlett and Miller, 2011). Social media acts as an accelerator of the radicalization process, by virtue of the fact that it allows individuals to connect in an instantaneous and continuous way. This has led to the internet being referred to as a 'conveyor belt' (Bergin et al., 2009). Social media allows radicalisation to occur without physical contact. Social media reduces hurdles of temporal and geographical distances and hence provides a no-physical contact platform. Due to this, the process takes lesser time as it connects individuals 24/7 regardless of boundaries. A number of studies point to the Internet's ability to 'reach' those individuals who otherwise could not have been reached by radicalizers in any other way (Neumann and Kleinmann, 2013). Schmid (2013), Schmid (2016) point to the role of chat rooms, in particular, in this acceleration effect, as extremists can exchange ideas and values with like-minded individuals 24/7, regardless of territorial and geographical borders. Perceived physical affordance of social media is user's appraisal of the degree that the platform helps in manipulating the physical artifacts such as, geographical barriers and borders (Zhao et al., 2013). Social media lets users organise their groups, information and other activities online. Al-Qaeda, a

terrorist group released its quarterly magazine named 'Inspire' electronically. This magazine had various narratives, and provided guidance and instructions like making bombs in kitchen for executing terrorist activities world-wide. This magazine was solely targeted towards Muslims living in non-Muslim states, where individuals have constraints of time, resources and families. Hence, it is through social media that dissemination of information to unreachable could be carried out. This accelerates the process, and decides the course in due time. The ability of social media to let users organise and mobilise their resources is the key to social media's role as an accelerator.

## 3.4. Dissolver

Cogburn and Espinoza-Vasquez (2011) found that online discourse among supporters could lead to local grassroots activities, as happened among Obama supporters in 2008. In a related research, Gueorguieva (2008) asserted that social network sites created an inexpensive venue for fundraising efforts and organizing volunteers.Most of the resources, such as motivation building narratives, unrest provoking incidents are shared on social media to agitate people. There are open blogs and vlogs, which makes interacting with anybody around the world easy. The digital persona lets people overcome their societal and personality constraints, thus making the social media culture cosmopolitan. It is on these platforms that extremists find supposed anonymity and blend with masses beyond temporal and geographical borders in order to spread their words and radicalise masses. Social media platforms become an arena for extremists to carry out their plans by eliminating the barriers of time, geography, culture and languages. Hence, social media merely acts as a platform, which

users can use on their own discretion to search for information, or reach people who would be unreachable in the physical world and provide avenue for fund-raising or recruitments. Perceived control affordance of social media emphasizes that users control what they do on social media. They control who they want to share the message with, and make personalized settings which is pivotal in execution of their plans. User has control over the personalized platform and its environment. Hence, control and autonomy provided by social media makes it play the role of a dissolver.

## 3.5. Driver

The consensus is that self-radicalisation is extremely rare, if at all possible (Bermingham et al., 2009). This is a challenging assumption to test, given that the available evidence may not point to relevant online or offline exchanges with other individuals, even if such exchanges exist or have occurred. From an other perspective, social media can filter material that is consistent with one's beliefs; hence intensification and hardening of radical beliefs can be very well achieved through social media. A very significant characteristic of social media is that it directs like-minded opinions, thus strengthening beliefs in one's ideologies. It connects people with similar interests, thus intensifying the process. Exposure to events world-wide lead the user to train their minds to the possible reactions as obtained from extremists on social media. This role of social media accounts for all the non-linear observations in the process of radicalization, due to the interplay of various social media affordances with vulnerable users, where people may skip stages or show no other social contact with radicalizers.

## IV. Conclusion and Future Research Prospects

Radicalization is a gradual process and poses an insidious threat to society and living order of the world. We identify the role of social media in the process, with the aim to help us design better interventions against the phenomenon. We attempt to depict the roles of social media: Enabler, Facilitator, Accelerator, Dissolver and Driver, as presented in <Figure 2>. It was found that, by the virtue of different social media affordances, the social media platforms play different roles in different stages of radicalization. We base our framework of process of radicalization on Helfstein (2012) four stage model: Awareness, Interest, Acceptance, Implementation. This model was chosen because it is strictly behavioural in approach and integrates both top-down and bottom-up approach. This model helps us understand the avenues for interventions, so as to curb radicalization.

Study of radicalization mostly explores the dynamics between conflict among groups over certain ideologies, persuasion and recruitment of new members and change of mindset of victims to make them radicalized. Most of the studies have the objective to find ways to counter radicalization. We observe that the barriers to entry decrease with progress in stages of radicalization. We map these roles to the stages by virtue of perceived social media affordances. We see that percieved cognitive affordances help exposure of undesireable information to users, which may be of interest to them. To curb this, a number of studies have suggested censorship of social media contents (Aly, 2010; Silverman et al., 2016). Due to complexity and huge content, this seems to be an impractical idea. However, if research may advance to find certain patterns or rules of content, it may seem possible and yield results.

