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SOCIAL ROLES IN ONLINE COMMUNITIES: RELATIONS AND TRAJECTORIES

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Abstract

Online communities are social systems where people adopt social roles, interact, and form relationships with each other over time. Though some research is available that shows that different social roles exist in online communities, this is limited. Using qualitative methods, the paper studies the cases of an ideological and a non-ideological online community and identifies the social roles that exist as well as their importance in each community. It is found that the existence of these roles appears in different degrees and significance to what existing literature has suggested. Further the paper proposes two models that show the trajectories of social roles in different online communities over time. The implications of the findings for our understanding of online communities are discussed.

Keywords: Online Communities, Social Roles, Leaders; Readers, Contributors

1 INTRODUCTION

In both online and offline environments, individuals show different behaviours depending on their skills, privileges and responsibilities, that ultimately constitute their roles within a social situation. Such social roles organise people's behaviour and give structure to social positions within communities. Understanding that people undertake different social roles allows others (e.g. observers, researchers) to contextualise their behaviour within the communities. In addition, by exploring the social roles of different members is also a good way to understand both the social context of the group and information about the people within it. As more and more people spend an increasing amount of their time (personal and professional) online, the concept of social roles becomes increasingly valuable as a tool for understanding patterns of action, recognizing distinct user types, and cultivating and managing communities. Yet, research in this field has remained very limited.

This paper aims to cover some of this gap by exploring social roles in online communities. A qualitative study has been undertaken using two online communities, an ideological and a non-ideological and a cross-case comparison was undertaken by firstly identifying the different social roles in each community and then tracking movement between the different roles in each community. In what follows, we discuss the theoretical foundations of the study that draws on the concept and typologies of social roles, the research sites and methods used are then identified and finally the findings and their contributions to the literature are discussed.

2 THEORETHICAL FOUNDATIONS

Social roles have been foundational concepts in social analysis. They describe the intersection of behavioural, meaningful, and structural attributes that emerge regularly in particular settings and institutions (Parsons, 1951; Merton, 1968; Callero, 1994). One of the earliest definitions of social roles refer to "...a patterned sequence of learned actions or deeds performed by a person in an interaction situation" (Sarbin, 1954; p.255). The concept of social roles is important because of its utility. Gleave et al. (2009) agreed with Lerner (2005) that "the classification of types of social relations and behaviours into a smaller set of roles reduces the analytic complexity of social systems and facilitates the comparative study of populations across time and setting".

Previous studies have proposed several types of social roles in different types of communities, both online and offline. However, there are some roles that can undoubtedly be found virtually everywhere; such as the roles of 'newcomers' and 'old timers' in a community (Lave & Wenger, 1991). According to Lave and Wenger (1991) newcomers become members of a community initially by participating in simple and low-risk tasks that are nonetheless productive and necessary and further the goals of the community. Through peripheral activities, novices become acquainted with the tasks, vocabulary, and organizing principles of the community. Gradually and over time newcomers become old timers, and their level of participation changes becoming increasingly central to the functioning of the community. This simple categorization of social roles shows that as the level of participation changes over time, roles change as well.

Moreover, social roles specific to online communities have been identified and discussed in the literature. Some of these have been named as: local experts, answer people, conversationalists, fans, discussion artists, flame warriors, and trolls (Burkhalter and Smith 2004; Golder 2003; Turner et al 2005; Herring 2004; Haythornthwaite and Hager 2005). These social roles have primarily been identified through ethnographic study of the content of interaction (Golder 2003; Donath 1996; Marcoccia 2004) while some effort has been made to use behavioural and structural cues to recognize these roles (Viegas and Smith 2004; Turner et al. 2005). These approaches leveraged visualizations of initiation, reply and thread contribution rates over time to identify distinct patterns of contribution.

More recently, with the emergence of community-oriented information and communication technology applications, such as Wikipedia, Twitter and Facebook, the interest to study social roles in these online communities has increased. Jahnke (2009) used the design-based research to study the change of social structures by social roles within the socio-technical community. In additions, Welser

et al (2011) studied the social roles that people undertake in Wikipedia and identify four key roles in this online community as shown in Table 1.

