

Beyond Knowledge Sharing- Interactions in Online Discussion Communities

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Abstract

This study attempts to investigate different types of interactions in online discussion communities (ODCs). Content analysis was performed on a sample of 1800 messages from six ODCs. The findings suggest that ODC users seemed to be engaged in a combination of online interactions to satisfy human sharing needs such as to share or acquire knowledge, establish a social presence and convey emotions. Moreover, differences could be noted in the extent to which online interactions were observed between support and technical ODCs. Practitioners such as webmasters and web designers can look into creating online community environments which can cater to different sharing needs of users by incorporating features which facilitate intended interactions identified in this research.

Keywords: Online discussion communities, Online interactions, Knowledge sharing, Social expression, Emotional disclosure, Content analysis

1 Introduction

Online discussion communities (ODCs) are known to hold rich repositories of knowledge where individuals share domain-specific information, exchange ideas and forge relationships. With characteristics such as asynchronicity, persistence, accessibility and the capability to break geographical and demographical barriers, ODCs draw user contributions in the form of textual messages, photos or videos (Pitta and Fowler, 2005). However, rather than confining themselves strictly to information exchange, users on ODCs have been observed to display a range of social expressions including greetings, denial, disappointment, joy and frustration. As a result, ODCs are also platforms where social relationships and emotional support can be nurtured.

ODCs have been studied from at least three perspectives namely, psychological (Lin and Bhattacharjee, 2009), pedagogical (Hou et al., 2009; Blignaut and Trollip, 2003) and political (Wright and Street, 2007). However, while these studies examine the multifaceted roles ODCs play in supporting knowledge sharing, little attention has been trained on other innately-human activities including social expression and emotional disclosure. In addition, how the themes and ethos of different ODCs may engender different types of online interactions have not been well understood. Therefore, through content analysis, the purpose of this paper is to investigate ODCs by addressing the following two research questions: (1) To what extent are the types of online interactions observable in ODCs? (2) To what extent do online interactions differ across different types of ODCs. For reasons of parsimony, the online interactions broadly encompass domain knowledge sharing, social expression and emotional disclosure, while the types of ODCs are classified as support and technical.

The remainder of the paper is organized as follows. Section 2 conducts a literature review of ODCs and their classifications and the types of online interactions based on which our coding scheme is generated. Section 3 explains the methodology adopted in the research. In all, 1800 messages extracted from six ODCs were admitted for content analysis. Section 4 presents the results while section 5 offers discussion on the findings. Finally, section 6 concludes the paper with implications for future work.

2 Theoretical Background

2.1 Types of online discussion communities (ODCs)

An ODC is an online environment where users exchange ideas, debate on dissonant view points, discuss meanings and co-construct knowledge on topics of interests from any location and at any time (De Laat and Lally, 2003; Dunlap, 2005). Discourses are enabled through posting of messages pertaining to specific primary topics commonly known as 'discussion threads'. Users may actively participate in these threads until their interests or information needs have been fulfilled (Pitta and Fowler, 2005). Revealing the trail of interactions among users, each thread may contain suggestions, replies, criticism or questions (Zhao and Jiang, 2010). Over time, a corpus of useful user-generated

content could be amassed (Cong et al., 2008). However, a host of factors such as community-specific organizational structure, persistence of common vocabulary, shared history and community rituals may determine the type of content generated which include the anticipated goals of the ODCs as well as the culture of the ODCs (Katarina, 2002). ODCs may also be subjected to malicious users who may abase discussions and offend the user community by planting spams, posting derogatory messages or using filthy language. In order to prevent such attacks, many ODCs have leaders or moderators who keep guard on such attacks and protect the interests of their respective ODCs. They are appointed by ODC organizers with the approval of users. Moderators are experienced members of the ODC who are usually entitled to more rights than regular users, such as initiating and guiding discussions, verifying conduct of users in their posts, and warning or even punishing users who disobey community's rules. This way, moderators ensure the quality of content being generated as well as its alignment with the context of discussion. On the other hand, unmoderated ODCs are not scrutinized formally by a moderator and may be vulnerable to unacceptable posts. However, in such ODCs, users may themselves object to offensive messages to prevent further misuse (Preece, 2000).

