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ONLINE FORUMS: COMMUNICATION MODEL, CATEGORIES OF ONLINE COMMUNICATION REGULATION AND NORMS OF BEHAVIOR

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Abstract

Purpose of the study: The paper addresses the issue of regulating Internet communication activities in the context of online forums. The study aims to create a forum communication model identifying the areas subject to social regulation and defining the most common types of norms

Methodology: The study draws upon the semiotic method to develop a new communication model based on classical theories. Quantitative empirical studies are also used. The rules and guidelines of 1,205 online forums were analyzed to identify the most common norms.

Main Findings: Communicators and moderators access the forum communication space via user accounts and create a sign system. Some categories, such as a ban on deceptive or offensive content, are similar to those used in offline life. Other regulations are Internet-specific in that they are determined by inherent challenges of online communication (for example, account cloning) or by the way a forum is structured (flooding, necroposting, etc.).

Applications of this study: The findings related to the forum rules are presented in a summarized manner, although the rules vary slightly in reality, depending on the forum topic. The prevalence of deviant behaviors on online forums was also beyond the scope of this study. The study was based on the rules of Russian- and English-speaking forums, and it should be noted that language differences could influence the results.

Social Implications: The evolving social interactions on the Web require regulations, which can differ significantly from those used offline. The study of social norms on the Internet allows us to trace what types of online behavior are now considered deviant and examine the current potential of Internet self-regulation.

Novelty/Originality of this study: The study developed a new communication model for categorizing online communication norms. Major categories of online communication behavior regulation were identified and the most popular types of social norms were determined.

Keywords: Internet, Online Forum, Norm, Communication, Communication Model, Online Communication Regulation

INTRODUCTION

Nowadays, people spend increasingly more time online. As researchers point out, constantly improving intellectual technologies and virtual environments have inspired new forms of computer-mediated communication. These new ways of interaction affect many aspects of human life (Kostin, Pokrovskaia & Ababkova, 2017; Shipunova, Berezovskaya, Mureyko, Evseev, Evseeva, 2018; Shipunova, Mureyko, Berezovskaya, Kolomeyzev & Serkova, 2017; Trostinskaia, Safonova & Pokrovskaia, 2017). Communication behavior on the Web differs significantly from other forms of communication. What we are witnessing today is the emergence of standards of online behavior. Most rules for online communication are unwritten. However, Internet forums have been around for quite some time (early web-based forums date back as far as 1994) and have gained rich experience in establishing the rules of behavior, which any potential user must accept if they want to become an active member of the community. These standards of conduct are backed up by various disciplinary measures, ranging from moderator warnings to a permanent account ban.

Communication activities on Internet forums are largely regulated than everyday offline life. Hamelink (2013) observes that the international community has developed binding law and voluntary professional codes to address the standards of freedom, responsibility, confidentiality and truth, whereas 'the norm of respectful and fair communication has not been articulated in formal laws or codes of conducts' (p. 160). Apart from prohibitions related to legal requirements and codes (which stipulate that users must not incite ethnic or religious hatred, promote pornography or drugs, infringe copyright law, swear, etc.), there are forum-specific norms — a set of forum rules and guidelines that determine what behavior is appropriate in a certain communication environment. Forum rules and guidelines are of special interest as they represent a documented summary of behaviors that are classified as deviant.





LITERATURE SURVEY: MAJOR ELEMENTS OF COMMUNICATION

In order to define the areas subject to regulation, the key ingredients of communication should be identified. Let us first look at classical linear models of communication identifying major elements of communication. Harold Dwight Lasswell in The Structure and Function of Communication in Society (1948) describe a model of communication that consists of five basic elements: Who - Says What - In Which Channel - To Whom - With What Effect. Shannon and Weaver's model of communication (information source, message, transmitter, signal, channel, and receiver) includes an interesting concept of noise or interference that distorts understanding between the speaker and the listener (Shannon, 1948; Shannon and Weaver, 1963). Westley and McLean's (1957) model introduces the role of the channel or gatekeeper who may alter the original message.

