# The Analysis of Online Communities as Platforms for Informational Influences

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**Abstract** The article deals with the basic definitions used to describe the communications of the Internet users. The classifications of the Internet community, which are based on the differences between the technical characteristics, structural organization, interface and the topics of the online communities, have been considered. The ways of discussion implementation for establishing communication between messages have been determined. In online communities, discussions have been implemented in two ways: linear (sequential) structure and tree-like (branch) structure. Given the ways in which discussion can be implemented, the relations between messages can be detected explicitly and implicitly. The online communities have the following means of transmitting information: messages, posts, likes, functions "share with". Two types of informational activity – linguistic and signaling – have been regarded to classify these means. The communication of online community members via the information provided in the test form, used to convey verbal information, has been studied. In addition to verbal means of transmitting information in online communication, non-verbal and paraverbal means have been used. Non-verbal means used in online communities are emoticons and hyperlinks. Paraverbal means in online communities are represented by meta tags. The notion of discussion as a meaningful communication between messages has been defined. Discussions, as a dialogue structures, consist of alternate replicas of participants who take on the role of the sender and the recipient. The technologies of global search of relevant discussions in social Internet media have been considered. Using a meta-search system will increase the relevancy of output results and enable the creation of a "meta-net" of keywords, resulting in an increase in the number of searching results.

**Keywords** online communities, information content, discussions, posts

## 1. Introduction

Most of the practical results of information confrontation and protection of the national information space are based on practical and theoretical work in certain related areas of human knowledge. Among them, first of all, such industries as marketing in the social Internet media (Social Media Marketing, SMM) and some types of online business providing advertising services that are reduced to the provision of various platforms (various types of: communities, personal blogs, websites etc.) for advertising with appropriate further monetization should be taken into consideration. Moreover, concerning the context, there are studies on the development of e-democracy on the Internet infrastructure. The forms of indirect implicit influence on users have become the dominant trend in marketing and advertising activities in social networks. Formally, the activity and forms of indirect influence have become a certain line between "white" and "black" marketing. The first type includes more classic advertising models and traditional models of informing the population. Accordingly, for such forms the term "information activity" of the institution or other entity has been used. The second form of

influence has more manipulative nature, aimed not at the conscious decision-making by users, but at other forms of unconscious influence (with different kinds of manipulations). The basis of this direction is the creation of information pressure on users of social Internet media by others, formally unengaged users, using them as carriers of the relevant influences (both consciously and unconsciously).

## 2. Literature Review

Online communities are very effective in terms of disseminating and retrieving information, so they are used for a wide range of information issues. Online community is considered to be a key to create a reliable support network, it is a source of new ideas, and a powerful marketing tool.

The term of online community is interdisciplinary, and as a result there is no universal definition of online community. Below there is the definition of online community provided by the thesaurus and IT research.

Online community is a group of people with common interests and areas linked with common goal and who, for a while, became acquainted with each other via web technologies [1].

Online community is a group of people who regularly interact with each other online, mainly for the purpose of sharing information and thoughts for the sake of common interest [2].

The term of online community is frequently used synonymously with the virtual community, network community and e-community. The virtual community, the online community is a social group of people who communicate and interact online via specialized WWW services and sites [3,4].

There are studies that treat online community as a subset of virtual community. The virtual community is a group of people who mostly communicate via tools, rather than directly face to face. If the communication mechanism is a computer network, these communities are called online communities [5].

### 2.1. An overview of existing approaches to classifying online communities

A common feature of online community is a collective communication via Internet, but online communities have many differences due to the technical characteristics, structure, interface, and topics, etc.

By the degree of integration within the WWW, the following types of online communities have been identified [6]:

- social networks (not integrated into the web);
- discussion letters (partly integrated into the web);
- public social networks (largely integrated into the web);
- web communities (fully integrated into the web).

According to media capabilities and social presence, the communities are divided into [7]:

- low (blogs and microblogging);
- medium (social networking sites and information content sharing community);
- high (virtual social worlds, virtual worlds of games).

By accessibility the online communities are divided into:

- open (community content is accessible to everyone);
- closed (information content is available only for registered users);
- hidden (joining the community is possible only upon invitation).