Despite the body of extant works, there is no generally-agreed typology for ODCs. One classification scheme considers ODCs on the basis of participants' needs (Lazar and Preece, 1998). From this perspective, ODCs can be classified as conversation ODCs, task- and goal-oriented ODCs and virtual worlds. In conversation ODCs, users meet their need for communication by sharing information, thoughts and opinions on a defined topic. Conversation ODCs have a rather simple organizational structure with explicit rules for communication and participation. Users can assume various roles such as that of a visitor, a novice or a regular member, each role carrying different permissions and rights (Wenger, 1998). Task- and goal-oriented ODCs are dedicated to achieve a common community-wide goal through cooperative efforts. They exhibit basic services such as coordination activities and community building assistance which help in achieving the goal (Katarina, 2002). Virtual worlds enable users to satisfy social needs virtually through game play. They provide complex fantasy environments where users can create and visualize their own avatars which achieve specific game targets (Preece, 2000).

Another classification scheme provides a more granular view to ODCs by distinguishing among four types. One, relationship ODCs establish social ties between individuals and deal with sensitive personal topics like illness and separation. They are also called support ODCs or help alliances which are meant to uplift users emotionally. Users of these ODCs usually prefer to be anonymous by disguising with avatars or nicknames so that they can share their personal experiences without discomfort. One example of a support ODC can be "Women Only Forums" (<http://www.womenonlyforums.com/>), which caters to addressing issues and concerns of women. Another example is the "Talk About Marriage" ODC (<http://talkaboutmarriage.com/>) where users can share and be advised on marital issues (Tapscott et al., 2000). Two, interest ODCs discuss topics of common interest like hobbies, favorite places, food and sports. Users share their likes and dislikes, suggest new ventures to other users, and debate and defend their favorites. Examples include "Mouthfuls" ODC (www.mouthfulsfood.com/forums/) where people are seen discussing their favorite dish and delicacies and "Ancient Roman Empire" ODC (<http://www.unrv.com/forum/>) where users discuss history and culture of ancient Rome (Katarina, 2002). Three, communities of practice (CoPs) are dedicated discussions on a domain of knowledge. The participants develop a shared practice by discussing their expertise and interacting on opinions, insights, problems and solutions. CoPs generally arise in organizations to exchange departmental expertise or in professional associations where people of same profession share their acumen. Examples of CoPs include GAMP CoP (<http://www.ispe.org/gamp/>) on pharmaceutical knowledge and UK government's CoP for public services (<http://www.communities.idea.gov.uk/>) (Smith, 2008). Four, implicit ODCs, also called recommendation ODCs, focus on exchange of knowledge and feedback of experience specific to a particular product or service. The information is shared by asynchronous writing and reading. Review ODCs in eBay and Amazon.com serve this purpose. Buyers review items of purchase which are referred by other users who are potential buyers. There is no direct communication between reviewers and readers which gives rise to an implicit community feeling (Resnick et al., 2000).

For the purpose of this paper, ODCs are classified into support and technical. Support ODCs refer to relationship communities. They provide emotional support to users through expressions of care and compassion as well as informational support through advice and feedback for better decision making (Cutrona and Suhr, 1992). On the other hand, technical ODCs refer to interest communities, CoPs

and implicit ODCs on the whole. They are formed by users bound together by common interests who share insights and contribute solutions to problems (Pitta and Fowler, 2005).