The model of communication developed by Jakobson (1978) involves the addresser and the addressee as the central units of a communication act. The addresser sends a message to the addressee in a certain context, by means of contact (a physical channel and psychological connection) and using a code, at least partially common to the addresser and addressee (p. 353). This model has been criticized because of the linear progression approach, which implies that the message lies within a row of other elements, whereas, according to J. Dubois, it is a sum of five basic factors (sender, receiver, contact, code, and referent). Furthermore, Elleström (2018) argues that the concept of the message should be eliminated altogether, as it presupposes a self-contained unit that is essentially disconnected from the communicating persons. The notion of code introduced by Jakobson and Saussure has also been widely criticized. Harris (2003) refers to the idea of a determinate code as the 'fixed code fallacy' (p. 96). The Flowing Model introduced by Al-Fedaghi (2012) comprises a sequence of different stages (Creation - Release - Transfer - Arrival - Acceptance - Processing) and emphasizes the importance of coding and decoding.

The role of encoder and decoder was first identified in Schramm's (1971) communication model, where the communicator (which must be understood as a person) 'encodes a message as best he can in signs', and then the receiver (another person) 'reads a message into those signs' (p. 22). Schramm (1971) described the transmitting message as 'a collection of signs' (p. 15). Saussure stated that each sign is made up of two parts, the signifier and the signified. The sign can also be viewed as a triadic relation between three key elements: the representamen (the form in which the sign appears), the interpretant (the sense made of the sign), and the object/referent (the external phenomenon to which the sign refers) (Peirce, 1931-58, § 1.372). The interpretant, which Peirce also defined as significance or signification, is central to the semiotic process.

Information and communication technology development has dramatically changed communication. It is not without reason that Marshall McLuhan (1964) proclaimed that 'the medium is the message'. Today, 'the networked computer is a medium, in which the production, distribution, and consumption of information converge' (Fuchs, 2016, p. 195).

First studies of computer-mediated communication appeared more than 20 years ago (see, for example, Garton, Haythornthwaite & Wellman, 1997). Some models define the Internet as a special medium and use a 'black-box' representation, which involves a sender on one end and a receiver on the other. Another type of online communication model describes many-to-many communication, demonstrating a varied and complicated nature of information flows (see, for example, Fawkes & Gregory, 2000). There is also a Human-Computer Interaction (HCI) model that extends the data transmission layers of the technical Open Systems Interconnection (OSI) model to include human decoding (Al-Fedaghi, Alsaqa & Fadel, 2009).

Modern technology offers an opportunity to track communication processes using stochastic actor-oriented network models (Barbillon, Donnet, Lazega & Bar-Hen, 2017; Hurme, Veermans, Palonen & Järvelä, 2008; Zandberg & Huisman, 2019), time-based network models (Hanneke, Fu & Xing, 2010; Krichene, Chakraborty, Fujiwara, Inoue & Terai, 2019; Krivitsky & Handcock, 2014), or relational event network models (Matias, Rebafka & Villers, 2018; Welles, Vashevko, Bennett & Contractor, 2014). These models are designed to provide insights into the complex relational dynamics between communicators. Yet they tend to treat a single act of communication in a simplified way, such as a combination of a sender, a receiver, and a moment in time (Welles, Vashevko, Bennett & Contractor, 2014; Tranmer, Steel & Browne, 2014).

It would be impossible to create a comprehensive model of online communication because of the multiplicity of influencing factors. Drawing on models by Shannon and Weaver, Jakobson, and Zygmunt Bauman, Teixeira (2014) offered a model, which involved the sender, the receiver, virtual communication channel, noise, feedback, as well as cyberspace represented by multiple senders and receivers and multiple online services ranging from search engines to social media and globalization.



RESEARCH METHODS

The particular nature of communication (generally on the Internet and specifically on online forums) calls for a separate model that relies on existing theories and encompasses all elements that can be subject to regulation. In order to figure out what specific aspects of 'message' are regulated, this study interpreted it from a semiotic perspective as a set of signs consisting of representamen, interpretant, and referent.

The study sought to examine the patterns of behavior regulation on online forums. To this end, the rules and guidelines of 1205 forums were reviewed.

As a first step, 20 popular online forum topics were identified. This analysis covered forums on different topics (such as pets, hobbies, computer games, movies and TV series, software, online dating, politics, travel, health, business, education and training, children, sports, shops, cars, beauty, books, talking, addictions, religion). Random sampling procedures from within search engine results were then applied to select 49–68 forums in every topic (half in English, half in Russian).