Author	Roles	
Brush, Wang, Turner & Smith	Key contributor, Love volume replier, Questioner, Reader,	
(2005)	Disengaged observer	
Dennen (2008)	Peripheral, Inbound, Insider, Boundary, Outbound	
Golder & Donath (2004)	Newbie, Celebrity, Lurker, Flamer, Troll, Ranter	
Kim (2000)	Visitors, Novices, Regulars, Leaders, Elders	
Turner, Smith, Fisher & Welser	Answer person, Questioner, Troll, Spammer, Binary poster,	
(2005)	Flame warrior, Conversationalist	
Vaast (2007)	Protagonists, Deuteragonists, Tritagonists, Fools ¹	
Waters & Gasson (2005)	Initiator, Contributor, Facilitator, Knowledge-elicitor,	
	Vicarious-acknowledger, Complicator, Closer, Passive-learner	
Welser et al. (2011)	Substantive experts, Technical editors, Vandal fighters, and	
	Social networkers	

Table 1. Social roles in online communities

Table 1 cites literature on social roles in online communities. Though these studies clearly distinguish the different roles that could be undertaken in different online communities, a common characteristic among the studies is that none of these show the movement of members' roles within the community. An attempt to show this movement is identified in 'The Reader-to-Leader' framework (Preece and Shneiderman, 2009) which shows member's level of participation and movement in the community through social roles.

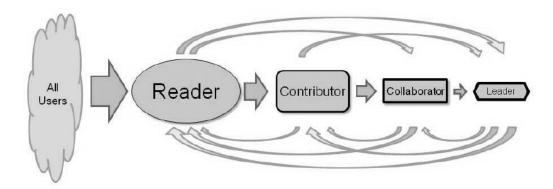


Figure 1. The Reader-to-Leader Framework: Social roles in Online Communities (Preece and Shneiderman, 2009).

According to the model, the level of participation can be categorised as *reading*, *contributing*, *collaborating*, and *leading*. The thickness of the green arrows and smaller shapes indicate the decreasing number of people who move from one form of participation to another. The thin grey arrows indicate how people can also move in a non-linear fashion to participate in different ways. As users become aware of social media they become readers. Some will become contributors, then collaborators, and possibly leaders. For each role, there are uncertain first steps, sometimes followed by repeat visits that can mature into a growing sense of confidence and increased activity as a reader,

¹ In Vaast's study of the presentation of self in an occupational online forum, four categories emerged and were labelled as four types of characters in a play, in a way that followed Goffman's (1959) dramaturgical analogy: (1) "Protagonists" (the leading/main characters); (2) "Deuteragonists" (secondary characters as in supporting actors); (3) "Tritagonists" (minor characters); and (4) "Fools" (characters who use humour to convey messages).

contributor, collaborator, or leader. According to the model, there are at least two paths to maturation: participants may become more active within one role or may move on to begin another role (Preece and Shneiderman, 2009).

Social Roles	Activities	
Reader	Venturing in, reading, browsing, searching, returning	
Contributor	Rating, tagging, reviewing, posting, uploading	
Collaborator	Developing relationships, working together, setting goals	
Leader	Promoting participation, mentoring novices, setting and upholding policies	

Table 2. The Reader-to-Leader Framework: Activities within Each Social Role (Preece and Shneiderman, 2009)

Following on from this review, the theory and typology of social roles will be used to illustrate the roles, as well as movement between roles of people who participate within different online communities.

3 RESEARCH SITES

In order to broaden the generalizability of the study, different types of online communities were chosen based on the reason for their formation. As it was noted in Mumford et al (2008), there are several factors that may contribute to the formation of a group or a community. These may vary from the promotion of an economic gain (Katz and Kahn, 1978) to the facilitation of an association or identity building (Vigil, 2003). Further, ideology is another interesting and more encompassing factor that may trigger the formation of an online group. Ideology is a mental model that provides people with a framework for providing them with a worldview and for interpreting crises in their lives, a sense of identity, feelings of self-esteem and a frame of reference for viable courses of action (Aberson, Healy & Romero, 2000; Hogg, 2003; Shamir, House & Arthur, 1993; Mumford, 2006).

For the purpose of this study, an ideological community and a non-ideological community were chosen. In particular, these are: Multiply.com as a non-ideological community and Greenpeace as an ideological community.

Multiply is an online site that provides social networking services with an emphasis on allowing users to share media - such as blog entries, photos, and videos - with other members of their network. Multiply also provides a way to meet and socialize with other members through groups which are categorized into 16 categories and include Business, Computers & Internet, Entertainment & Arts, Health & Wellness, Hobbies & Crafts, Places & Travel, Recreation & Sports, Romance & Relationships, Schools & Education, and Other.