2.2 Types of online interactions

Drawing on the extant literature, we identify at least three types of online interactions: domain knowledge sharing, social expression and emotional disclosure. Domain knowledge sharing is a process of transformation of individual knowledge to collective knowledge through mutual exchange of information pertinent to a specific subject domain (Godara et al., 2009). ODCs being one of the earliest centralized tools for knowledge sharing facilitate collective-action processes that thrive on the shared knowledge base (Preece et al., 2003). We can account for at least four constituent online interactions in domain knowledge sharing namely, discussing procedure, asserting facts, reasoning and problem-solving. While discussing procedure, users portray norms, strategies, and theoretical concepts relevant to an issue (Wijekumar and Spielvogel, 2006; Maa and Yuen, 2011). In asserting facts, users do not provide considerable justification while affirming facts (Wijekumar and Spielvogel, 2006). On the other hand, in reasoning, users justify their thoughts and opinions (Hou et al., 2009). In problem-solving, come forward with new or alternative solutions to a given problem (Hou, et al., 2009; Wijekumar and Spielvogel, 2006).

An inherent human motivation, social expression satisfies the need to belong in order to uphold interpersonal relationships (Maa and Yuen, 2011). Users socialize through at least three constituent online interactions namely, making self-introductions, initiating unrelated conversations and citing personal examples. Users tend to create social presence by making self-introductions and acquaint themselves with other users (Wijekumar and Spielvogel, 2006). In the pursuit of social bonds, users also initiate unrelated conversations by discussing general issues irrelevant to the primary topic (Wijekumar and Spielvogel, 2006; Maa and Yuen, 2011). In addition, users share their past experiences to relate to others by citing personal examples (Barak and Gluck-Ofri, 2007).

Emotional disclosure refers to an individual's urge for expressing one's feelings and sentiment towards self or others. Online support communities are specially designed to home users seeking emotional comfort from family, friends and colleagues or other users with similar experiences (Lin and Bhattacharjee, 2009). Constituent online interactions on emotional disclosure bifurcate as: positive emotions such as joy, hope, pride and relief; and negative emotions such as anger, frustration and sadness (Pintrich, et al., 1991). Moreover, the orientation of emotions can be either self-directed or other-directed (Pekrun, 2002). Expressions of self-directed positive emotions include pride, enjoyment and hope of achievement whereas those of self-directed negative emotions include fear, shame, regret and depression. Similarly, expressions of other-directed positive emotions include praise, gratitude and sympathy while those of other-directed negative emotions include disbelief, envy and anger (Weiner, 2002). Table 1 summarizes the types of online interactions.

Table 1: Types of Online Interactions

Online Interactions	Constituents	Description
Domain Knowledge Sharing (Godara et al., 2009; Preece et al., 2003)	Discussing procedure (Wijekumar and Spielvogel, 2006; Maa and Yuen, 2011)	Exchanging of information pertinent to a specific subject domain
	Asserting facts (Wijekumar and Spielvogel, 2006)	Affirming facts without providing justification.
	Reasoning (Hou et al., 2009)	Justifying thoughts and opinions
	Problem-solving (Hou et al., 2009; Barak and Gluck-Ofri, 2007)	Providing new or alternative solutions to a given problem
Social expression (Maa and Yuen, 2011)	Making self-introductions (Wijekumar and Spielvogel, 2006)	Creating social presence by introducing themselves to other users
	Initiating unrelated conversations (Wijekumar and Spielvogel, 2006; Maa and Yuen, 2011)	Discussing general issues irrelevant to the primary topic
	Citing personal examples (Barak and Gluck-Ofri, 2007)	Sharing past experiences to relate to others
Emotional Disclosure (Lin and Bhattacharjee, 2009)	Expressing self-directed positive emotions (Pintrich, et al., 1991; Pekrun, 2002; Weiner, 2002)	Expressing pride, enjoyment and hope of achievement towards self
	Expressing other-directed positive emotions (Pintrich, et al., 1991; Pekrun, 2002; Weiner, 2002)	Expressing praise, gratitude and sympathy towards others
	Expressing self-directed negative emotions (Pintrich, et al., 1991; Pekrun, 2002; Weiner, 2002)	Expressing fear, shame, regret and depression towards self
	Expressing other-directed negative emotions (Pintrich, et al., 1991; Pekrun, 2002; Weiner, 2002)	Expressing disbelief, envy and anger towards others