Every set of rules was subjected to qualitative statistical analysis of bans. The bans were correlated with various elements of the proposed semiotic model of online forum communication. The study identified 26 categories of bans, and qualitative estimation of their frequency of occurrence on the forums under review was carried out.

FINDINGS AND DISCUSSION

The Model of Communication on Online Forums

Communication on online forums should be viewed as a joint creation of a certain type of sign cyberspace. Online forums are characterized by polylogue asynchronous communication engaging a wide range of readers. <u>As Livingstone</u> (2004) and O'Sullivan and Carr (2018) put it, communication on the Internet is both 'one to one' and 'many to many'.

In order to identify the key factors of behavioral regulation on online forums, basic elements of communication should first be considered. To start with, the study focused on communicators — the active participants in communication (see Figure 1). Each of them acts as both addresser and addressee, creating a sign system of the forum. This approach makes it possible to break away from the traditional linear models of communication, which present communicators in the left part of the model and those in the right part as two opposite poles, with the message being transmitted by senders to receivers and receivers responding with feedback that flows back to the source. In the proposed model, all active communicators are treated equally as creators of the forum sign system. Special status is conferred upon those who actually regulate the communication activity. Moderators/administrators are vested with special authority to change the structure of signs by editing, moving or deleting messages (and thereby acting as 'gatekeepers' according to Westley and MacLean), as well as by imposing disciplinary penalties for inappropriate behavior, ranging from warnings to complete account deletion.

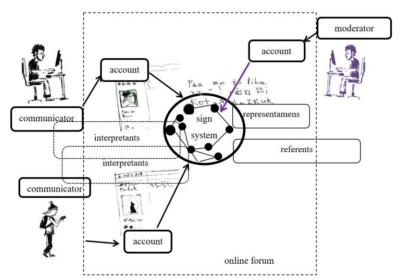


Figure 1. The model of communication on an online forum



It should be noted that 'readers', although they are not included in the diagram, are not excluded from the analysis. On the contrary, it is thanks to these very participants that the forum structure as a sign system is covered by special requirements different from those applied, for example, in the case of interpersonal interaction.

The Internet medium is included in the diagram implicitly, in the form of relations between communicators and accounts through which communication on the forum takes place. The forum sign system, in accordance with the semiotic model, consists of representamens, interpretants, and referents. Representamens refer directly to the signs (i.e. words, punctuation marks, smileys, emoji, symbols, graphics, etc.) which can be seen on online forums. Referents are physical or virtual entities denoted by the signs. Interpretants are related to communicators. Being defined as the 'cognition produced in the mind' (Peirce, 1931-58, § 1.372), interpretants are specific to each communicator and are therefore multiple.

Areas of Behavior Regulation on Online Forums

Standards of behavior mostly concern various aspects of the transmitted message. However, there are also certain restrictions that apply to human participants of the forum as well. A number of forums have rules requiring compliance with the classical mantra 'one communicator, one account' (see Figure 2). Therefore, account cloning (i.e. creating several duplicate accounts on the forum by a single user) is seen as deviant. The reverse situation, when a single username is shared by several people, is often not permitted either. The disclosure of a user account password to another person is far less prohibited, resulting in access being granted to use the account.

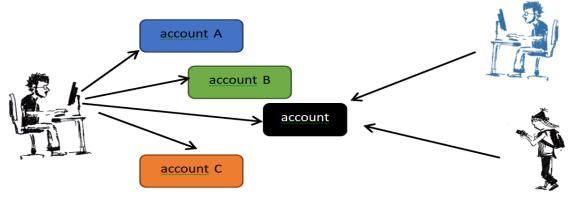


Figure 2. Two types of deviant behavior on the forum with respect to 'communicator – account' combination

The account itself is also subject to regulation. Account elements such as username and avatar/profile picture chosen by the communicator are embedded in the general sign structure of the forum. Therefore, they are often governed by certain restrictions that apply to messages. Specifically, the username and avatar/profile picture must not contain profanities or advertising. Another interesting measure is the requirement to refrain from creating 'confusingly similar' usernames to avoid situations where one forum member could be mistaken for another. In addition, it is sometimes not allowed to use avatars that imitate user rankings or are similar to avatars of the forum administration members. Far less prevalent are more severe identification-related requirements, such as that when registering, members should enter their proper names and upload their real pictures. On the contrary, in most cases, forum rules protect user anonymity and do not permit the disclosure of a member's personal information without the consent of that person.

