

UDC 004.738

ANALYSIS OF THE VIRTUAL EDUCATIONAL COMMUNITY BASED ON USER PROFILE DATA

Ruslana Pazderska

Lviv Polytechnic National University, Lviv, Ukraine

Summary. The investigation of virtual educational communities as a kind of information and communication technologies is presented in this paper. The actions that are to be performed at the stage of creation, work and results of the educational community are designed. The basic features of the educational virtual community are formulated. Profiles that should have certain input based on the role of the participants are generated. Much attention is paid to the importance of high-quality design of information content. The rules of participants behavior in the environment of the educational virtual community are substantiated. The main components of the educational community are described using of formal modeling. On this basis, the formal model of analysis of the educational virtual community is developed in accordance with the input data of the participants.

Key words: educational virtual community, participant, role, profile, features, design, rules of conduct, characteristics.

https://doi.org/10.33108/visnyk_tntu2022.02.027

Received 10.03.2022

Statement of the problem. An important object of the work organization of the virtual educational community is the participant. The user of social network who needs to participate in the virtual educational community with certain characteristics and opportunities is called a member of the educational virtual community. Information about user behavior, personal information, or occupation makes it possible to determine the member's importance to the community. Since there are cases of inappropriate behavior of the participant in relation to the content, reactions, comments of the virtual community. There is the need to determine the role of community members in order to solve conflict situations, classify participants, provide access to educational resources, to build strategies for the development of the educational community. That is why, it is necessary to analyze user profiles, using the method of formalization to construct models for their development, on the basis of obtained numerical indicators to determine the roles of community members.

Analysis of available research results. Each area, should be ready for modernization in accordance to modern trends, education is not the exception. The spread of modern information and public communication resulted in the creation of the network society based on information and communication technologies (ICT). The introduction of such technologies in the field of education has undoubtedly affected the quality of educational services, the use of traditional metrics combined with interactive, encouraging students learning, cognition, and improvement. Virtual communities have become one of the objects of education reform as they help to communicate, disseminate useful information, learn, share experiences. Creating one's own educational, thematic space for users who share common interests has become a reality. Moreover, an important aspect of the virtual community existence is its proper mechanism of management and organization [1, 16, 17].

New views on the implementation of thematic virtual communities were presented in the works of scientists taking into account the specifics of the areas. In particular, the

investigations were concerned with the methodology of community practice developed for analysis of the effectiveness of the experience exchange between teachers during Covid-19 pandemic. Focus groups were formed, statistical analysis of the results was performed on the basis of obtained quantitative data. As a result, the decisions about the benefits of such community as a good tool for development in difficult times were made. The work was performed by researcher N. Gavravi concerning the topic «Practical Virtual Communities of Teachers: Strong Response in Times of Crisis or Just Another Fashion?» [5].

The next work worth consideration is based on the cataloging of thematic virtual communities by R. Korzh, A. Peleshchyshyn, Yu. Serov and S. Fedushko. A formal model of virtual communities as a space for conducting information activities of higher education institution is presented [2].

The creation of the thematic network in various scientific fields was practiced with the support of the European Commission, which consists of more than 100 partners from all 27 EU countries. A. Silvana de Rosa noted the basic principles of such network in her work «Social Representation and the Communication Thematic Network: An Example for Monitoring the Development of the Scientific Community». Emphasis is placed on the fact that this type of network is a new form of European competence system [6].

Thematic analysis of virtual community messages was carried out by experts in their work «Social Online Support for Patients with Multiple Sclerosis: Thematic Analysis of Messages Published in the Virtual Support Community». The objective of the work was to create a space where patients with defined diagnosis receive professional advice to master the new realities of their disease. In addition, the community also serves as a medium for sharing experiences on social support and its other forms [8].

It is important to take into account the regulatory framework of educational services and educational activities that should be laid down in the nature of educational virtual communities. Accordingly, the educational service is defined in the contract, legislation or educational program of the representative organization and meet the needs of the applicant, provides for financial payment for these services. And educational activities are a set of measures for the organization, control and performance of the educational process in various forms of education (formal, non-formal), it is important to distinguish between these two concepts while formulating the purpose of the educational community [12].

The objective of the paper is to define the roles of the participant of the educational virtual community on the basis of profile data by creating the formalized modeling.

Statement of the problem. Having analyzed the research of thematic virtual communities in the field of education, we can formulate the definition of educational virtual community.

The educational virtual community is a thematic virtual community, which is determined by the educational and professional staff of experts, with information content on events, processes, services of private or public educational institutions. The community of educational direction has certain actions of the organization of its activity.

The first of them consists of a set of activities required in the preparatory stage of community creation. Formation of the name, purpose, tasks and rules should take into account the specifics of the educational direction. Defining the roles of participants based on the analysis of data on user profiles (Fig. 1). The next stage involves work with content and plan creation. It is worth noting that there is also a selection of relevant topics for education in accordance with the time frame. The application of modern software is for creative design of materials (Fig. 2). The final stage in the work of the educational community is the result of work. It provides the opportunity to evaluate, forecast and modernize the work of information and communication technology of the virtual educational community (Fig. 3).