3 Methodology

3.1 Dataset

A total of six ODCs were selected for data sampling. In order to amass rich data that could allow analyzing content across different domains of information, the ODCs were selectively chosen from distinct subject matters. Three technical ODCs namely, a finance ODC (www.talkgold.com), an automobile ODC (www.toyotanation.com) and an immigration ODC (www.immigrationportal.com) were chosen. These ODCs facilitate exchange of information on financial investments, put forth opinions and interests related to various vehicle models and share knowledge and experience with immigration matters, respectively. Thereafter, three support ODCs namely, a parenting ODC (www.mothing.com), a health ODC (www.ehealthforum.com) and a prison-issues ODC (www.prisontalk.com) were also selected. These ODCs assist discussions on parental concerns, medical ailments and recovery, and emotional revelations of distress and anxiety of users whose loved ones are imprisoned, respectively. All ODCs were moderated wherein the moderators had the

rights to modify or delete posts, move discussion threads and take other suitable disciplinary actions. Users were required to register themselves to be able to post messages and were also expected to adhere to community rules laid down by the respective ODCs. The ODCs amassed healthy contributions from 2004 until 2008. On average, each ODC garnered some 131,167 users who partook in 291,167 discussion topics, generating a total of 3,052,500 postings. The first 30 message postings were selected from each of 10 discussion topics chosen randomly from each of the six ODCs. Thus, 1800 messages in all were admitted for content analysis using the aforementioned coding scheme.

3.2 Coding Scheme

Informed by Table 1, the coding scheme which encompassed the three different online interactions namely, domain knowing sharing, social expression and emotional disclosure, was further divided into 11 constituents as shown in Table II.

Table 2. Coding Scheme for Content Analysis

Online Interactions	Constituents	Examples
Domain Knowledge Sharing	Discussing procedure	"I recently applied for the US Visa. I had sent notarized Form I-134, copies of pay-stubs for last four months..."
	Asserting facts	"If an F-1 student decides to leave the States and reenter while on OPT, he/she has to have a valid F-1 visa."
	Reasoning	"The cause of your frequent migraines may be the stress you are undergoing."
	Problem-solving	"You can find out the invoice price for the car and options you want via KBB.com."
Social Expression	Making self-introductions	"Hi, I'm 36 and a mother of two boys, ages 5 and 9."
	Initiating unrelated conversations	A contributor in the finance ODC led a non-technical topic on how she was cheated by a fake investment website. "Fake website scammed me of \$2800."
	Citing personal examples	"...in my case, I approached the embassy officers personally to request an expedited visa issuance."
Emotional Disclosure	Expressing self-directed positive emotions	"I feel so glad that I could look after my kids well despite the difficulties."
	Expressing other-directed positive emotions	"You guys rock! I feel even better about it now!"
	Expressing self-directed negative emotions	"I felt so lonely and depressed even though everybody was there."
	Expressing other-directed negative emotions	"Whoever is running NSC is a total moron devoid of any accountability."

3.3 Procedure

The content of each message was analyzed for all the 11 online interaction constituents. Accordingly, a "1" would be coded for an online interaction constituent if it was evident and a "0" if otherwise. Three graduate assistants (henceforth known simply as coders), who held qualifications in information systems were briefed on the framework depicted in Table II. As a means to forge a consistent frame

of understanding on each online interaction constituents, the coders independently analyzed a pilot set of 120 messages randomly selected out of the original 1800. When in doubt, coders consulted each other and consensually resolved differences among them. The findings were further checked for inter-coder reliability since multiple coders were involved. In particular, Cohen's kappa was used to establish the reliability of the coding for each of the 11 online interaction constituents. The pair-wise average Cohen's kappa was 0.823 (the pair-wise average of individual online interaction constituent fell between 0.737 and 0.927), suggesting acceptable inter-coder reliability values. Thereafter, the coders divided the rest of the 1680 messages equally among themselves and repeated the coding process.