The moderator is responsible for performing distinctive duties such as deleting messages, issuing warnings, and imposing disciplinary penalties. Thus, this person is granted a special status. The latter may likewise be protected by the forum rules, including a ban on discussing and criticizing the moderator's policy.

As far as forum-specific forms of expression are concerned, the respective rules of regulation are attributable to the way of the structuring of the sign system within the overall communication space of the forum. A forum is hierarchical or tree-like in structure and contains a number of threads intended for discussing a certain topic. As it is quite difficult to navigate through dozens of sub-forums and threads on a huge forum, newly created accounts are sometimes not allowed to create new threads until they have reached a certain amount of posts. Moderators are also charged with ensuring that discussion topics are not duplicated so that the content does not overlap.

Regulation in this area is also related to the nature of a forum as a communication platform, which is valuable for a wide range of users rather than only for a handful of contributing people. Therefore, unlike the cases such as interpersonal interaction, it is critical that the content on the forum is arranged consistently. Regulations aimed at maintaining



consistency and coherence include, inter alia, the requirement to choose meaningful thread titles (rather than emotional or attention-grabbing ones like 'Urgent help needed!') and not to edit messages after they have been replied to, otherwise, the thread becomes impossible to follow.

One of the major problems in this area concerns the disruption of coherence of a forum as a complex sign system. Specifically, it is not allowed to undermine the semantic ('off-topic') or time flow of signs ('necroposting' made on a forum thread with the last comment being several months old). Duplications are also detrimental to the understanding of the semantic frame. Occasionally, repeat posts are necessary to ensure coherence in cases when several new comments have appeared below the post responded to by the communicator. In other words, intensive polylogue communication may call for quoting the message replied to by you. However, lengthy quotes produce an unwieldy and unreadable text. That is why the ban on 'over-quoting' was enforced. Flooding, as opposed to 'over-quoting', generally means an intentional distortion of the flow meaning, usually through repeated sending of the same or slightly changed content. The extreme case involves multiple spamming of an identical meaningless set of signs in several forum threads.

Prohibition on posting links to other web resources can also be included in the category of structural restrictions. This is down to the fact that forums which embrace such regulations thereby advocate for the autonomy of their individual sign system, trying to avoid integration into a wider web context.

Some restrictions apply directly to representamen as a form of expression. Words are the basic sign form used by members of online forums (although there are also smileys, punctuation marks, graphics, etc.). That is why restrictions essentially address the way words are presented visually or grammatically. Specifically, it is not permitted to use effects for visually attracting attention to the message, such as capitalizing the whole message, overusing red font color or large font size, etc. Restrictions may also be placed on the excessive use of smileys and expressive punctuation marks (for example, more than three in a row). Furthermore, some online forums frown upon grammatical deviations (such as spelling and grammar errors) which are a typical feature of Internet communication. These requirements are usually driven not by hair-splitting considerations, but by actual problems on forums where some people intentionally flout language conventions.

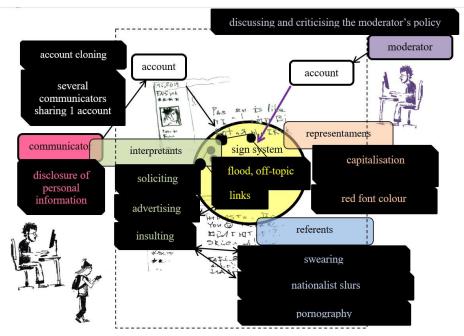


Figure 3. The relation between bans and elements of communication on an online forum

Regulation in the area of referents is also quite common. In other words, there are things that cannot be discussed. This is especially pertinent for sensitive and socially disapproved referents including drugs, explosives manufacture, pornography, nationalist/racist slurs, etc. Moreover, depending on the forum topic, some online communities put a ban on certain subjects that potentially add to tension and conflict among members (for example, a ban on the political debate on a forum for discussing local news and events), or do not accept using harsh and forceful language when discussing those subjects. Subjects that might elicit negative emotional responses are also sometimes forbidden (for example, the online parenting community of the city of Ufa places a taboo on the discussion of subjects like deaths of children and pregnant women, abortions, etc.). Particularly interesting is the issue of a ban on profanities and swearing. As filters

