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SOCIAL DESIGN: TECHNOLOGY «WHEEL OF GROUP DEVELOPMENT»

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Abstract

The authors present the results of approbation of the idea of a self-organizing group in the educational process of students of Russian universities. The model of social technology "Wheel of group development" is structurally represented by working subgroups of students with role distribution. The substantive organization of the work of these subgroups is determined by the principles of educational project activity. The author's innovation of the development is the introduction into the group structure of a specific control element - the student subgroup of the leadership simulator (subgroup-determinator). An empirical study included a complex of sociological and psychological methods. For three years, monitoring was conducted, sociometry, testing, interviews with experts were used. Proved that the interactive method of training on the basis of social technology "Wheel of group development" had a significant positive impact on the nature of the social process. The revealed phase of desocialization of students of senior courses, provided that traditional forms of education are used in the educational process, is corrected using the author's method on the basis of the "Group Development Wheel" technology. The phase of resocialization was achieved with the subsequent sustainable result of effective socialization. The possibility of role rotation of youth reveals the internal motivation of students, develops competences, improves skills of effective behavior. In the opinion of the authors, the status-role mobility of the community structure contributes to the development of the personal and group potential of the participants, orientates towards the achievement of social targets.

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1. Introduction

The problem of harmonization of relations between society and man is relevant and observable through transformations in social reality. Uncontrolled changes in the human habitat, whether natural, natural, or artificially created, are real threats to the security of mankind. In order to forecast risk problems, researchers on the basis of identified relationships of threats and risks propose models of mechanisms. (Zubok & Chuprov, 2017) Transformations of all spheres of society inevitably covered the institution of education, the purpose of which at all times was more socially oriented. Any reforming causes crises and today, for example, in Russia, a problematic social background are such phenomena as overproduction and shortage of labor resources, narrow professional orientation of specialists, loss of links between public institutions. It is pertinent to note that there are obvious contradictions in the interests, goals, views, needs of the individual and spheres of interaction, politics, economics, education. At the present stage of human development, when the intensification of all processes intensifies, the circulation of innovations is accelerating, the most important is the highly effective leadership of the "new world", built on the initiative of non-standard-minded people.

2. Problem Statement

2.1. Functional renewal of education

Digitalization of public life forces academic education to search for opportunities in the development of basic functions: translation and innovation. Designing future competencies based on culture and development of thinking reveals the prospects for the formation of new socially-functional roles of a person in society. Accordingly, modern scientists have the task of both formulating theories and concepts and developing practical recommendations. And today in the scientific environment a new vision of the educational process that meets the requirements of "Industry 4.0" is being formed.

2.2. Consolidation of public institutions

According to Russian scientists (Alexankov, Trostinskaya, & Pokrovskaia, 2018), the use of integrative opportunities for interaction of the interested elements of the social system (business and the state, science and education) allows, as traditionally to transfer knowledge to students, and to disclose new forms of using this knowledge. Such conceptual schemes first of all make one think about revising the existing legislative framework in order to be able to flexibly solve the problems that inevitably arise in society due to changes caused by technological achievements.

2.3. Competences of the future

Robotization and automation, the introduction of the remote mode work radically changes the nature of the classical work collective. And today, and earlier - always the change of innovation cycles were accompanied by the loss of habitual jobs and the creation of new ones. The transfer of all industrial and administrative processes to the digital economy on the basis of elements of artificial intelligence and self-learning systems is a new kind of activity that brings the potential and challenges of the fourth wave of innovations. Seeking a response to the experts' research on the challenges of the future, one can already

find some practical recommendations even in the field of managing problems of virtual teams (Mokline, 2017).

2.4. Synthetic type of university graduates

Within the framework of this publication, the authors will try, using the example of a specific analysis of the activities of higher education in Russia, to identify the resource of the educational environment for the formation of an actual type of subject with certain properties that promote the reproduction of the society and the development of the state.

3. Research Questions

The basis for formulating research questions was the inadequacy in the scientific presentation of facts successfully solving the conflict of interests of modern society and future specialists. The situation is a fixed perception of the external reflections of the subject of the social process: 1) in the conditions of the traditional educational environment of the university; and 2) in the context of using interactive technology in the learning process (Petrova, 2015). In the methodological section of the research program, the main concepts were interpreted on the basis of an analysis of theoretical and practical material. This allowed to justify the feasibility of creating and researching the author's model of social technology in the learning process. The scope of the issues studied is outlined by the assertions put forward, suggesting scientific evidence:

Hypothesis 1 - the structural dynamics of training groups, used in social technology, affects the socialization of students.