4 Results

4.1 Description of Dataset

On average, each of the six ODCs attracted 168 unique contributors from 2004 until 2008, posting messages with an average of 112 words in length. In particular, the prison ODC garnered highest number of unique contributors (207). Its focused dedication to addressing the struggle and challenges faced by prisoners' families is a strong motivation for such families to expect support in online communities who otherwise may be faced with apathy and isolation from their neighborhood. On the other hand, the health ODC attracted the lowest number of unique contributors (128), suggesting the highest frequency of contributor participation (i.e. multiple messages from same contributor). In addition, the parenting ODC saw the highest average word count per message (151) while the immigration ODC saw the lowest average word count per message (73). Based on the type of ODCs, both support ODCs and technical ODCs attracted almost same number of contributors (167 and 168). However, support ODCs produced higher average word count than technical ODCs (127 vs 96). Table 3 summarizes the statistics of the data set.

Table 3: Dataset

Type of ODC	ODCs	No. of messages sampled	No. of Unique contributors	Average word count/message
Support	Single parenting	300	167	151
	Health	300	128	100
	Prison	300	207	129
Technical	Finance	300	179	90
	Immigration	300	137	73
	Automobile	300	187	126

4.2 Online interactions in ODCs

Among the 1800 messages, contributors exhibited domain knowledge sharing more frequently than social expression and emotional disclosure [$\chi^2(8, N=1800) = 564.92, p < 0.05, \text{Cramer's } V = 0.229$]. In particular, the prison ODC demonstrated the highest domain knowledge sharing (389 instances) while the parenting ODC showcased the least (110 instances). Among the four constituents, contributors were seen discussing procedures most often. Examples for discussing procedure include, "I recently applied for the US Visa. I had sent notarized Form I-134, copies of pay-stubs for last four months, employment verification letter..." found in the immigration ODC and "Try driving w/rpms no higher than 2200 rpm and speeds below 65mph. You will get 19-20 mpg even with 87 gas. Don't run it cold too. Warm the engine for at least a minute." found in the automobile ODC.

Social expression was the most prevalent in parenting ODC (179 instances) and the least in immigration ODC (72 instances). On the whole, contributors most frequently cited personal examples among other constituents of social expression. For example, "...when I was your age, even I underwent a similar problem..." in the health ODC and "...in my case, I approached the embassy officers personally to request an expedited visa issuance. I had barely any time left for my travel and this was the best I could think of..." in the immigration ODC. However, making self introductions was minimal across all the ODCs. Among the few who introduced themselves, phrases like "Hi! This is..." and "Hello friends! I am..." were common. Moreover, contributors also liked to introduce their

profession and their personal characteristics like “I am a beautician....” And “Let me tell you, I am a total nerd...”

Finally, emotional disclosure was exhibited the most by the prison ODC contributors (167 instances) while the automobile ODC contributors disclosed emotions the least (60 instances). Among the constituents of emotional disclosure, other-directed positive emotions featured the most. Some phrases include: “... I know what you have undergone. Be strong and hopeful...” in the prison ODC and “... come on now! U got to be going...” in the parenting ODC. Self-directed negative emotions were disclosed the least however. Phrases which usually surfaced were “... I am heartbroken...” and “... I hate my life...” in the prison ODC. Table IV presents the descriptive statistics.

Online Interaction	Constituents	SParent	Health	Prison	Fin.	Imm.	Auto.	Total*
Domain Knowledge Sharing	DP	56	61	11	142	148	25	1449
	AF	34	59	14	31	62	28	
	R	10	3	227	26	7	119	
	PS	10	48	137	58	38	95	
	Total	110	171	389	257	255	267	
Social expression	MSI	24	12	3	6	13	2	741
	IUC	12	10	6	25	20	48	
	CPE	143	66	142	53	39	117	
	Total	179	88	151	84	72	167	
Emotional Disclosure	ESdPE	34	8	24	6	6	4	652
	EOdPE	101	87	84	36	51	35	
	ESdNE	19	20	35	2	4	0	
	EOdNE	1	44	24	1	5	21	
	Total	155	159	167	45	66	60	

*Differences are significant at $p < 0.05$.