According to the dominant form of information provision, the online communities can be divided into:

- textual;
- multimedia;
- graphic.

By the degree of web integration the virtual communities and communities based on public social networks, such as Facebook have been analyzed, because only they can have a large audience and enable significant dissemination of information.

By media opportunities and social presence - the average online communities. Unlike the virtual social world and the world of games, real events are discussed in these communities. Communicative activity in blogs or microblogs is focused on one of the subjects of speaking, the other communication participants post informative messages only in the context of the main blog text.

By the availability of the online community a class of open online communities is considered. Unlike the closed and hidden ones, which do not go beyond the defined circle of communication subjects, users can find open communities within the Internet and join them.

Classification of online communities by common feature of participants:

- geographic - limited by geographical location (city, district);
- demographic - restrictions by age, gender, race or nationality;
- thematic - participants are associated with common interests, such as fan clubs, leisure group or professional structure.

### 2.2. Typical online community structure

The structural features of online communities largely determine the flow of communication between participants.

From the point of view of communication, the online community consists of participants and meaningful content. The community's information content dynamically created by participants is considered to be a debate.

Discussions consist of messages - short text information provided by the community member. The message is an atomic content unit of the Web Forum and consists of title, text, creation date, and author [8].

In order to establish connections between messages, it is necessary to consider the way of implementation of the discussion. In online communities, discussions are generated in two ways [9]:

- participants' messages are displayed linearly (sequentially) depending on the time of their publication;
- the tree-like (branch) structure reflects not only the timeliness of the appearance of messages, but also reflects the connection of the message-reaction and the initiating message.

Given the ways in which discussion can be generated, connections between messages can be detected explicitly and implicitly. Explicit connections are established on the basis of an extensive discussion structure, links to initiating messages in message-reactions or embedded citations [10].

Explicit connections can be established using:

- □the extensive structure of the online community;
- □the presence of the links to the initiating messages in the message-reactions;
- □presence of initiating messages in the message-reactions of the enclosed citations

Implicit relationships between messages are detected as a result of analyzing the content of the message:

- presence of the names of the participants in the title;
- availability of appeals to the participant's name in the text of the message;
- repetitions or synonyms of the message's keywords;
- presence of personal and demonstrative pronouns, words with a comparison value (for example, similar, identical, different);
- presence of ellipse.

### 2.3. Types of communication in online communities and their characteristics

The online communities have the following means of transmitting information: messages, posts, preferences, distribution. These means are considered to be classified in terms of two kinds of informational activity - namely, linguistic and signaling

Linguistic means of information activity are, for example, post and message. The universal linguistic means of information activity is a message.

Types of signaling means of information activity vary depending on the structure of the online community. Signals include, for example, preferences and distribution in Facebook; voting (which is then taken into account during rating), message evaluation (possible only for users with high rating) in the network of forums of Stack Exchange.

Message is the most semantically unrestricted and contextually independent unit of informative activity. Messages are divided into two types: initiating and message-response.

Initiating message is a message in which certain information is provided, a question is asked, a position or a call to action is expressed. While a message-response is a message that is a response to another message, it contains

the requested information, complements the aspect of the topic that was touched in the corresponding primary message.

**2.4. Verbal, non-verbal and paraverbal means of message implementation**
As it has been mentioned, the study focuses on the communication of online community members using the information provided in the test form. According to the classical definition of textual information - this information is transmitted using text characters (alphanumeric, special and numeric characters).

Messages are a sequence of visual signals that have a communicative task.

A text submission form is used to convey verbal information. In case of communication within the online community, in addition to the above-mentioned sign systems that are used to implement the text representation of information, messages integrate some non-verbal and paraphernalia means of communication.

Verbal means make up the message base, since with the help of verbal text information the most part of the semantics of the message is transmitted. Verbal means of communication are lexical units (words). They are implemented using such sign systems as alphabets and special characters.

In addition to verbal ones non-verbal and paraverbal means are used in online communication. Non-verbal means used in online communities are emoticons and hyperlinks. The paraphernalia means in online communities are implemented using meta tags.