Hypothesis 2 - the social and professional identity of future graduates can be formed in the educational environment of the university.

Hypothesis 3 - application of social technology "Wheel of group development" in the educational process frees the student groups from the teaching impact.

4. Purpose of the Study

The aim of the research is the design of the self-organizing element of the structure in the conditions of the institutional educational environment.

5. Research Methods

5.1. Some characteristics of the study

As the subject of the study, the subject's transformations (students / student groups) are tracked taking into account behavioral reactions at certain stages of training in certain university conditions. Object - Russian students 3-5 courses of training Pushkin Leningrad State University (204 people) from 11 academic student groups studying under the "specialty" program. The choice of students in the 3rd, 4th, and 5th year as an object of study is determined by the behavioral characteristics of personal and group development. The adaptation period is over, the influence of "pre-university" factors is less significant (3rd year), joint group professional interests and perspective life plans (4th year) are actualized. To the stage of completion of studies at the university (the 5th course) there are signs of desocialization of students. In this

case, the ranking of the object is provided: object No. 1 - the first variant of observation is 146 students of 3-5 courses; object number 2 - 58 students 4-5 courses. Period - 2010-2013. The time scope was used, limited by the scope of practical / seminar classes on the subjects studied.

5.2. Basic research method

Observation "Features of social and professional development of personality in student groups". Included, but open (observer as participant-researcher, interacting with knowledgeable student participants); long; systematic; fixation of data by the observer is periodic - in stages. Initial, intermediate, final stage - for the first variant of observation (object No. 1); initial, final stage - for the second variant of observation (object No. 2). The chosen method of investigation due to the direct connection of the observer and the object allows to obtain a complete picture.

5.3. Auxiliary Methods

In addition, to check the objectivity and reliability of the information received, other methods were used: sociometry, testing, survey. Expert interviews were conducted in 2012 individually, once, in a semi-standardized format (guide), with a small number of open questions with six university teachers. Experts were selected using a subjective approach - the "snowball" method. Competence of experts - the availability of knowledge and experience in the field of tasks under study, comprehensiveness, integrity, objectivity, was determined by the cumulative index (the coefficient of competence above the "average"). It was used to measure open questions, the answers to which are significant for achieving program objectives. Sometimes the midpoint method was used. Comparison of the results, expressed by qualitative statements, was carried out using the method of paired comparisons.

6. Findings

6.1. Technology "Wheel of group development": social influence

The social community is capable of objectifying, being fixed by a specific subculture, the presence or absence of influence of leaders through special methods of intra-group communication. Accordingly, the process of socialization of students in education can be regarded as social communication, during which the management of cognition, assimilation and reflection of social experience, as well as realities, primarily of the micro-socium, takes place. For the design of an effective process of interpersonal interaction between students, the technology "Wheel of group development" has been developed. The central factor of this model is the concept of balance, which contributes to the development, advancement of students in the outlined perspectives of educational tasks. When the students-members of the working subgroups supplement each other in the framework of the activities of their subgroups and simultaneously participate under the management of a specific subgroup-determiner in the life of the entire academic student group. The term "wheel" used in the name, in addition to the sense-reflecting (progressive) value of the process, also corresponds to the structure of the model (wheel structure), where the working subgroups, located in the outer rim of the model, are radially controllable, the central element is the subgroup-determinator. The structure of the academic student group (usually 10-20 people) is differentiated into working subgroups (numbering 3-8 people), formed according to the principle of role filling. The problem of command-oriented methods of organization management was actively developed in the scientific environment and is