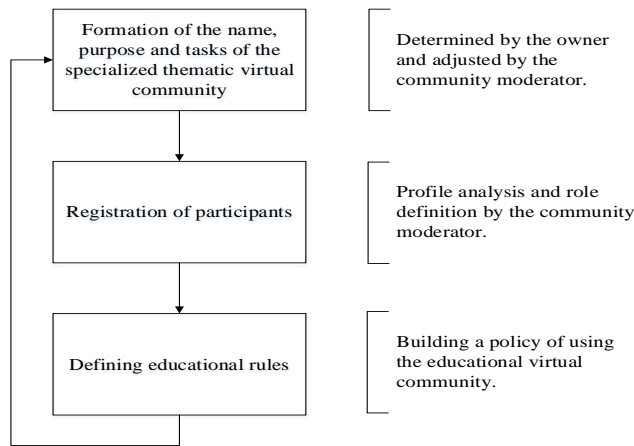


Figure 1. Creation/preparation of the virtual educational community

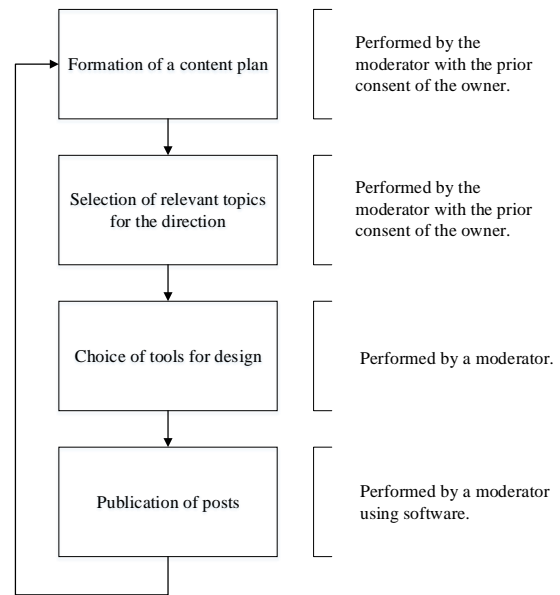


Figure 2. The work of the virtual educational community

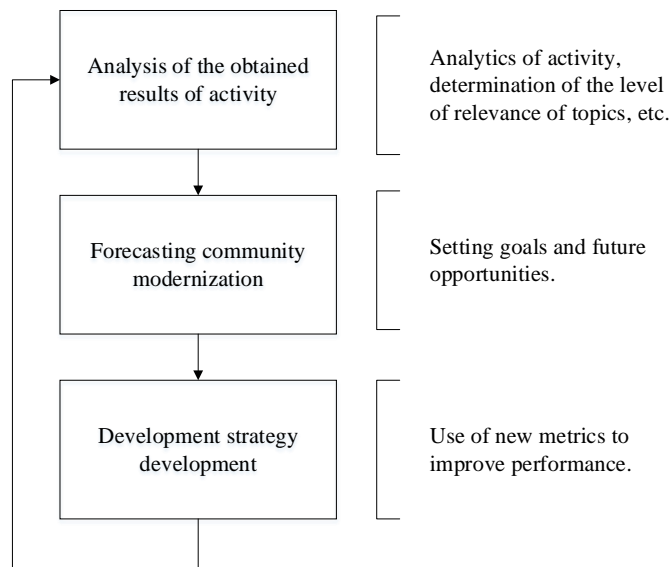


Figure 3. Creation / preparation of the virtual educational community

In order to make the work of the virtual educational community stable, useful and meet the needs of its members, it is necessary to substantiate its inherent features.

The main features of the educational virtual community are basic for the existence of this type of community.

1. Presence of full or abbreviated name.

The name of the educational thematic community should contain from one to several key words that correspond to its direction. Keywords are marker words that make it easier to find the information you need. Depending on the area we are investigating, the key words for the educational community can be: education, university, courses, student, teacher, teaching materials, explanations, rule, specialty, training, practice, classes, development, additional materials.

2. Logo of the organization represented by the virtual community

Correspondence of the image of graphic or vector graphics to the direction of the educational community. For example, if the community represents the association of information experts, the image should identify them among other associations in the network (specialist, abbreviation on the background of the computer device).

3. Creation of the content plan.

Any activity requires planning – the main function of management. Its method is to build the process, determine the stages resulting in the implementation of tasks. Similarly, the content plan as one of the main elements of conducting activities in the environment of virtual communities will not only properly publish information in a timely manner, but also ensure its compliance with the needs of participants. Creating the content plan is very simple using usual Microsoft software packages or such popular applications Google Calendar, Unfold, UNUM and others.