SParent= Single Parenting, Fin.=Finance, Imm.=Immigration, Auto.=Automobile;
 DP= Discussing procedure; AF= Asserting facts; R =Reasoning; PS=Problem-solving;
 MSI=Making self-introductions; IUC=Initiating unrelated conversations; CPE=Citing personal examples;
 SdPE=Expressing self-directed positive emotions; OdPE=Expressing other-directed positive emotions;
 SdNE=Expressing self-directed negative emotions; OdNE=Expressing other-directed negative emotions

4.3 Comparison of online interactions

In domain knowledge sharing, technical ODCs fared better than support ODCs [$\chi^2(4, N=900)=50.55$, $p < 0.05$, Cramer's $V=0.168$]. Specifically, technical ODC contributors were found discussing procedures more evidently than their counterparts in support forums [$\chi^2(1, N=900)=104.71$, $p < 0.05$, Cramer's $V=0.241$]. They were found to exhibit theories and facts on various topics such as visa application procedure, best financial investments and car mileage consumption. Support ODC contributors on the other hand, seemed to discuss procedures only while initiating discussions. For example, a contributor of the health ODC explained the symptoms of an ailment experienced. “...I've had bad stomach pains, sickness, fever, headaches. My doctor told me I had a case of Gastroenteritis, he gave me pills. They seemed to have worked but now I feel really bad again. I am worried...” Fellow contributors then responded by reasoning out the cause of the ailment or the possible cures. “It sounds to me that you may have external hemorrhoids. Home treatment is recommended for most of them and includes gradually increasing fiber and water in your diet...” Reasoning therefore was more apparent in support ODCs than in technical ODCs [$\chi^2(1, N=900)=25.26$, $p < 0.05$, Cramer's $V=0.118$]. However, no statistical differences have been reported in asserting facts and problem-solving between the two types of ODCs [$\chi^2(1, N=900)=0.98$, $p=0.32$, Cramer's $V=0.023$; $\chi^2(1, N=900)=0.05$, $p=0.818$, Cramer's $V=0.005$].

A chi-square analysis revealed that social expression prevailed in support ODCs to a greater extent than the technical ODCs, the difference being statistically significant [$\chi^2(2, N=900)=17.81$, $p < 0.05$, Cramer's $V=0.099$]. In particular, support ODC contributors were more inclined towards making self-introductions than the technical ODC contributors [$\chi^2(1, N=900)=5.59$, $p < 0.05$, Cramer's $V=0.056$]. On the other hand, technical ODCs which are primarily meant for sharing domain information have been found to exhibit initiation of unrelated conversations to a greater extent than in support ODCs [$\chi^2(1, N=900)=37.43$, $p < 0.05$, Cramer's $V=0.144$]. Some contributors initiated discussions which were

not strictly pertinent to the domain of the ODC yet were loosely linked to peripheral issues. For instance, a contributor in the automobile ODC initiated a topic on how much he disliked an automobile company. "I hate Toyota Camry's, Toyota the company, and everyone associated with them." Another contributor in the finance ODC led a topic on how she was cheated by a fake investment website. "Fake website scammed me of \$2800." The topics did not add to domain knowledge but however bore relevance to their respective ODCs. Two, during problem solving, some contributors seemed to deflect from the original problem topic in an attempt to prove solution arguments or alternative solutions leading to other problem domains which were irrelevant to initial problem. For instance, in a discussion topic on evaluating technical problems that surfaced in a new car model, a contributor deflected to secondary issues like maintenance of a car. "...The nice thing about Krown rust proofing is that it's still effective when applied on an older car." Support ODC contributors were also found to cite personal examples more frequently than technical ODC contributors [$\chi^2(1, N=900)=52.27, p<0.05$, Cramer's $V=0.170$]. For example, a contributor in the health ODC consoled another by saying, "...Even I always used to think that I was too ugly and that no one would ever be interested in me." On the contrary, technical ODC contributors seemed to be more inclined towards known facts and theories rather than personal experiences and subjective understanding.