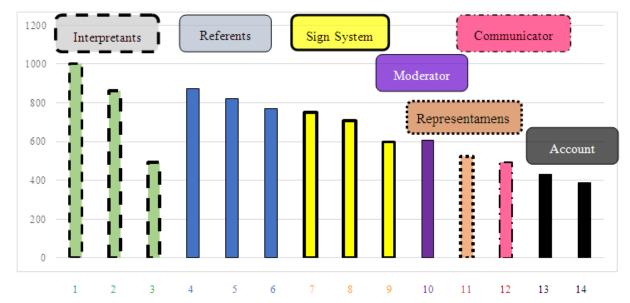


would automatically block the messages containing profanities, users started intentionally distorting obscenities, misspelling them or using euphemisms instead of profane or offensive words in order to circumvent the restrictions. As a result, bans were introduced on this referent regardless of which representamen is used.

As far as interpretants are concerned, restrictions in this area apply to messages intended to elicit a certain response. No matter how the message subject is phrased, what matters here are the implications meant by the author. More often than not, members of online forums are not allowed to post messages that insult others (regardless of the message form or representamen). Some other bans also fall into this category, such as a ban on advertising/promotion, scam, fraud, deliberate lies or misinformation, begging or soliciting anything of value (both tangible and virtual). As interpretants can vary depending on the person involved in communication, bans in this area tend to prompt outcries from those who feel that they do not deserve the penalties imposed by moderators. Figure 3 gives examples of bans that apply to respective elements of communication on an online forum.

Measuring the Frequency of Occurrence of Restrictions on Online Forums

Figure 4 shows the most common bans or restrictions in each category. The data indicate that the major problem of this type of online communication is unhealthy arguments between forum members. The list is led by a ban on insulting and rude language (83%) and a ban on profanities and swearing (72.5%). Another type of undesirable behavior is the use of the forum for personal gain or for advertising purposes (71.5%). Further, there is a less probability of directly banning external links (62.2%). The same prohibitions — on swearing (64.3%) and advertising (64.1%) — apply to account itself.



- 1-Insulting; 2-Advertising; 3-Deception; 4-Swearing; 5-Nationalist Slurs; 6-Pomography; 7-Links; 8-Flood; 9-Off Topic;
- 10-Discussing and Criticizing the Moderator's Policy; 11-Capitalization; 12-Disclosure of Personal Information;
- 13-Account Cloning; 14-Several Communicators Sharing One Account

Figure 4. The most common bans and respective elements of communication on an online forum (n=1,205)

Quite often, forum rules impose a ban on certain referents. The most common prohibitions are likewise against conflict behavior. The majority of forums studied (68%) do not permit nationalist or racist language. Posting any type of pornography is forbidden by the rules of 64% of the forums studied.

Management of an online forum as a sign system is addressed by forum rules to a lesser degree. Most bans in this category relate to flooding (58.6%). Restrictions on over-quoting have been identified in the rules and guidelines of 49.7% of the forums studied.

Relationships with moderators present a challenge for half of the forums under review (50.4%). Less common are rules and guidelines regarding representamens. Most restrictions apply to improper use of capitalization (43.4%) and spelling and grammar errors (39.3%).

Even less developed are the rules regulating personal information and online self-presentation. 41% of the forums studied impose a ban on disclosure of personal information relating to the member behind username and profile picture without consent of that person. Account cloning is forbidden in 35.6% of cases. Several people sharing one account is



against the rules of 32% of the forums studied while creating confusingly similar usernames is not allowed in 27.6% of cases.

CONCLUSION AND APPLICATION

Communication on online forums is one of a variety of communication forms on the Internet. It is characterized by the implied value of the shared information for a wide range of potential readers rather than just for communicators directly involved. Forum rules and guidelines summarize deviant forms of sign system production. The regulation covers all aspects of communication, although to a different extent. Some restrictions, such as a ban on insulting and swearing, are used in a more or less explicit way in offline communication as well. These are the most widely applied types of standards. Other regulations are Internet-specific as they are determined by inherent challenges of online communication (for example, account cloning) or by the way a forum is structured (flooding, necroposting, etc.).

Today, there are no universally applicable standards of conduct on online forums. Behavior regulation policy depends on such factors as the forum topic, the number of active communicators, the presence of hidden threads, etc. However, due to the rich experience gained over Internet forums' lifetime, forum organizers can now develop rules and guidelines for online communication behavior drawing on the best practices and setting an appropriate level of strictness of the regulation — thereby avoiding trial and error.