4. The roles of the educational virtual community members.

The roles are defined on the basis of analysis of data from the profiles of members of the educational community. This is described in detail in the next part of the material.

Expert Profile.

Experts are the members of educational virtual community who have obtained the degree in higher education in particular specialty, have practical experience in teaching or their skills application. The presence of these characteristics makes it possible for expert participants to provide comments, advice, constantly be in the environment interesting for them.

While investigating the type of participant Expert, it is necessary to describe its characteristic features:

- Photo of official registration made not earlier than 3 years.
- Condition. Existence of the state recognition of the level of qualification of the educational employee – the scientific degree (Doctor of Sciences, Candidate of Sciences) or academic status (Associate Professor, Professor);
- Content type. Comments (answers to questions, explanations, consultations), publication of additional materials (files, links, images).
- Direction of activity. It will help to determine the level of interest of participants in particular expert considering his/her achievements.
- Link of the official website of the representative organization.

Profile of the Applicant / student of education.

Educators are participants of the educational thematic virtual community who uses community content for learning. They have certain limited capabilities: review, evaluation.

While investigating the type of participant Education seeker, it is necessary to describe his/her characteristic features:

- The photo of the official registration made not earlier than 3 years.
- Condition. The student of secondary or higher level educational institution.
- Types of content: questions, ratings (reactions – “like”, “dislike”, etc.), review.
- Direction of activity. Interest, participation in other information events, specialty.
- Link of the official page of the representative organization.

Moderator's profile.

Moderators are members of the educational virtual community who coordinate the processes of discussion, comments, dissemination and evaluation of activities in the virtual community. They keep reports concerning community activities over time, analyze new opportunities, and select relevant topics for discussion.

While investigating the type of participant Moderator, it is necessary to describe his/her characteristic features:

- Photo of official registration made not earlier than 3 years.

- Condition. The specialist in the field of virtual community management, who has the document proving his/her knowledge.
- Types of content: creating, editing and deleting posts, creating the content plan, analyzing community activities over time.
- Link of the official website of the representative organization.

Auxiliary features of the educational virtual community are optional, but their implementation will give priority to their participants among others.

Links to supporting information and resources about the representative organization (Google Maps, contacts, site). In order to increase the level of trust in the description of the community, it is worth mentioning the official pages of the representatives of the educational community. The representative can be an organization, such as university, training center and gymnasium. Also it can be the participant-expert from certain structure positioning itself as its staff.

Availability of additional opportunities to train potential applicants. Give them not only the opportunity to develop background information, but also to organize training courses, trainings, meetings, etc.

Cooperation with other organizations due to the provision of advertising services in the educational community. But probably one of the basic rules that should be followed in choosing is direction. Presenting this information in the description will allow potential participants to choose this community among others.

Features of high-quality design of the educational thematic virtual community.

- Maintaining the virtual community according to the color scheme of the representative organization. We mean taking into account the recommendations of the brand book, which is a tool for recommendations concerning colors, fonts, logo, etc.
- Application of modern software for creating virtual community posts to attract the participants attention not only informatively, but also visually.
- Correctness of the published textual content without spelling and punctuation errors.

Use of verification resources, for example, ukr-mova.in.ua.

- Search for new channels in order to attract new members of the virtual community. Here we mean the use of strategies for disseminating information about the community, advertising on other Internet resources, offline communities, etc.

We distinguish the following types of information content – content relevant to the virtual educational community (VEC).

Educational content is information published in educational thematic virtual communities related to the organization of educational processes of the organization or subjects of educational services. Given the reasonable definition of educational content, it is necessary to distinguish between reference and consulting educational content.

Reference content is information published in educational thematic virtual communities, aimed at providing supporting actions for their potential participants.

Advisory one is information published in educational thematic virtual communities to provide clarification on educational topics.

TVC advertising content is information published in educational thematic virtual communities, in order to promote educational services and attract new participants seeking professional development.

The existence of any information system, including the thematic educational virtual community, requires rules of participants behavior in accordance with the educational direction. They are necessary for the organization of interaction between all types of participants with the virtual community.

1. Confirmation of participation in the virtual community is the registration of the participant.

2. Adding and removing community members can be performed only by moderator.
3. The creation of new discussion topics can be initiated by expert, but created only by moderator.
4. Advertising of materials, resources, platforms is possible only with the prior agreement with moderator.
5. Communication between participants, experts and the moderator should take place in businesslike manner.

Analysis of the virtual educational community based on the user profile data.

We use formal presentation of data in order to describe the essence of the virtual educational community $E_Ch(EduVC_i)$:

$$E_Ch(EduVC_i) = \langle EduParticipant(EduVC_i), EduContent(EduVC_i) \rangle, \quad (1)$$

where $EduParticipant(EduVC_i)$ describes the participant of the virtual educational community, defines the content of the educational virtual community.