accessible to the public. Based on the author model Petrova adopted the role set of the group, developed by Belbin. (Belbin, 2010). At the same time, the innovation of the pilot activity was the allocation in the student group of a special subgroup - the leadership simulator (the so-called subgroup-determinator, from the Latin Determinaus, determinautis-determining). The subgroup is initially formed from the number of potential leaders on a self-representative basis. During the educational process, the composition of the working subgroups and the subgroup-determinator were in regular rotation until the member of the subgroup-determined his effective role-playing behavior. Social technology applied in practice, in addition to changing the structural component of the educational process, also included an impact on the content component of the activity. The teaching process took place according to the principles of project work in the subjects of the academic disciplines. The method of projects, the system of training, in which students acquire new experience (knowledge, skills) in the process of planning and performing gradually more complicated tasks of practical orientation - projects, became the most famous among integrated learning systems in world history. The method of projects, sometimes called the method of problems, involves solving a problem that involves the integration of information from various fields of science, technology. The aim of the project activity is always the desire to find your own solution, which, accordingly, determines the main motivation for learning, and, of course, self-education. This content of training becomes one of the means of the student's movement towards the future of his professional path. Approaches to the selection of subjects, the initial theoretical positions of project training, the main requirements, the stages of the development of the project and similar nuances of the project activity are sufficiently covered in the literature.

6.2. Indicator of convergent socialization

Achievement of the multidimensionality of the scope of the phenomenon under study was realized due to fixation by several parameters (verbal, nonverbal). As an example, some fragments of the work of student groups using social technology are given.

When mastering the discipline "Sociology of management" students were faced with the task of determining the trajectories of the development of their own team within their subgroups (determine the effectiveness, the team members' alignment with the positions they occupy and outline the prospects for development). When organizing the work of teams, a particular method of observation was actively used. In the observer's cards, the members of the teams fixed their own remarks regarding their personal contribution to the solution of the tasks assigned. Then self-diagnosis and the conclusion about the relevance of the role. The method of testing was also used (the author's test "Group roles", using the control role set, close to the role filling of the group by Belbin - the role structure in which the groups were formed and developed). Author Petrova in the study, he used his own tools to determine the criterion of socialization of students. The indicator of convergent socialization of students is a sign that takes into account the objective (cognitive, activity) and subjective (professional self-identification, self-development) changes in a student's personality.

$$I\ soc. = I + Gr + GrDeter + Expert + Test \qquad (1)$$

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I - self-diagnosis; Gr - opinion of the working subgroup; GrDeter - opinion of subgroup

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«determinator»; Expert - opinion of the teacher; Test - test result

The indicator takes into account the number of successful coincidences in the proportional ratio (the result is taken as the unit of measurement (1), non-productive, no coincidence (0)). It should be noted that in the role-playing set for Belbin (8 roles), duplicating functions are seen. The authoritative expert in the team is singled out of two main directions: the roles are "basic" and the roles are "missing." We propose, in cases where the number of the working subgroup is less than 8 people, to represent the set of the working subgroup with three basic roles: directing, supporting and reserve. So, the student's socialization in the group took a place in the educational process, the following values were obtained: a) I soc = 1, or close to 1 (0.6, 0.8) in 94 students, 53% of study participants; b) I soc = 0 for 23 students, 12%; c) I soc <1 in 61 students, that is 34%. It can be argued about the level of achievement of the criterion of socialization of students.

6.3. Results of approbation of the model in the educational process

Let us turn to the results of the observation reflected in the report, as well as to the analysis using statistical processing of information. The data of behavioral reactions were recorded in the registration card of the observer, containing the specified research criteria with a corresponding set of indicators. The latter, in turn, are provided with an encoded list of indicator variables that make up the measurement scale (the "relations" scale, covers the spectrum of the indicator from min to max). As a result of the formalization of the received data, information was structured: according to the objects of the study (object No. 1, object No. 2), signs and time (beginning, intermediate (only for object No. 1), end). Further, a repeated (two- (for object No. 2) and a triple (for object No. 1)) measurement of the same characteristics on the same set (for objects No. 1 and No. 2). The data was presented in the form of a cube, as a result of superimposing (two- and three-fold) two-dimensional matrices of the object-attribute, referring to successive time intervals, revealed certain statistical regularities in comparison.