Emotional disclosure has been significantly predominant in support ODCs as compared to technical ODCs [$\chi^2(3, N=900)=185.84, p<0.05$, Cramer's $V=0.321$]. Contributors in support ODCs were found to express self-directed and other-directed positive emotions to a greater extent than their counterparts in technical ODCs [$\chi^2(1, N=900)=31.94, p<0.05$, Cramer's $V=0.133$; $\chi^2(1, N=900)=60.49, p<0.05$, Cramer's $V=0.202$]. Likewise, support ODC contributors also disclosed self-directed and other-directed negative emotions more than those in the technical ODC [$\chi^2(1, N=900)=73.11, p<0.05$, Cramer's $V=0.183$; $\chi^2(1, N=900)=19.41, p<0.05$, Cramer's $V=0.104$]. Support ODC contributors seemed to express self-directed negative emotions of dejection and low self esteem. For instance, a contributor in the prison ODC explained the challenges underwent in raising her new born while her husband was incarcerated. "My fiancé got locked up when my son was 5 months old, shortly after I found out that I was pregnant with another baby. I thought that it was the end of the world...my heart was broken cause he was gone and now I have to take care of not one but 2 babies by myself. It has been very hard and demanding..." In comparison, positive emotions in support ODCs were mostly expressed towards others in the form of encouragement, appreciation and motivation. On the contrary, technical ODCs exhibited minimal emotional disclosure wherein contributors at most expressed contentment or dissatisfaction on the performance of services or products, and appreciating other contributors for sharing useful information. For instance, some contributors in the immigration ODC were seen to appreciate the efficiency and promptness of a visa embassy office. "...Guys at the embassy were really cool. They helped me through the entire process without any delay..." Likewise, some contributors in the automobile ODC expressed discontent with the capabilities of a particular car model. "It embarrasses you on the mileage aspect. Just not worth the fortune..." Table V presents the statistics of online interactions in the two types of ODCs.

Online Interaction	Constituents	SUPPORT ODC(N=900)	TECHNICAL ODC (N=900)
Domain Knowledge Sharing	Discussing procedure*	128	315
	Asserting facts	107	121
	Reasoning*	240	152
	Problem-solving	195	191
	Total*	670	779
Social expression	Making self-introductions*	39	21
	Initiating unrelated conversations*	28	93
	Citing personal examples*	351	209
	Total*	418	323
Emotional Disclosure	Expressing self-directed positive emotions*	66	16
	Expressing other-directed positive emotions*	272	122
	Expressing self-directed negative emotions*	74	6
	Expressing other-directed negative emotions*	69	27
	Total*	481	171

*Differences are significant at $p<0.05$.

5 Discussion

Two major findings can be culled from the results. One, quite similar to an offline meeting space, ODC users seemed to be engaged in a combination of online interactions to satisfy human sharing needs such as to share or acquire knowledge, establish a social presence and convey emotions. It was observed that messages in ODCs are complex statements intended for multiple purposes. Often, domain knowledge sharing was accompanied with instances of social expression. Personal experiences were commonly exemplified to elaborate one's stance while discussing a procedure or asserting a fact. Some users also veered off into unrelated trains of thoughts during problem solving. This may be attributed to the lack of discipline to remain focused on the ODC's goals. Hence, participant management which lays down rules for common language and adherence to context of discussion may have to be enforced in ODCs (Zang and Watts, 2008; Jeon, 2011).

Besides the pairing of domain knowledge sharing and social expression, emotional disclosure was commonly observed to be coupled with social expression. Users who shared their sorrow sometimes introduced themselves and greeted others to feel comfortable. Users who provided suggestions and advice to those needing support, commonly leaned on their own experiences to substantiate the gravity of the situation and went on to explain how they overcame it. Soon, individual feelings coalesce into "collective effervescence" which allows users to mutually help each other to manage and uplift their emotions successfully (Thoits, 1985). Being commonly used in conjunction to knowledge sharing and emotional disclosure, social expression therefore serves as a humanizing entity while serving the primary goals of ODCs.