Emoticons are primitive graphic images. Each online community has its own list of these options, that is, participants can use signs from a well-defined system.

Emoticons are different from classical examples of graphical information, because they are unambiguous, belong to a limited set and their values are clearly set on the platform of online communities.

Emoticons are graphic symbols used to transmit emotions. They can be implemented as clusters of typographic characters or images or animations.

Emoticons are facial expressions, such as smiles or frowning, formed from various combinations of keyboard layout symbols that are used for deliberate transmission of the author's feelings or message tone.

The key aspect of this definition is that using emoticons, authors of the messages transmit conscious emotions. That is, the author identifies his feelings and chooses the emoticon that is the most closely to his emotions, consciously wants to express certain emotions.

In traditional offline communication, the manifestation of emotions is conscious and unconscious. Information about emotions is transmitted using non-verbal means, such as facial expressions, gestures, posture. The unconsciously transmitted information helps to easily identify emotional states.

Hyperlinking – the address of another network information resource. In messages, hyperlinks are implemented as a selected set of text characters. The link, although, consists of characters, but their set does not have semantic content, so it belongs to non-verbal elements integrated into the text messages of online communities.

A function of hyperlink – to offer quick access to relevant information that is highlighted in the topic. Hyperlinks shift to a page that contains distributed information, confirm the information specified in the message, indicate the source, etc. Traditional communication does not have a separate class of communication tools, functions and characteristics of which would correspond to the references in online communities. The source of information or resource with additional information is indicated in traditional communication with means of verbal communication.

The text of the message can be differently written using different types of fonts, inclination of letters, upper and lower case letters, indentations, empty lines, etc. That is, messages may contain different meta tags. Metagraphemics are text formatting options (columns, line spacing, fonts) that are used to facilitate the perception of text [11].

Metagraphemics refers to para-verbal means of communication. In traditional communication, para-verbal means are formed by voice and intonation, based on the tonal and timbre features of the language. Para-verbal means of communication, like emoticons, serve as a deliberate or unintentional transmission of information, affect both the interlocutor (consciously or unconsciously) and the speaker [12]. Instead of melodic, pause, logical emphasis, timbre of voice and tone of speech, in communication within online communities, a similar function is played by metagrafemics.

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### 3. Discussion of online communities as a dialogue

The presence of content links between messages is one of the characteristics of discussion as a dialogue. Discussion is a dialogue implemented with the help of text-based communication means provided by the platforms that include online communities.

Discussions are characterized by a dialogue structure, that is, alternating replicas of participants who take on the roles of the sender and the recipient. These relationships can be clearly represented in the structure of the discussion, or they can be established as a result of a more in-depth discussion analysis. The dialogue involves expressing opinions and responding to the thoughts of others, so representing the links trigger-response is important for understanding of the discussion. Why are they important?

In addition to alternating statements and the presence of several participants, a key feature of the dialogue is an alternative development. In other words, it is not possible to foresee the creation by a particular participant of a specific message.

Despite the alternative development, the dialogue is characterized by the content unity of messages. The topic is well-known to the discussion participants and they perceive all messages via specific topic.

The presence of participants and topic are necessary conditions for a dialogue. They allow to identify the dialogue. This rule is also valid for discussions: when a set of participants or a topic changes considerably (for example, more than 50%), it indicates the end of one discussion and the beginning of another one.

The replicas of dialogue are characterized by the purpose of the speech action, that is, they carry the explicit or hidden communicative purpose of the sender or the recipient (for example, informing, request, order, advice, promise, etc.). A dialogical act is a fragment of a replica of a participant in a dialogue, which corresponds to one of the communicative purposes.

### 3.1. Approaches to the classification of dialogical acts

A concept of dialogical acts plays a key role within the study of dialogues, namely, in the interpretation of the communicative behavior of the participants in the dialogue, the construction of annotated dialogue corpora, the development of automated dialogue systems.

The basis of dialogical acts is speech acts, in other words, dialogical acts are clarified, detailed speech acts, often they are specialized in terms of the scope of usage or subject matter. For example, Question is a speech act, Question_about_the_hotel is a thematically specialized dialogical act used in telephone or text dialogue communication systems in the field of tourism.