In the second stage-, 'interest-' social media acts as a facilitator, by the virtue of its percieved affective affordances. It is attributed to features of social media analogous to echo chambers and mental reinforcement activity. As we see, platforms should make an effort to modify their algorithms in a way, so that there is a cap to reinforcements. Excessive reinforcement has other ill effects, such as attitude
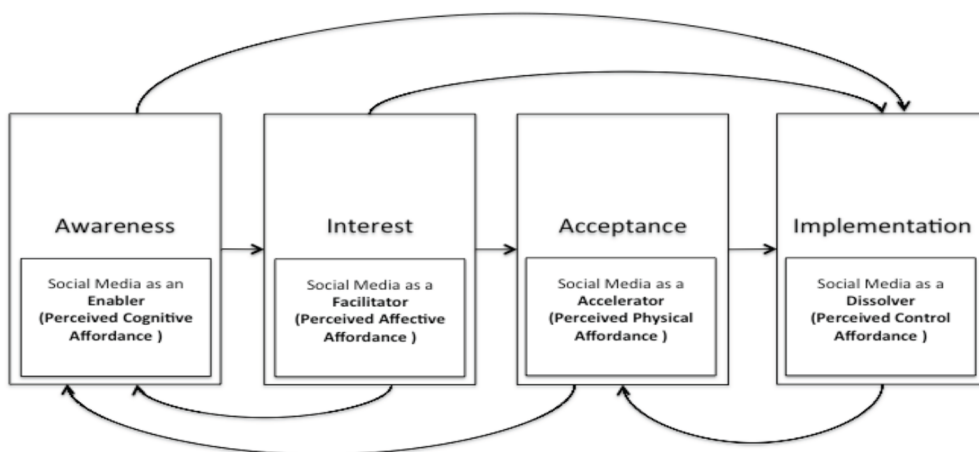


<Figure 2> Roles of Social Media in Online Radicalization

Note: Social media acts as a driver in case of non-sequential transitions (as depicted by curved arrows).

extremity and information exhaustion. Reports have suggested the use of counter narratives against the reinforcement of radicalization motivating narratives. This, however, has wider implications. It may lead to Boomerang effect, or may motivate victims towards just another radical ideology. Hence, more research needs to be conducted to find out the critical re-inforcement level along with analysis of typology of content, for more concrete and practical implementation.

The third stage-, - acceptance - happens when the person/victim indoctrinates the radical ideology. One important factor for this stage is the social capital and presence of opportunity factors. Therefore, re-search is required to understand the role of person's social capital in the purview of the process of online radicalization. The dynamics of leader follower rela-tionships also need to be further explored to help us design a warning system against this phenomenon.

We see that as we progress towards advanced stage of radicalization, interventions needed become more complex and crucial. In the implementation stage, user requires more autonomy to carry out the plans and spread radical ideologies. Hence, research must be carried out in order to understand if any of the control features are being misused, and to what extent should the platforms provide autonomy to the digital profile on their platforms.

The role of driver is the most complicated one. This role is solely based on the interplay of affordances and motivations of people towards following a radical ideology. It is this role, that needs a lot of exploration, to come up with the factors that lead people to skip stages and leap towards radicalization, or make them disengaged, or even make them join some opponent group. Hence, radicalization as a process, needs more research on other dimensions and through different lenses.

As the research on radicalization is fragmented and in a nascent stage, further investigation of this phenomenon is desirable. There is a reality (independent of perspective), and there are un-observable events that cause observable ones to occur. These unobserved events, many a times, trigger a person to get attracted to radical beliefs. For instance, events like a policy change resulting in higher un-employment, may lead to higher susceptibility of youth being radicalized. The models of mechanism of radicalization do not count on such events, hence leaving a significant gap in the study of mechanism of radicalization. This study can also shed light on the macro level study on the issue which have not been examined so far.

Karpf (2010) noted that for social change to occur advocates need information, people, and tools. Briggs and Strugnell (2011) argue that radicalizers are using social media as a tool to disseminate information. They use multimedia, post violence instigating con-tents in various modes to people who are seeking information. Diehl et al. (2016) state that radical-ization is carried out in heterogeneous network. Hence, additionally, the role of actors and their strat-egy to form and organize networks must be studied to counter this phenomenon.

Magouirk et al. (2008) argue that it is the group dynamics and social networks that are critical to understand the group formation and operation and not the demographic profiles of individuals. This implies that social capital plays a vital role in in-troduction and intensification of radical ideologies. Studies have shown the undoubted involvement of virtual groups in the process (Chen and Lin, 2014; Langman, 2017; Weimann, 2007). This involvement imparts cognition and conviction to the ideology of the victims (Kao et al., 2013; von Behr et al., 2013). Studying this on the online platform using

Social capital theory will give more insights into the dynamics between micro and meso-level factors and the mechanisms employed for radicalization.

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