Two, differences could be noted in the extent to which online interactions were observed between the two types of ODCs. Technical ODCs propagated factual knowledge such as service and product information, and user feedback on new launches. On the other hand, support ODCs did not display factual knowledge but were confined to furnishing community-created knowledge in the form of reasons and solutions to practical problems. Reasoning was an essential component of interaction among support ODC users to explain the rationale behind challenging issues. However, amid the differences, the extent of asserting facts and problem-solving seemed to be observable comparably between both support and technical ODCs. This could reflect an individual's altruism to fellow users in the community or the need to be recognized as a subject-matter expert by the community (Wasko and Faraj, 2005).

Socializing was a more commonly observed in support ODC users than their counterparts in technical ODCs. This may well suggest the differing users' needs between those in a support ODC vis-à-vis those in a technical ODC. In particular, the formation of social bonds through making self introductions and citing personal examples may bring about the psychological safety much needed by the anxious and the downcast (Reis and Patrick, 1996; Kim, 2000). Users feel socially connected and develop greater confidence when they read the experiences of others similar to theirs (Thoits, 1985). The need for emotional disclosure persisted among support ODC users while technical ODC users focused on objective discussions. Self demeaning was visible among support ODC users. This is indicative of the anxiety they were undergoing which led them to seek support (Smith, 2008). Nevertheless, appreciation for others reflected the contentment of self-revelation and the willingness to receive suggestions.

6 Conclusion

ODCs have been a popular subject of study among the researchers, in part because they serve as promising channels of online instruction and discourse delivering relevant domain knowledge. Very often, they have been studied as mechanisms of sharing implicit and explicit knowledge (Jeon, 2011). However, this paper has widened the horizon of scholarly inquiring by performing a content analysis of messages in ODCs to uncover other important forms of interactions other than knowledge sharing. Specifically, the paper has examined online interactions demonstrated by ODC users. The results suggest that users exhibited a combination of the three online interactions, namely, domain knowledge sharing, social expression and emotional disclosure. In particular, social expression seems to underpin domain knowledge sharing and emotional disclosure.

Through an analysis of user-generated content, the findings have justified the two research questions raised. One, there are at least three important online interactions which are domain knowledge

sharing, social expression and emotional disclosure. ODC users exhibit regular interaction patterns displaying a combination of the three online interactions. Social expression emerges as a need for belongingness and exists alongside knowledge sharing and emotional disclosure. Two, the two types of ODCs, namely support and technical, have demonstrated distinctive patterns in their interactions. In particular, domain knowledge sharing is more prevalent in technical ODCs while social expression and emotional disclosure are a dominant characteristic of support ODCs.

However, three limitations are acknowledged. One, the scope of analysis involves six ODCs from which a modest sample size of 1800 messages was selected, given the manual coding involved. Two, cultural and geographical contours of users which can be an influencing factor in their social and psychological perceptions have not been considered. Three, the authenticity of users could not be validated since the study was performed on open ODCs. Also, the scope of the paper does not encompass sharing intention of users. Future works may involve examining an authentic but controlled environment where user profiles and their activities can be closely tracked to yield richer data set and to better understand their online sharing behaviors. Moreover, the constituents of online interactions identified in this research can be investigated more granularly to understand human motivation and intention behind the way users contributing to ODCs.

Even so, this paper provides implications for researchers and practitioners alike. Specifically, researchers can now study ODCs from a socio-psychological perspective with a thrust on the social and emotional needs of users and their influence on knowledge sharing. Practitioners such as webmasters and web designers can look into creating online community environments which can cater to different sharing needs of users by incorporating features which facilitate intended interaction. For example, support ODCs can provide emoticons and animations allowing users to express their feelings more readily through images. Technical ODCs can include features such as subject based thesauri and dictionaries encouraging users to use technical terms while presenting facts as well as to familiarize with technical jargons. With deeper understanding of online interactions, ODCs can be better designed to enhance user experience and elicit richer user generated content.

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