From formula (1) it follows that the characteristics of the community member are presented as a tuple:

$$EduParticipant(EduVC_i) = \langle PersonalDate(EduVC_i), EduDate(EduVC_i) \rangle, \quad (2)$$

Where $PersonalDate(EduVC_i)$ is personal information of the participant of the virtual educational community, $EduDate(EduVC_i)$ are educational data of the community member.

The detailed tuple of formula (2) for personal information about the member of virtual community $PersonalDate(EduVC_i)$ is as follows (3):

$$PersonalDate(EduVC_i) = \langle Name(EduVC_i), Age(EduVC_i), Location(EduVC_i), Work\ place(EduVC_i), Nationality(EduVC_i) \rangle, \quad (3)$$

where $Name(EduVC_i)$ is the participant name, $Age(EduVC_i)$ is participant age, $Location(EduVC_i)$ is the place of participant residence, – place of work of the participant, $Nationality(EduVC_i)$ is participant nationality.

Continuing formula (2) we detail the educational data of the participant (4):

$$EduDate(EduVC_i) = \langle Position(EduVC_i), Direction(EduVC_i), Degree(EduVC_i), Academic\ status(EduVC_i) \rangle, \quad (4)$$

where $Position(EduVC_i)$ is the position of the participant, which he/she holds in the educational institution; $Direction(EduVC_i)$ is the direction of conducting educational activities of the participant of the virtual educational community; $Degree(EduVC_i)$ – scientific degree of the participant of the virtual educational community; $Academic\ status(EduVC_i)$ – academic status of the participant of the virtual educational community.

The participant position $Position(EduVC_i)$ means participant cooperation with the organization in accordance with the employment contract or document on the provision of educational services. The direction of educational activity $Direction(EduVC_i)$ is formed taking into account the interest, scientific or professional activity. The scientific degree $Degree(EduVC_i)$ is characterized by the availability of information on the state recognition of qualifications – Doctor of Philosophy/Candidate of Sciences and the

presence of academic status (Associate Professor, Professor) of the community member $Academic\ status(EduVC_i)$.

It should be noted that the value of the scientific degree belongs to the set $Degree(EduVC_i) \in [0; 1]$, and if the member of the community does not have the scientific degree, then $Degree(EduVC_i) = 0$ if the member of the community has the scientific degree of PhD, $Degree(EduVC_i) = 0,5$ if the member of the community has the scientific degree Professor $Degree(EduVC_i) = 1$.

The value of the Scientist is $Academic\ status(EduVC_i) \in [0; 1]$, and if the member of the community does not have the academic status, then $Academic\ status(EduVC_i) = 0$ if the member of the community has the academic status Associate Professor $Academic\ status(EduVC_i) = 0,5$, if the member of the community has the academic status Professor $Academic\ status(EduVC_i) = 1$.

For the value $Position(EduVC_i) \in [0; 1]$, if the community member does not have position, then $Position(EduVC_i) = 0$, if the community member has another position $Position(EduVC_i) = 0,5$, if the community member has position teacher $Position(EduVC_i) = 1$.

The next important component of the virtual educational community is content $EduContent(EduVC_i)$ with its own parameters:

$$EduContent(EduVC_i) = \langle Date(EduVC_i), Time(EduVC_i), Type(EduVC_i), View(EduVC_i), Share(EduVC_i), Reaction(EduVC_i) \rangle \quad (5)$$

where $Date(EduVC_i)$ is the date and $Time(EduVC_i)$ is the time of procedures with the content, as well as its $Type(EduVC_i)$ type, activity of members of the community of published content – $View(EduVC_i)$ views, $Share(EduVC_i)$ distribution, $Reaction(EduVC_i)$ reactions.

From the formal properties of the community described above, it is possible to form the method of analyzing data published by the participant. This analysis makes it possible to determine its role in the virtual educational community. That is, we form the values of the coefficients of importance for certain parameters of the participant. Given the importance for the community owner of one of the parameters of the community member, he/she can assess its productivity. Formula (6) for the calculation is as follows:

$$ParticipantRole(EduVC_i) = K_1 * Academic\ status(EduVC_i) + K_2 * Degree(EduVC_i) + K_3 * Position(EduVC_i), \quad (6)$$

where K_1 is the coefficient of importance of the academic status of the participant in the determination of his/her role $ParticipantRole(EduVC_i)$; K_2 – coefficient of importance of the participant's scientific degree in the determination of his/her role $ParticipantRole(EduVC_i)$; K_3 – the coefficient of importance of the position of the participant in the determination of his/her role $ParticipantRole(EduVC_i)$.