Greenpeace is a non-governmental environmental organization with offices in over 41 countries and headquarters in Amsterdam, Netherlands. Greenpeace states its goal is to "ensure the ability of the earth to nurture life in all its diversity". Greenpeace uses direct action, lobbying and research to achieve its goals. This global organization states that it does not accept funding from governments, corporations or political parties, relying only on individual supporters and foundation grants.

4 METHODS

In order to understand the social roles within online communities, a qualitative-based content analysis was used as the main method of the study. We have gathered information on the chosen communities: Multiply and Greenpeace. By having contents of communication available online, the data input of the chosen online communities were observed, analysed and coded into categories for building up inferences. This process is based on the framework of the study, which focused on the types of social roles, activities within each roles and the movement of online communities' members from one role to the others.

Our qualitative analysis has aimed to identify the social roles that exist in the chosen communities, as well as their importance in each community both ideological and non-ideological. Our analysis consisted of two stages. Firstly, in order to identify evidence of different online social roles as per Preece and Shneiderman model, the first author was assigned with the task of reading the online content, analysing the member's activities found and categorising data according to the framework. In particular, this stage of the analysis categorised individuals according to the different types of social roles they performed. Following work on identifying social roles in the communities, the researcher then looked for evidence of role mobility within the community. This process was done by observing individuals' interactions and behaviours over time including the structure of the communities. Further, textual contents and photographs were also included in the analysis of the entries' contents.

Lastly, the results were examined closely by the second author and discussed with the remaining authors who asked questions and raised issues for further explanation.

5 RESULT

5.1 Non-ideological: Multiply

Multiply.com was chosen as a non-ideological online group. The researchers have selected one of the groups within Multiply.com to study the social roles within this online community. This group belong to the 'hobbies and crafts' category and details of the groups are presented below:

Photography (photograph1.multiply.com): This group was created in August 2004 and currently has 3,035 members. It focuses on the techniques of taking a photograph, discussing what camera the member uses, digital or film, and composition and lighting. It focuses more on the professional aspect of photography. Around 14,000 photos have been posted on the site for professional comments, and there are 100 written posts asking about photography techniques, and posting photo-related questions.

Readers or Lurkers within this group do not leave any sign of their visit but they play a vital part in the community since they are the consumers of the content. Reading contents is the first step of becoming members of the communities. Some users may stop their participation at this stage, but some do continue to revisit and contribute to the communities. This leads them to further develop their roles within the community.

Every user of Multiply.com can become a member of the Photography group and may contribute by posting photos or comments on others' posts. The majority of members of the group fall into this category. Newcomers to the group have often presented themselves with an introduction such as: 'My work, please comment I am a beginner'.

Existing members may respond with short comments such as "Thanks" and "lovely pictures", whilst others may post rich in content comments that provide room for interaction. The majority of the members can be categorised as "Contributors". This is because the members are the ones who create the content for the community including both blog posts and comments. Collaboration does happen sometimes as members interact with each other.

The last role is that of a leader or in this case, the administrator. "Rogerio" is the administrator of this group. He is the creator of the group and also the one who posts welcoming messages and establishes group rules.

The follow example is part of the rules posted by the group administrator. In this group, the administrator is not only the one who creates rules but also adopts the role of silent leader as he only intervenes when 'illegal' or unacceptable matters are raised. For example, when someone posts a blog trying to sell commercial products, an act that is against the rule of the community, the administrator will exercise his power by deleting the entry. This type of leader can be seen as taking a peripheral role, observing the communities' activities whilst his influence is exercised by maintaining the rules of the community.

Group rules (read this before you post)!

Jun 7, '09 2:17 PM

by Rogerio Loves Multiply! for everyone



Hello photographers!

"You may not engage in advertising to, or solicitation of, other Members to buy or sell any commercial products or commercial services through the Service. You may not engage in advertising to, or solicitation of other members to buy or sell any personal products or services except in your personal Marketplace area". (It continues, please read the full terms)

Any post that deviates from any of the rules above will be deleted without prior notice. Old posts that deviate from these rules will be also deleted.

If you have any doubts about the Multiply Terms of Service, please contact Customer Service.

5.2 Ideological: Greenpeace

The Forum.greenpeace.org was chosen as the ideological group for the purpose of the study. The researchers selected one of the campaign issues called "Climate Change" to observe as part of this study.