1. At the initial stage (this stage corresponded to the 3rd course of the students' training of object No. 1) before using the social technology "Wheel of group development". In the educational process in student groups, the homogeneous status of participants in structurally organized groups of indifferent orientation was fixed. There were local conflicts. The groups were distinguished by a low level of discipline. Centralized communication predominated in the manifestations of the legitimate power of the elders and informal leaders, as well as the referent disposition of students to the norms of behavior in their academic groups. Thus, the level of development of groups: the moral orientation of groups is ambivalent, labile; organization - normative; Communicative - centralized. Groups act as subjects of communication. Signs of desocialization are poorly expressed. The level of socialization in groups is average.

2. The next stage was associated with informal structural changes in student groups. Formation of working subgroups taking into account the role distribution in subgroups and the creation of separate subgroups of simulators-leadership. The stage was characterized by active actions associated with the rotation of subgroups. Sometimes group tension was fixed-the impetus to change. Conformity was also revealed, manifested in some pressure (sometimes strong) subgroups on members. Through negativity, members of subgroups checked the effectiveness of group norms - the possibility of deviation from them and subsequent sanctions.

Then there was socialization, within specific reference subgroups and in accordance with certain roles. In the same period, the highest point of group development is recorded - a sense of cohesion among members in order to achieve group goals. There is a merger of internal and external motivations. Features are fixed in decision-making, often individual decisions are made taking into account the opinions of others. At this stage of development, subgroups define their own rules and sanctions, which are more excessive. This is explained by the requirements of the consistency of the work of the members of the sub-working groups and the high cost of the mistake, because there is always a sense of competition with other sub-working groups. The stage came after mastering the educational material of several disciplines to the 4th course of students' education (object No. 1). The duration of this stage was one academic year.

The observer recorded changes in behavioral responses by all signs (preferences, communications, power). Parameters of group development: moral orientation - for group goals; organization - role-group; communications - decentralized. The group is the subject of communication and the subject of joint activity (based on the dominant integrative processes). Thus, we can note the high level of socialization in student groups.

3. The final stage (object No. 1) is characterized by a decrease in the level of socialization, is defined as average and corresponds to the indicator of the initial stage of the study. Minor changes occurred indicators indicators "power structure" and "communication structure." The indicators of the "structure of group preferences" have changed the most.

4. Signs of desocialization in groups were found at the initial stage of the study (object No. 2) in the student groups of the 4th year of study (moral orientation in groups is characterized by one-man behavior, organization: disintegration, lack of leaders, communication - chaos). Groups act as subjects of relationships. The level of socialization is low.

5. At the final stage of the study (the fifth course - the object No. 2), the signs of desocialization in groups are partially blocked, the growth of positive changes between the value variables (directionality of the subgroups towards the achievement of joint learning goals), change of signs in the direction of intensification of communications was marked. We can state the course of resocialization, (indicators: organization, satisfaction, distribution, parity). The level of socialization corresponds to the average.

Thus, it is possible to draw several conclusions about the stages, phases, features and conditions for the socialization of students in groups. The process of socialization is discrete, as evidenced by the established phase of desocialization. This phase in the training of students is really manifested, but much earlier, not in the fifth year of training, but in part - on the fourth (and subject to the use of traditional forms of education). The process of socialization in student groups is governed by the identified phase of the process - the resocialization of students. Both at the group level and at the individual level. The duration of the phase (the process of resocialization) has been fixed during one course of the students' training, provided that social technology is used in the educational process. The authors of their study confirm the opinion of other scientists (Kuvaeva, Achan, & Lozovskaya, 2017) about the possibilities of leveling the problem of unproductive, conflicting behavior of students by using a variety of technologies. It is also important to note that Hypothesis No. 1 was confirmed as a result of the study. Group changes and the social development of specific students are associated with the mobility of the group structure. Specifically with the role dynamics of the social structure, as well as with the creation of conditions for self-government.

Some conclusions regarding the subgroups of leadership simulators (data obtained from the registration card, section "Special notes", and also with the help of a sociogram in the process of sociometry). The main trend was associated with the gradual replacement of the teacher from the leading role to the auxiliary role in the delegation of authority to subgroups - leadership simulators (subgroups-determinators). The phenomenon of "leadership" can be defined as a function of group self-development. It is group action, focused on the search for effective interpersonal interactions, which contributes to the development of the natural potential of leadership. Initially, the number of these subgroups ranged from 2 to 5 people, the final formation of subgroups - leadership simulators with an established composition of 2-3 people took place later (relative to the duration of the transformation processes of the subgroups) and was completed by the 2nd semester of the 4th year of students No. 1). Technology "Wheel of group development" in the social process allows you to design specific conditions, to form reflexive positions and create fields of leadership. In many respects, the result, concerning expectations in Hypothesis No. 3, has been achieved, but inadequately, for the approval of the idea of exemption from the teaching support of students in the educational process. Conclusion: it is possible to change the role of the teacher - in the presented case, to the consultant of the project activity of students.