The value of the coefficients is determined in accordance to the specifics of the investigation concerning the determination of the role of community members. Taking into account the factor of importance of the scientific degree $Degree(EduVC_i)$, academic status $Academic\ status(EduVC_i)$ or $Position(EduVC_i)$ it will be greater for one of them and less for others. For example, in our case, the academic status is more important than the position, so K_1 for $Academic\ status(EduVC_i)$ will be greater than other coefficients. The interpretation of the coefficients is as follows $K_1 + K_2 + K_3 = 1$.

Taking into account the need to determine the value of coefficient K , we substantiate the following conditions for each role of the community member $ParticipantRole(EduVC_i)$: 1. If the value is $0.5 < ParticipantRole(EduVC_i) < 1$, then the member of the virtual educational community corresponds to the role of Expert. 2. If the value is $0.2 < ParticipantRole(EduVC_i) < 0.5$, then the member of the virtual educational community corresponds to the role of Moderator. 3. If the value is $0 < ParticipantRole(EduVC_i) < 0.2$, then the member of the virtual educational community corresponds to the role of Student.

In the process of using information and communication technologies by software and users there are various related events, tasks, processes – factors affecting the activities of the educational thematic community. Due to various social anomalies the scientists are trying to investigate different types of factors. One of these was the investigation of the factors influencing the performance of the virtual team due to Covid-19 pandemic. The analyzed factors can be a vivid example of the overlap with the existence of educational thematic virtual community with some changes due to their specific work [4]. According to the schematic image presented in the materials, the virtual team faces the following factors at the input, output, in the process of tasks and socio-emotional processes.

Given this distribution, the factors influencing the organization of the educational thematic virtual community, namely its participant, information content and participation policy are identified (Fig. 4).

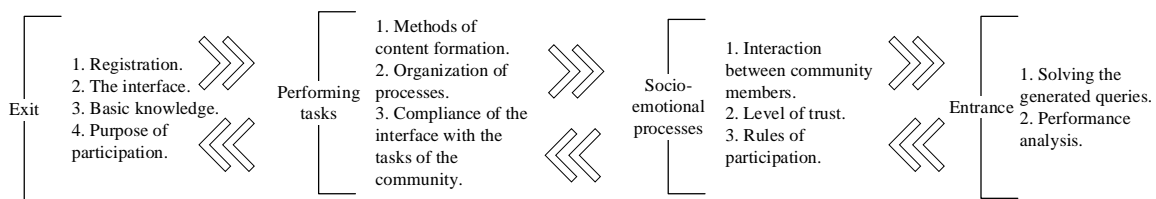


Figure 4. Factors influencing the existence of the virtual educational community

Input. At this stage, the following factors, primarily related to the participant registration process can arise. Starting with the input of false information, lack of necessary data for filling in and ending with possible problems for sending the registration form to the moderator of the educational community. The reason for such failures can be inflexible interface, imperfect processing of data by the moderator, as well as the lack of basic knowledge required to participate. Accordingly, the participant should have appropriate purpose of stay in order to be used to the benefit of both parties during his/her stay time. It is important for the community to meet the needs of the participant, and in turn it is important for the participant to get the desired answers to certain questions in the field of education.

Tasks execution. The process of the implementation of the set tasks formulated at creation of the educational thematic virtual community, depends first of all on several factors. The first is content that can be of different types as mentioned above. For each topic, direction, discussion, well-chosen content is an additional stimulus to the participant's activity. The next factor influencing the tasks execution is organization. It regulates the rights, opportunities and actions of all participants. You should not forget about the interface, which should be as user-friendly as possible.

Social-emotional processes. We mean the factors related to social communications, which are manifested in the interaction of community members with each other. Interaction of the participants of educational thematic virtual communities is carried out according to the defined roles as previously mentioned by comments, posts, ratings, reviews, etc. There are also features of the educational community that are responsible for increasing trust – links to additional resources. After getting to know them, the participant has no prejudices about the

possibility of using his/her data by the community for their own purposes. Having additional information about the experts, the participant can assess the adequacy of his/her competence level.

Output. As a result of community activities, we perceive meeting the participants needs. This is determined by the results of their activity, the number of topics covered, discussions, additional materials, etc. Having formalized all these data, we can estimate how productive the activity of the educational thematic virtual community is, think about strategies for the development and scaling of the educational direction.

Analysis of numerical results. According to the carried out investigation of the community of the structural subdivision «Department of SCIA of Lviv Polytechnic» for the calculation $ParticipantRole(EduVC_i)$ was assigned the value $Academic\ status(EduVC_i) - K_1 = 0,6$, the academic degree $Degree(EduVC_i)$ was given the value $K_2 = 0,3$, for the position of participant $Position(EduVC_i) - K_3 = 0,1$. It should be noted that such coefficients have been assigned to determine the level of science of the educational community, it is necessary to prevail $Academic\ status(EduVC_i)$ over others. For example, having the academic status will be more important than the absence of scientific degree $Degree(EduVC_i)$ or position $Position(EduVC_i)$. For the calculation, the information of six community members was analyzed. The example of the results is given in table. 1.