Climate Change (Greenpeace): This forum was created in October 2006 and formed the basis of a public discussion on climate change and global warming. From 17 October 2006 to 1 July 2009, it had 658 threads and 16,050 posts in total. The forum closed in July 2009 and archival data was used for the purpose of this analysis.

Within this climate change forum, Readers can be seen through the number of viewers shown next to the forum name. Even if the Greenpeace forum was closed and the content archived, there were still readers shown through the viewer's number, as shown below:



This viewer counter feature makes the readers or lurkers visible to other members of the community. It does not only present the real-time viewers but also the total viewers of each thread within this forum. Therefore, the viewer counter feature shows that readers do exist within this forum.

Next, the contributors can also be found within this forum. They tend to post information to their post or add more information or links to others'.

ursula Harmonia	Two global warming related news	
	The polar ice cap has reduced this summer a quarter more in comparison with 2005(in french) http://www.lefigaro.fr/sciences/2007te_record.html	
	Record 22C temperatures in Arctic heatwave http://environment.independent.co.ukcle3021309.ece	
Join Date: Feb 2007 Location: Madrid	Just a measurement, no statistical value, it might be a coincidence, yeah, still a record	
Posts: 1,081	Ursula	
	"',_, (o o) aaaaaaaaaaaaa ~~:) envirolinks.overfishing.org/ <<(:~~	
	Last edited by ursula; 3rd October 2007 at 23:35.	

Top Ten Contributors		
Poster	No. of postings	
Pikey	1599	
listenin	1031	
Deb	529	
Rhjames	500	
Lumpfish	476	
sturmovic	403	
juliettelucie	330	
vinnie	330	
Lamna nasus	319	
P.I.	305	
Source: Dove (2010)		

Table 2. Top ten contributors in Greenpeace's climate change forum

Due to the discussion nature of this forum, members often fell into the 'collaborators' category as they were found to seek feedback and discussion. Most of the posters included questions, waiting for others to comment on their posts.

JungleBoogie Dolphin	Jet Streams in Trouble?
http://www.msnbc.msn.com/id/24228037/ "The jet stream — America's stormy weather maker — is creeping normand weakening, new research shows." A study is not definitive proof, but this news is troubling. Anyone has other sources/links confirming this?	
Posts: 206	Fly away Leave today Return in splendour

This is an example showing that this member is seeking for collaboration on the jet stream topic; there are several similar types of posts in this climate change forum, looking for answers to questions or feedback.

The last category is that of a Leader. There were 5 moderators stated in this forum: juliettelucie, Andypants, Pepijn, blather, ursula. Only 1 of them is in rank 7 of the top ten contributors (posters) from this forum shown in Table 3. This shows that not every moderator can be categorized as a leader and that leadership characteristics can be seen in different aspects. One of the indicators is language, both in terms of the language used in the moderators' posts and how other members refer to them. For example, one of the moderators who is also a top contributor replied to a thread addressing himself on behalf of everyone, using words like 'we', 'everyone' and 'us'.

2006-12-12 18:11:00 *juliettelucie* [1,925] 359 [insecure] [secure]

sturmovic another point is that i already made most of these points, people dont really read them, theyre not funny enough [20]

My point is that we already answered yours. Everyone is going to have to address the problem, because it affects everyone, and will only get worse. It doesn't have anything to do with being liberal or not. As for government criticism in Russia, well you should be blushing about this, not us. You're the one living there. You're the one capable of influencing your government.

Another example is for other members to refer to the leader's user name, showing that most members know the leader.

2006-12-20 11:53:00 *P.I.* [775] 181 [insecure] [secure] 55

johnnyzett This is what I am doing now. I am burning old rubber tyres, provide heat for my factory, the carbon I receive in the process I reuse it, burn it again, and so on. Now I have absolutely free source of energy. [42]

Let me see. You (a) burn tires, gaining energy bounding their carbons with oxygen. Then you (b) undo the carbon-oxygen bounds in order to obtain pure carbon powder. And you (c) burn the carbon again to gain energy by bounding it to oxygen. Then you continuously repeat (b) and (c) and they not only prove perfectly reversible but even give you and energy profit!!! Ever heard of the laws of thermodynamics? Although chemistry is not my first area of expertise either, I tend to agree with Juliettelucie that the website is pretty confused and lacking in scientific rigor.

Another visible indicator is the number of posts. The most active users can be seen as adopting major roles within the community as they will have more power and reputation more than one time posters or newcomers. This is because their activity makes up a large proportion of the total activity in the forum.