6.4. Expert evaluation of the model

Turning to the results of expert assessments using the Bloom taxonomy (Armstrong, 2017), one can identify a tendency - their estimates are predominantly the same. According to experts, structural group dynamics in the process of mastering the educational material contributed to the formation of sustainable social communities. The common features of communicative, activity, and personal attributes contributed to the coping of manifestations of desocialization of students. Consequently, according to experts, it can be concluded that in the process of social and group development of students, resocialization is possible. Experts note the active use of professional vocabulary by students, suggest that this is necessary not only to accelerate the movement of ideas, exchange of information, but also to demonstrate students' professional growth, professional identity. There are also signs of developing communicative leadership: structuring of dialogues, in-depth discussion, creation of strong ties within groups. Experts emphasize the ability of students to apply knowledge in a practical way. Demonstrate a set of soft skills. They say that students have universal competencies. Mark significant personal growth of some students with a change in the external image (style of dress, manner of behavior, culture of communication, achievements in learning). At the same time, experts noted the manifestation of social activity. The students voiced the initiative to take part in the modernization of the corporate culture of the university. The impulse was also fixed for civil and patriotic activity - students proposed a project in the field of designing the political life of our society. What, according to experts, can be a marker for the development of the situation in the direction of expanding the socio-political capabilities of the university. All experts suggest that the joint group activity of students (at the level of the working subgroups) continued in other aspects of the activities of students, during extracurricular time (solving domestic issues, cultural life, personal communication). On the projector question of the interviewer about the potential for building student associations on the basis of group-role methods, all experts recognized this idea as viable. When asked by the interviewer about the substitution of the teacher role for the sub-group, almost all experts expressed cautious forecasts.

Accordingly, it can be concluded that Hypothesis No. 1 (the conditions of the status-role dynamics of the training groups contribute to socialization in groups) and Hypothesis No. 2 (professional identity can be formed at the stage of training) are positively proven on the basis of expert opinions. Hypothesis No. 3 (application of the technology of the "Wheel of group development" in the educational process exempts from teaching support) - has not received unambiguous confirmation.

7. Conclusion

7.1. Complex research is the way to truth

It should be noted that an attempt has been made by means of sociology to interpret the empirical data obtained, and with the help of psychological tools (qualitative research: sociometry, testing, interviews). According to the authors of the publication, it can be justified and useful for applied research. The existing problem of subjectivity in the study, in our opinion, is absolutized in the critical evaluation of the cognitive nature of such studies. The reflected subjectivity of the researcher is meant, but the subjective factor on the contrary can be the driving principle in the quest for truth. It should be recalled that the constructivist approach as an updated comprehension of the "Grounded theory" (GT) provides the researcher with expanded opportunities to extract new meanings of the phenomenon under study (Charmaz, 2006). And the practice of using the "Action-research" (AR) in the framework of the activity approach (Kemmis & McTaggart, 2003) provides for the reciprocal action of the exploring-studied, also aimed at the result. And these approaches in the research environment are developing. According to scientists (Volchkova & Menshikova, 2014) it is the "public evaluation" that is most important, for example, to study the problems of the service sector. The severity of social problems requires a deeper immersion in the studied environment. Consequently, it forces the use of various combinations of research methods, both quantitative and qualitative, both sociological and psychological. Creation of specific complex cases contributes to providing the most-truthful information on the problem, and therefore, to achieve a holistic reflection of reality in the end. At the same time, a Russian scientist (Jasaveev, 2016) offers construction sociologists who use the transition from an analyst's position to a participant's position, yet do not forget about academic ethics. The authors of this publication are of the opinion that the pole attitude to the problem of subjectivity in qualitative research leads to a false result of the study. In our opinion, a flexible approach is required depending on the situation and then, the subjectivity of the researcher can be a research potential, an important resource of knowledge.