What we are witnessing today is ongoing development and change of social norms on the Internet. The evolving social interaction on the Web requires regulation, which can differ significantly from that used offline. Therefore, a special analysis of the issue is needed. This study offers a cross-section of online forum norms as of 2019, whereas future research may identify changes in regulation over time. The findings related to the forum rules are presented in a summarized manner, although in reality the rules vary slightly depending on the forum topic. The prevalence of deviant behaviors on online forums was also beyond the scope of this study. The study was based on the rules of Russian- and English-speaking forums, and it should be noted that language differences could influence results, especially with regard to representamens.

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REFERENCES

- Al-Fedaghi S. (2012). A Conceptual Foundation for the Shannon-Weaver Model of Communication. *International Journal of Soft Computing*, 7(1),12-19.DOI: 10.3923/ijscomp.2012.12.19ISSN: 1816-9503
- Al-Fedaghi, S., Alsaqa, A., & Fadel, Z. (2009). Conceptual Model for Communication. International Journal of Computer Science and Information Security, 6 (2), 29-41.ISSN 1947 5500
- Barbillon, P., Donnet, S., Lazega, E., & Bar-Hen, A. (2017). Stochastic blockmodels for multiplex networks: an application to a multilevel network of researchers. Journal of the Royal Statistical Society: Series A (Statistics in Society),180(1), 295–314. DOI https://doi.org/10.1111/rssa.12193ISSN:1467-985X
- Elleström L. (2018). A medium-centred model of communication. *Semiotica: Journal of the International Association for Semiotic Studies*, 2018 (224), 269.DOI: https://doi.org/10.1515/sem-2016-0024ISSN 1613-3692
- Fawkes, J., & Gregory, A. (2000). Applying communication theories to the Internet. *Journal of Communication Management*, 5(2), 109-124. DOI: 10.1108/13632540110806703ISSN: 1363-254X
- Fuchs, C. (2016). *Critical Theory of Communication*. London: University of Westminster Press. DOIhttps://doi.org/10.16997/book1.ISBN 978-1-911534-06-8
- Garton, L., Haythornthwaite, C., &Wellman, B. (1997). Studying online social networks. *Journal of Computer-Mediated Communication*, *3*(1), JCMC313. DOI https://doi.org/10.1111/j.1083-6101.1997.tb00062.xEISSN 1083-6101