Table 1

Calculation results

Participant	<i>Academic status</i> ($EduVC_i$)	<i>Degree</i> ($EduVC_i$)	<i>Position</i> ($EduVC_i$)	<i>ParticipantR</i> ($EduVC_i$)	The meaning of the role
Oleksandr Markovets	1	1	1	1	Expert
Nestor Dumanskyi	0	0	1	0,1	Student
Kateryna Molodetska	1	1	1	1	Expert
Maria Komova	1	1	1	1	Expert
Ruslana Pazderska	0	0	1	0,1	Student
Olha Trach	0,5	0,5	1	0,5	Moderator

According to the obtained numerical data, we can see the predominance of the value of the role of Expert – three members of the community, corresponding to the role of Student, two participants and one Moderator.

The results of the investigation. In order to carry out this investigation, we have chosen the virtual educational community created in Facebook, of the structural subdivision «Department of SCIA of Lviv Polytechnic!». The purpose of the community is to inform students, teachers and applicants about the activities of the Department of Social Communications and Information Activities. In order to get acquainted with the effectiveness of the community and use the analysis of input information about its members (Fig. 5).

Based on the carried out calculations, the following data, which make it possible to evaluate the users of the virtual educational community and determine their roles are obtained. As a result we get the following: among 833 participants the role of Expert have 200 (23.92%) participants, the role of Applicant/student – 633 (75.72%) participants and the role of Moderator 3 (0.36%) participants (Fig. 6). This information can be useful for further development of the

community, creation of new content, attraction of new users. By analyzing the arrival of new members, we can form the strategy of the community.

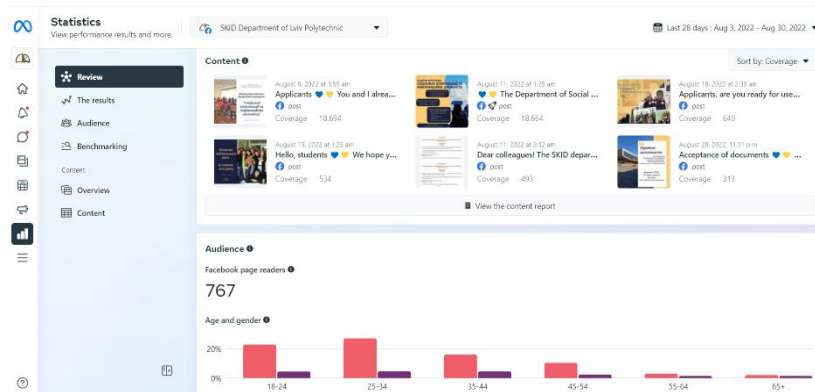


Figure 5. Parameters of the virtual educational community

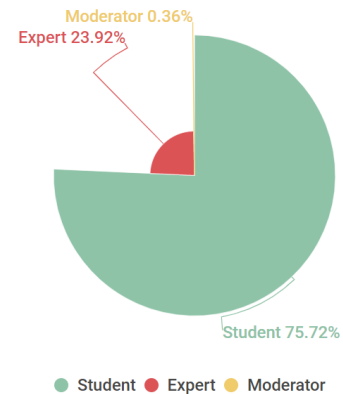


Figure 6. The obtained result

Conclusions. According to the above mentioned material, the activities of the virtual educational community cannot exist without participants. It is the members of the community and their behavior that make it possible to analyze the organization of the community's activity in social networks. Taking into account the importance of the participant of the virtual educational community, the data of the profiles of the members of the community «Department of SCIA of Lviv Polytechnic» were analyzed. Using the method of formalization, models for processing the data of participants, formulas (1–6) were built. As a result, we obtained numerical indicators that correspond to the roles of community members. In the process of organizing the activities of the investigated and any other educational virtual community, these data make it possible to construct the development strategies, increase the number of participants, create and disseminate the content.