7.2. Potential of the meta-model "Wheel of group development"

In the course of the research, it was noted that the specificity of the refraction possibilities of the thematic educational material to the problems of professional and social life of students, plus the organization of training on the basis of the "Group Development Wheel" technology, certainly contributes to the formation of a scientific worldview, and, more importantly, an active life position. This conclusion, in our opinion, is of particular importance, since confirms the existence of potential solutions to many social problems.

The scientific literature presents a different vision of the possibilities of leveling such problems. Some scholars (Uyzbayeva, Sagikyzy, Akhmetova, & Kozhamzharova, 2014), through the analytical prism of socio-centrism and anthropocentrism, summarize that the consolidating status of the phenomenon of

"patriotism" has already been lost. Another group of scientists (Abakumovaa, Ermakova, & Kolesina, 2016) finds the reasons and associates the existence of different levels of development of civil identity (from low to high) with ethnic and religious prerequisites. According to the results of the research, the scientists conclude that ten years ago, personal interests are paramount values for Russian youth. And public, patriotism, freedom and democracy, environmental issues occupy insignificant positions in the life hierarchy (Saganenko & Geger, 2016). It is important to note that the problems of the socialization of young people are primarily related to problems in education (Kovaleva, 2017) In addition to the technology presented by the authors of this publication, the "Wheel of Group Development", there are certainly other projects to "improve" the future man. In the foundation of such projects, a general installation is laid. Education of a young man, the formation of a future specialist is not an element of the knowledge system, but a phenomenon of understanding (Lukov, 2018). Students of narrowly focused specialties, culturological, medical, engineering already today need to form an understanding of the importance of integrative knowledge, the development of universal competencies and flexible skills of interaction in society. Modern scientists search and present their developments, for example, in the model of the development of managerial abilities of technical students (unfortunately, only theoretical models) the content of the opportunities for disclosing the organizational skills of engineers is presented (Tulekova, Pfeyfer, Burdina, Zhunussova, & Aubakirova, 2014). Of course, there are also practical achievements of scientists devoted to the development of competencies. Animation and storytelling through the use of UTAUT-Unified Theory of Acceptance and Use of Technology (Suki, Suki, 2017). Master-class of the seminar using the technique "Visualization of data 101" (Briney, 2018). There are also critical notes on the results of studies that the interactive teaching of students on the basis of kinesthetic and tactile interactions causes a greater effect and approval among students than the style of the front-line lecturer, even with the use of visualization techniques (Abu-Asba, Azman, & Mustaffa, 2014).

Let us supplement the content of our publication with one more fact. The second author of this publication had experience in building the work of the Student Scientific Society (SSS) of the Department of Therapeutic Dentistry and Periodontology at his university in the 2017-2018 academic year, using knowledge about the technology of the "Wheel of Group Development." Students - future physicians, participants of the SSS were differentiated into working subgroups, while the general leadership of the student scientific society of the department was carried out by a subgroup-leader (subgroup-determiner), which included the SSS head and two of his deputies - all university students. The working subgroups of the SSS developed thematic projects taking into account their team vision for solving problems. As a result, the presentation of projects took place in the format of trend-sessions. The events organized by the moderator of the SSS (subgroup-determiner) had unified themes and a variety of non-standard solutions in various fields of student activity - cultural, sporting, educational, and, of course, scientific. As a result of the debate and the opinion of experts (teachers), comprehensive solutions to the tasks were formulated. According to the students participating in the innovative scientific activities presented, the quality of the tasks was directly related to the effective role distribution, the acquisition by each participant of its role in the event. In addition to deepening the specificity of medicine, students received effective social training. The experience of self-development, the feeling of self-importance in the group, according to medical

students, generates an additional impetus to the need and further personal growth not only in the profession, but also in creativity, in society.

The idea of a self-organizing group in the technology of the "Wheel of group development" is scientifically grounded and tested in the educational process of student groups of Russian universities. An important aspect in this context is the understanding that the problem of the relationship between society and man is in close connection with the problem of forming the individual's readiness for collective action. The proposed structural organization of the community forms the relevant conditions for social development, both individuals and groups. In our opinion, the "Wheel of group development" as a meta-model can be recommended as a tool for solving various social problems.

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