The examples of non-specialized dialogical acts that correspond to a speech act of Question are the following:

- greetings ("How is it going?", "How are you?", "How do you do?", "Alles klar?")
- the purpose of the question ("What are you going to do?", "What will you say?", "What can I say?", "Was soll ich tun?")

- general questions
  - indirect questions ("Could you help?", Could you tell me the time, please?», «Können Sie mir bitte sagen, wie…?»)
  - special question

In order to solve problems in different spheres, the classification of dialogical acts for analysis, telephone conversations, audio recordings of conferences and meetings, analysis of dialogues with specific topics.

Studies in the above-mentioned directions begin with the characteristics of the elements of the dialogue. An annotation of dialogical acts is a comparison of the fragments of dialogue with dialogical acts, that is, the indication of their communicative functions of the fragments of dialogue. The annotation of dialogical acts is carried out manually on the basis of clear instructions (references to dummies), also the algorithms and means of automated annotation have been considered. The automated means allow to annotate YES at a high level of generalization, for example DAMSL: Dialogue Act Markup using Several Layers; DIT ++ schema.

An automatic detection of the structure of dialogues is important for a deep understanding of human communication. Even the most generalized annotation, which only detects such superficial types of replicas as statements, questions and answers are successfully applied in many software tools such as automated interlocutors, automatic abstracting of dialogues and flirting detection.

Or, the automated means allocate YES to more precise classes, but the system provides the adequate results only when applied to dialogues in a specialized area including TRAINS project in USA, Map Task study in the UK and the Verbmobil project in Germany. All these projects are designed for specific purposes and areas of application. The terminology is incongruous in these projects, they contain different terms for identical concepts, and vice versa, the same terms in different projects denote different YES.

On the basis of dialogical acts, fraud detection was found out in chats of computer game. It was conducted on the basis of the corpus. Since the corpus was compiled with somewhat different purposes, the replicas have been manually tagged by the following dialogical acts: statement, addressing, question, response, confusion, etc.

## 4. Results and Discussion
### 4.1. Technologies of global search in social media of the Internet
An effective search for relevant discussions in the social media of the Internet requires the consolidation of search results using different GSE (Global Search Engine). It can be achieved by applying a meta-search system. The Meta Search Engine is a search engine that does not have its own search index and database, and dynamically sends queries to several search engines, extracts, mixes, rebuilds results, and then responds to an initial request.

GSE differ in their algorithms of bypassing, indexing, ranking, so their search results are different. Using the meta-search system to identify online discussions is an efficient task, it will increase the relevance of the results of the issue and increase their number.

Due to the mixing and reranking, the first points in the submission of the results of the meta-search system are highly relevant, because the highest positions will refer to the results that had a high rank in several GSE.

GSE use different keyword networks, the meta-search system allows to create a "meta-net" of keywords, resulting in an increase in the number of search results.

Some GSE provide the ability to use search operators. The content of the main search operators (for example, conjuncture and disjunction) coincides, but they may have different recording forms. Integrating the GSE into the meta-search system requires the translation of the records of the search operators.

In [13], based on Google search operators, an algorithm for constructing a parametric query has been developed to select relevant discussions. Searches for the identification of relevant discussions are generated based on search operators and keywords. The keywords to each aspect of the subject area are taken from the specialized dictionaries. The construction of specialized dictionaries of aspects of various thematic areas is covered in the following works [14]. The construction of a parametric query for selecting relevant discussions based on operators is described in [15].

The search for discussions that take place in Facebook is conducted not only via GSE, but also via Facebook. The search in Facebook occurs within the network of user connections. The search results in Facebook depend on the profile you are searching, since Facebook will first bypass the pages that are most closely related to the profile.

Graph Search in Facebook is now available only via software tools, the Facebook user interface does not provide search functions via Graph Search.

## 5. Conclusion
The existing types of community, their structural and functional differences have been considered. The peculiarities of communication in online communities, available means and methods of communication have been regarded. The structure of online discussion as a dialogue has been analyzed, the existing classification of dialogical acts have been overviewed. The technologies of global search in social media of the Internet have been studied.

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