References

1. Andreas K., & Haenlein M. (2012), "Social media: Back to the roots and back to the future". *Journal of Systems and Information Technology*. 14 (2). P. 101–104. DOI: <https://doi.org/10.1108/13287261211232126>
2. Fedushko S. Development of a software for computer-linguistic verification of socio-demographic profile of web-community member. *Webology*. Vol. 11. No. 2. 2014. Article 126.
3. Fedushko S., Syerov Yu., Skybinskyi O., Shakhovska N., Kunch Z. Efficiency of Using Utility for Username Verification in Online Community Management. *Proceedings of the International Workshop on Conflict Management in Global Information Networks (CMiGIN 2019)*. Lviv. Ukraine. November 29. 2019. CEUR-WS.org, Vol. 2588. P. 265–275.
4. Garro-Abarca Victor, Palos-Sanchez Pedro, Aguayo-Camacho Mariano (2021). Virtual Teams in Times of Pandemic: Factors That Influence Performance. *Frontiers in Psychology*. Vol. 12. DOI: <https://doi.org/10.3389/fpsyg.2021.624637>
5. Ghamrawi, N. Teachers' virtual communities of practice: A strong response in times of crisis or just another Fad?. *Educ Inf Technol* (2022). DOI: <https://doi.org/10.1007/s10639-021-10857-w>
6. International Networks and Research Centres on Social Representations [Electronic resource]. URL: <http://www.europhd.net/international-networks-and-research-centres-social-representations>.
7. Korzh R., Peleschyshyn A., Syerov Y., & Fedushko, S. (2014) The cataloging of virtual communities of educational thematic *Webology*, 11 (1), art. no. a117.
8. Shavazi M. A., Morowatisharifabad M. A., Shavazi M. T., Mirzaei M., & Ardekani A. M. (2016). Online Social Support for Patients with Multiple Sclerosis: A Thematic Analysis of Messages Posted to a Virtual Support Community. *International journal of community based nursing and midwifery*. 4 (3). P. 188–198.
9. Trach O. R. Mathematical support and software for organization of the life cycle of virtual communities: Thesis for a Ph.D degree, Lviv Polytechnic National University. Ministry of Education and Science of Ukraine. Lviv. 2018. P. 172. [In Ukrainian].

10. Trach O., Vus V., & Tymovchak-Maksymets O. (2016). Typical algorithm of stage completion when creating a virtual community of a HEI. Modern problems of radio electronics telecommunications computer engineering materials VIII Intern. Conf. 849–852. DOI: <https://doi.org/10.1109/TCSET.2016.7452203>
11. Vus V., Albota S., Dobrovolska V. The analysis of online communities as platforms for informational influences. Journal of Scientific and Engineering Research. 2019. No. 6 (2). P. 72–78.
12. Law of Ukraine “On Education” [Electronic resource]. URL: <https://zakon.rada.gov.ua/laws/show/2145-19#Text>. [In Ukrainian].
13. Department of SKID Lviv Polytechnic. URL: <https://www.facebook.com/SCIADepartment/>.
14. Markovets O., Pazderska R., “Consolidation of information about the activities of group members in the social network Facebook.” Bulletin of the Book Chamber. No. 6. P. 22–27. 2019. URL: http://nbuv.gov.ua/UJRN/vkp_2019_6_7. [In Ukrainian].
15. Pazderskaya R.S., Markovets O. V. Classification of virtual communities. Bulletin of the Khmelnytsky National University. Technical sciences. 2021. No. 1. P. 37–44. URL: http://nbuv.gov.ua/UJRN/Vchnu_tekh_2021_1_9. [In Ukrainian].
16. Peleshchyshyn A. M., Trach O. R. Directions of information activity in the formation of a virtual community. Historical and cultural heritage: preservation, access, use: materials International. scientific-practical Conf., Kyiv, April 7–9. 2015. National Aviation University / ed. count. Tyurmenko II, etc. K.: “Talcom”, 2015. [In Ukrainian].
17. Peleshchyshyn A. M., Trach O. R. Typical structure of the cell of the life cycle of the virtual community. Upravlinnia rozvytkom skladnyk sistem: zb. Science. etc. Kyiv National University University of Civil Engineering and Architecture. Issue 25. Kyiv. 2016. P. 46–50. [In Ukrainian].