Table 2 shows that the posts from these top ten posters generate more than a third of the total number of posts within this specific forum. According to this analysis, the table shows that most of the posts in the climate change forum have been made by roughly the 50 most active users from the total of 1,307 unique users.

Due to the purpose of this forum as a campaign site, there is a shared goal and scope towards the discussion topic which is "Climate Change". Members tend to post contents related to this topic and their dialogues are filled with words like "I suggest, In my opinion, I agree, disagree, according to". These words represent the sense of recommendation, personal belief, agreement, disagreement, and reference to other sources, all towards the mutual goal of understanding climate goal. Therefore, it can be seen that in this group, people collaborate in several ways.

6 CROSS-CASE COMPARISON

According to the results of the case studies, there are similarities and differences in the types of social roles that members adopted. First, readers are visible within Greenpeace by using viewer counter while readers/lurkers in Multiply group do not leave any sign of their visit. The number of viewers can show the popularity of the topic and represent members' interests.

Second, contributors in the two forums are similar in the way they contribute as they all post contents to the group/forum. However, the content is different. The contributors in Multiply tend to post their own generated content, while Greenpeace contributors post both their own content such as questions and links to other sources of information. This is due to the nature and purpose of the group/forum.

Third, the collaborators are similar in both forums but their proportion varies. The collaborators are most seen in the Greenpeace forum as there is room for discussion and encouraging questions and answers helping members to reach their mutual goals. However, there was less collaboration in Multiply due to the nature and purpose of these sites. In Multiply, there is no obvious leader while in Green Peace there are five leaders, but only one actively contributes to the forum.

It follows that the role of contributors is the most common social role that is found within Multiply whereas the role of collaborators is the most common social role that is found in Greenpeace.

It follows that contributors and collaborators are the most common roles found in both ideological and non-ideological communities. In the non-ideological community, the success of the community mostly depends on the content that is contributed by members. These contributions mainly include posting contents, comments, reviewing posts and giving feedbacks. Therefore, the majority of members in this type of community adopt the role of contributors. Collaborators are more visible in the ideological community due to the fact that there are shared goals between members. The vision or purpose of the community is clearly presented to members. Therefore, community members are focused on how to achieve mutual goals by collaborating with each others through their interactions and participations.

However, leaders in both types of community play an important part in the success of the community and interactions within the community which are discussed in the following section.

7 DISCUSSION

Online communities are often seen as information repositories where people participate by seeking or contributing knowledge to. However, online communities are also social systems where people adopt social roles, interact, and form relationships with each other over time. In this study, two online communities were used, an ideological and a non-ideological. The findings confirm that the different roles identified by Preece and Schneiderman (2009) exist in our chosen communities too. Thus, according to the study, members of the different communities studied were found taking on roles that appear in the Reader–to-Leader framework; Readers, Contributors, Collaborators, and Leaders. However, the existence of these roles appears in different degrees and significance; these aspects of social roles were not discussed by Preece and Scheiderman though were found important in our study. Moreover, in contrast to the model, the movements between social roles are non-linear but dynamic. Drawing on the findings of the study, this section discusses the trajectory processes of social roles in online communities.

We show the trajectory processes using two models which present how leaders have been seen to emerge within the different communities. As the leaders are the core participants or central players of the communities, the way they emerge and how they interact with others will have high impacts on the communities as a whole and ultimately on the social dynamics and the trajectories of social roles within each community.

The first model presents the trajectories of social roles that leaders emerge from the participation and interaction within the online community, while the second model presents the trajectories of social roles that leaders have already existed.

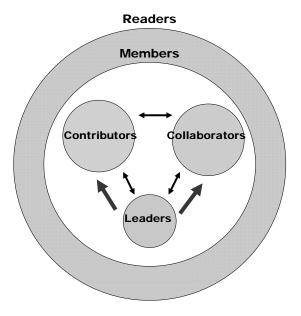


Figure 2. The trajectory of emerging leader

There are five roles on this model: Readers, Members, Contributors, Collaborators and Leaders.

Readers are the primary roles that individual members undertake. Reading is the first step/activity that people do in online communities. Not every reader will become a member of the community as some may continue reading but may not "sign up" as members.

Membership appears as one way to show that people identify themselves as members of the community. Being members of the community can have several advantages over readers, such as receiving latest news and having access to specific part of the sites. In some online communities, people need to apply to become member of the site in order to read their contents.