- Hamelink, C. J. (2013). Normative bases for communication. In P. Cobley& P. J. Schulz (eds.), *Theories and models of communication* (pp. 59–83). Berlin & Boston: De Gruyter.ISBN-13: 978-3110240443
- Hanneke, S., Fu, W., & Xing, E. P. (2010). Discrete temporal models of social networks. *Electronic Journal of Statistics*, 4, 585–605.DOI: 10.1214/09-EJS548 ISSN: 1935-7524
- Harris, R. (2003). Saussure and his interpreters (2nd ed). Edinburgh: Edinburgh University Press. ISBN 9780748617838
- Hurme, T.-R., Veermans, K., Palonen, T., & Järvelä, S. (2008). Exploring changes in network structures during online discussions. In *Proceedings of the 8th International Conference for the Learning Sciences* (Vol. 1, pp. 382–389). London, UK: International Society of the Learning Sciences. ISBN: 978-1-7324672-2-4
- Jakobson, R. (1978). Closing statement: Linguistics and poetics. In T.Sebeok (ed.), *Style in the language* (pp. 350–377). Cambridge, MA: M.I.T. Press. ISBN 13: 9780262690102
- Kostin, G. A., Pokrovskaia, N. N. & Ababkova, M. U. (2017). Master-chain as an intellectual governing system for producing and transfer of knowledge. In S.Shaposhnikov (ed.), Proceedings of 2017 IEEE II International Conference on Control in Technical Systems (CTS), (pp. 71-75) IEEE. DOI: 10.1109/CTSYS.2017.8109491ISBN 978-1-5386-0777-0
- Krichene, H., Chakraborty, A., Fujiwara, Y., Inoue, H., &Terai, M. (2019). Tie-formation process within the communities of the Japanese production network: application of an exponential random graph model. *Applied Network Science*, *4*(1), 5. DOI https://doi.org/10.1007/s41109-019-0112-9ISSN: 2364-8228
- Krivitsky, P. N., & Handcock, M. S. (2014). A separable model for dynamic networks. *JRSS Series B-Statistical Methodology*, 76(1), 29–46. doi:10.1111/rssb.12014 JAN 2014ISSN:1467-9868
- Lasswell, H. D. (1948). The structure and function of communication in society. In Lyman Bryson (ed.), *The Communication of Ideas* (pp. 215-228). New York: The Institute for Religious and Social Studies.
- Livingstone, S. (2004). The challenge of changing audiences. Or, what is the audience researcher to do in the age of the internet? *European Journal of Communication*, 19 (1). 75–86. doi:10.1177/0267323104040695 ISSN: 0267-3231EISSN: 1460-3705
- Matias, C., Rebafka, T., & Villers, F. (2018). A semiparametric extension of the stochastic block model for longitudinal networks. *Biometrika*, 105(3), 665–680. https://doi.org/10.1093/biomet/asy016ISSN 0006-3444EISSN 1464-3510
- McLuhan, M. (1964). *Understanding media: The extensions of man* (2nd ed., Signet book). New York, NY: New American Library. ISBN13: 978-0262631594
- O'Sullivan, P. B., &Carr, C. T. (2018). Mass personal communication: A model bridging the mass-interpersonal divide. New Media & Society, 20(3), 1161-1180.https://doi.org/10.1177/1461444816686104ISSN:1461-4448EISSN: 1461-7315
- Peirce, C. S. (1931-58). *Collected Papers* (Vols. 1-6). ed. C. Hartshorne, & P. Weiss. Cambridge, Mass.: Harvard Univ. Press.
- Schramm, W. (1971). The nature of communication between humans. In W. Schramm & D. F. Roberts (eds.), The process and effects of mass communication (pp. 3–53). Urbana: University of Illinois Press. ISBN 0252001974
- Shannon, C. E. & Weaver W. (1963). *The Mathematical Theory of Communication*. University of Illinois Press. ISBN 0252725484
- Shannon, C. E. (1948). A mathematical theory of communication. Bell System Technical Journal, 27, 379–423.ISSN:2376-7154
- Shipunova, O.D., Berezovskaya, I.P., Mureyko, L.M., Evseev, V.V.; Evseeva, L.I. (2018). Personal intellectual potential in the e-culture conditions, *Espacios*, *39* (40), 15. ISSN 0798 1015
- Shipunova, O.D., Mureyko, L.V., Berezovskaya I.P., Kolomeyzev, I.V., & Serkova, V.A. (2017). The cultural code in controlling stereotypes of mass consciousness. *European Research Studies Journal*, 20 (4), 694-705. ISSN: 1108-2976
- Teixeira, M. & Tiago, F. (2014). The communication model of the virtual universe. Munich: Grin Verlag.
- Tranmer, M., Steel, D., & Browne, W. J. (2014). Multiple-membership multiple-classification models for social network and group dependencies. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 177(2), 439–455. https://doi.org/10.1111/rssa.12021ISSN:1467-985X



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- Trostinskaia, I.R., Safonova, A.S., &Pokrovskaia, N.N (2017). Professionalizationofeducationwithinthe digital economy and communicative competencies. In S.Shaposhnikov (ed.), *Proceedings of 2017 IEEE 6th Forum Strategic Partnership of Universities and Enterprises of Hi-Tech Branches (Science. Education. Innovations)*, SPUE (pp. 29-32).IEEE.DOI:10.1109/IVForum.2017.8245961ISBN 978-1-5386-2571-2
- Welles, B. F., Vashevko, A., Bennett, N. & Contractor, N. (2014) Dynamic Models of Communication in an Online Friendship Network, *Communication Methods and Measures*, 8(4), 223-243. DOI: 10.1080/19312458.2014.967843ISSN: 1931-2458 EISSN: 1931-2466
- Westley, B. H. & McLean, M. (1957). A conceptual model for communication research. *Journalism Quarterly*, 34, 31-38. ISSN:0196-3031
- Zandberg, T., & Huisman, M. (2019). Missing behavior data in longitudinal network studies: the impact of treatment methods on estimated effect parameters in stochastic actor-oriented models. *Social Network Analysis and Mining*, 9(1), 8. https://doi.org/10.1007/s13278-019-0553-2ISSN: 1869-5450 EISSN: 1869-5469