Список використаних джерел

1. Andreas K., & Haenlein M. (2012), «Social media: Back to the roots and back to the future». Journal of Systems and Information Technology. 14 (2). P. 101–104. DOI: <https://doi.org/10.1108/13287261211232126>
2. Fedushko S. Development of a software for computer-linguistic verification of socio-demographic profile of web-community member. Webology. Vol. 11. No. 2. 2014. Article 126.
3. Fedushko S., Syerov Yu., Skybinskyi O., Shakhovska N., Kunch Z. Efficiency of Using Utility for Username Verification in Online Community Management. Proceedings of the International Workshop on Conflict Management in Global Information Networks (CMiGIN 2019). Lviv. Ukraine. November 29. 2019. CEUR-WS.org, Vol. 2588. P. 265–275.
4. Garro-Abarca Victor, Palos-Sanchez Pedro, Aguayo-Camacho Mariano (2021). Virtual Teams in Times of Pandemic: Factors That Influence Performance. Frontiers in Psychology. Vol. 12. DOI: <https://doi.org/10.3389/fpsyg.2021.624637>
5. Ghamrawi, N. Teachers’ virtual communities of practice: A strong response in times of crisis or just another Fad?. Educ Inf Technol (2022). DOI: <https://doi.org/10.1007/s10639-021-10857-w>
6. International Networks and Research Centres on Social Representations [Electronic resource]. URL: <http://www.euophd.net/international-networks-and-research-centres-social-representations>.
7. Korzh R., Peleschyshyn A., Syerov Y., & Fedushko, S. (2014) The cataloging of virtual communities of educational thematic Webology, 11 (1), art. no. a117.
8. Shavazi M. A., Morowatisharifabad M. A., Shavazi M. T., Mirzaei M., & Ardekani A. M. (2016). Online Social Support for Patients with Multiple Sclerosis: A Thematic Analysis of Messages Posted to a Virtual Support Community. International journal of community based nursing and midwifery. 4 (3). P. 188–198.
9. Trach O. R. Mathematical support and software for organization of the life cycle of virtual communities: Thesis for a Ph.D degree, Lviv Polytechnic National University. Ministry of Education and Science of Ukraine. Lviv. 2018. P. 172. [In Ukrainian].
10. Trach O., Vus V., & Tymovchak-Maksymets O. (2016). Typical algorithm of stage completion when creating a virtual community of a HEI. Modern problems of radio electronics telecommunications computer engineering materials VIII Intern. Conf. 849–852. DOI: <https://doi.org/10.1109/TCSET.2016.7452203>
11. Vus V., Albota S., Dobrovolska V. The analysis of online communities as platforms for informational influences. Journal of Scientific and Engineering Research. 2019. No. 6 (2). P. 72–78.
12. Закон України «Про освіту». URL: <https://zakon.rada.gov.ua/laws/show/2145-19#Text>.
13. Кафедра СКІД Львівської політехніки. URL: <https://www.facebook.com/SCIADepartment/>.
14. Марковець О., Паздерська Р., «Консолідація інформації про діяльність учасників групи в соціальній мережі Facebook». Вісник Книжкової палати. № 6. С. 22–27. 2019. URL: http://nbuv.gov.ua/UJRN/vkp_2019_6_7.
15. Паздерська Р. С., Марковець О. В. Класифікація віртуальних спільнот. Вісник Хмельницького національного університету. Технічні науки. 2021. № 1. С. 37–44. URL: http://nbuv.gov.ua/UJRN/Vchnu_tekh_2021_1_9.

16. Пелешишин А. М., Трач О. Р. Напрями інформаційної діяльності при формуванні віртуальної спільноти. Історико-культурна спадщина: збереження, доступ, використання: матеріали Міжнар. наук.-практ. конф., м. Київ, 7–9 квітня 2015 р., Національний авіаційний університет / ред. кол. Тюрменко І. І, та ін.. К.: «Галком», 2015.
17. Пелешишин А. М., Трач О. Р. Типова структура комірки життєвого циклу віртуальної спільноти. Управління розвитком складних систем: зб. наук. пр. Київський нац. університет будівництва і архітектури. Випуск 25. Київ, 2016. С. 46–50.

УДК 004.738

АНАЛІЗ ОСВІТНЬОЇ ВІРТУАЛЬНОЇ СПІЛЬНОТИ НА ОСНОВІ ДАНИХ ПРОФІЛЮ КОРИСТУВАЧА

Руслана Паздерська

Національний університет «Львівська політехніка», Львів, Україна

Резюме. Представлено дослідження освітніх віртуальних спільнот як різновиду інформаційно-комунікаційних технологій. Надано визначення поняттю освітня віртуальна спільнота з погляду зроблених досліджень та законодавства. Спроектовано дії, які необхідно виконати на етапі створення, роботи й результату освітньої спільноти. Сформульовано базові ознаки освітньої віртуальної спільноти, які включають такі компоненти: назва, повна або скорочена, логотип організації-представника, створення контент-плану та ролі учасників (Експерт, Модератор, Здобувач/студент). Згенеровано профілі, які повинні мати певну вхідну інформацію зважаючи на ролі учасників. Серед допоміжних ознак виділено такі: посилання на організацію представника, надання освітніх послуг та рекламні послуги. Приділено увагу важливості якісного оформлення інформаційного наповнення – контенту. Оформлення стосується наступних компонентів спільноти: врахування кольорової гами організації представника, перевірка правильності опублікованого матеріалу, врахування й стратегії поширення інформації та використання сучасного програмного забезпечення. Одним з найважливіших елементів віртуальної спільноти є контент. Представлено інформацію щодо його типів й авторів. Обґрунтовано правила поведінки учасників у середовищі освітньої віртуальної спільноти.

З використанням формального моделювання описано основні компоненти освітньої спільноти. На основі цього розроблено формальну модель аналізу освітньої віртуальної спільноти відповідно до даних профілів учасників. Застосовано розроблену формальну модель на прикладі освітньої спільноти структурного підрозділу кафедри соціальних комунікацій та інформаційної діяльності. Проаналізовано числові результати. Зроблено висновки щодо корисності використання даного методу для підвищення продуктивності освітньої віртуальної спільноти.

Ключові слова: освітня віртуальна спільнота, учасник, роль, профіль, ознаки, оформлення, правила поведінки, характеристики.

https://doi.org/10.33108/visnyk_tntu2022.02.027

Отримано 10.03.2022