Contributors, Collaborators and Leaders roles are all members of the community undertaking different activities. Contributors' activities include posting, tagging, reviewing and commenting, while collaborators' activities consists of developing relationship and working together towards share goals. Leaders are considered the dominants or the key players which emerge from the members of the communities.

The small arrows show the movement of roles and information and knowledge sharing between roles. These roles are interchangeable and the movement between roles can happen in days or just in a second. In addition, these roles can also have an influence on one another, especially the role of the leaders. As leaders are key players in these communities, they tend to appear in smaller numbers compared to the other two roles and therefore are shown in a smaller circle. However, they have more influential power than others and this is shown in big arrows pointing towards the other two roles. Moreover, knowledge is also formed in the communities by exchanging information and interaction between different roles.

Greenpeace is a good exemplar of this type of community. In this community, leaders emerge from the active members of the communities who actively participate and interact towards the mutual goals of the communities. In particular, in the climate change campaign, the leader can be seen and is evident through the number and quality of the posts, including strong influential characteristics of the leaders.

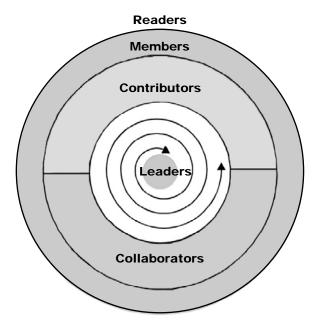


Figure 3. The trajectory of existing leader

This second model represents the online communities where leaders already exist in the community. Leaders can be the founders of the community who create the community and develop the site since day 1 or administrators/ moderators who have the responsibility and power to set and uphold policies. These leaders can participate in the community and their participation may range from actively engaging to playing a silent role and intervening only if someone is breaking the rules.

Readers in this model are the same with the previous model. Members within this type of communities are also categorised to three specific social roles according to their activities: contributing, collaborating, and leading. The difference to the previous model is that the role of the leader in this model does not emerge from the members; therefore, the leaders' circle is smaller and situated at the centre of the model. These types of leaders rarely change their roles.

The movement between the other two roles can be seen in the arrow points that it can go back and forth or stay within the same categories over time.

Within the communities, there are internalising processes to capture knowledge from members' information flow. Collaborations can also bring knowledge together to reach the mutual goal of the community.

In some communities, leaders may not be essential to the community. This usually happens to those communities that have existing leaders. This leader can be the founder or the administrator but passively engage with the community. And the community can run with or without the participation of the leaders. The example of this type of community is Photography group in Multiply.com. In this group, there is only one leader which is the administrator who plays a silent role, passively engages and only intervenes when members break the group rules. Other members continue to participate within the community and do not have the expectation to interact with the leader.

It follows that there are distinctions between ideological and non-ideological online communities. In ideological communities, the role of leaders is more evident. This kind of leaders often emerges from actively engaged members or the owners/founders of the site who also take the lead roles. In addition, the collaboration within these ideological communities are also higher compared to non-ideological communities as they are moving towards shared goals, such as the climate change campaign in

Greenpeace. Therefore, the leaders in this community have stronger characteristics and more influential power towards communities' members. This confirms that in ideological communities, the leaders are the key and the most important role to the online communities.

8 CONCLUSION

From the case studies, it can be seen that social roles do exist in the online communities and can be identified with the Reader-to-Leader model. By comparing the analysis from the two communities, the study shows that various social roles do exist in online communities. However, the existence of these roles appears in different degrees and significance to what the model suggests; further not every community follows the same path. Therefore, this study proposes two models that show the trajectories of social roles in online communities. One applies to communities where leaders emerge from community members while the other has existing leaders. In both models, different roles can be identified depending on factors such as the nature of the site/forum, duration of the sites/forum, frequency of posts, and quality and type of contributions. These social roles are interlinked and are interchangeable. Online communities bring people together who share the same interests and exchange information, allowing knowledge to form and flow throughout communities. The models not only show the relationship between roles but also the information and knowledge flows within the different communities. We do not claim that the models represent social roles in all types of communities but together they do provide a more comprehensive understanding of the dynamics and interactions of social roles in different types of online communities.

In this paper we have taken the cases of ideological and non-ideological communities. Other researchers may want to examine other types of communities such as social versus professional communities, or communities for different age groups. Further, future research may consider to study each social role in details to fulfil and enrich the results of this study. There are also several other factors mentioned above, which relate to social roles, that could facilitate highly successful online communities, such as types of community, quantity and quality of contributions, member motivation , trust and reputation.

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