ORIGINAL ARTICLE

Blockchain as a tool for resolving psychological and professional conflicts

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ABSTRACT

Aim: To substantiate the idea and to develop and test an experimental program for the use of BGP as a component of blockchain technology to improve existing strategies for resolving pedagogical conflicts in educational institutions.

Materials and Methods: The research methodology synthesizes two components. The first is based on the experience of researching psychological and professional conflicts (essence, categories of participants, forms of behavior in conflict, etc.). The second component i.e. the BGP phenomenon is presented through the prism of conflict theory.

Results: At the preparatory stage, three groups of experiment participants were identified, i.e. experimenters who developed its theoretical and technological principles; the control group (hereinafter CG) consisting of 56 undergraduate students of the 4th year of studying at the Pedagogical Faculty of Vasyl Stefanyk Precarpathian National University (Ivano-Frankivsk, Ukraine), who participated in the ascertainment experiment; experimental group (hereinafter EG) consisting of 22 students separated from the CG, who participated in the formula and control stages of the experiment. To achieve consensus understanding in the BGP conflict allows to create a system that ensures clear transmission of information; protects against non-fulfillment of agreements; stipulates actions if one of the parties violates them. On this basis, the core idea is substantiated, according to which, to reach a consensus it is enough for the majority of the participants in the conflict to take an agreed compromise position, then the minority, by force of internal conviction, agrees and accepts the agreements reached.

Conclusions: The presented results of the research generally confirmed the hypothesis that BGP, as a component of blockchain technology, can become a productive tool for resolving interpersonal and group conflicts in in various social and professional environments. The conceptual and methodological idea based on the analysis of the BGP phenomenon assumes that in order to resolve the conflict, it is not necessary to reach complete agreement between all its participants. To achieve understanding and consensus, it is enough for the majority to take an agreed compromise position, then the participants in the conflict who are in the minority, due to their internal moral convictions, will be forced to agree and fulfill the agreements reached by the majority.

KEY WORDS: psychological conflict, professional conflict, blockchain technology, types of conflict behavior, methods of conflict resolution, barrier-free competence

INTRODUCTION

A famous researcher and adept of the Byzantine General's Problem (BGP) testifies: "My son is almost 10 years old, but I have shared this problem with him. He struggled for a long time with how to untie it... And it's not surprising! This is a fictitious problem, but one of the most difficult that has ever existed. Its essence is to find out how different parties in "complete disagreement" can find a way to achieve "complete consensus" [1].

This opinion clearly conveys the essence of our studio. The modern world is constantly filled with many innovations. Many of them, thanks to their originality and perspective, are actively implemented in various spheres of social life, which, despite the subject specificity, are always filled with interpersonal and group disputes and conflicts [2; 3].

The integration of various fields of knowledge became the master of the development of science in the 21st century. It is natural that the greatest scientific discoveries are made at the intersection of related humanitarian or natural sciences [4; 5]. However, it is no less promising to conduct research at the junction of various conventionally distant scientific directions. In our case, we are talking about the connection of

medicine and education with cryptography i.e. the science of mathematical methods that ensures confidentiality, integrity, authenticity of information storage and transmission [6-8].

AIM

The aim of the study is to substantiate the idea and to develop and test an experimental program for the use of BGP as a component of blockchain technology to improve existing strategies for resolving pedagogical conflicts in educational institutions.

MATERIALS AND METHODS

The research methodology synthesizes two components. The first is based on the experience of researching psychological and professional conflicts (essence, categories of participants, forms of behavior in conflict, etc.). The second component i.e. the BGP phenomenon is presented through the prism of conflict theory.

The design of the research work is outlined in four stages: 1) preparatory – determination of the participants of the experiment and the main parameters and theoretical foundations of the research; 2) ascertainment – development and testing of prognostic tools; 3) formative – implementation of the author's curriculum; 4) control – analysis of the results of research work.

Preparatory stage. Three groups of experiment participants and their functions are defined. The first group contained the experimenters (authors of this article) who developed scientific-theoretical, technological and organizational principles of scientific research work; the second one was the control group (CG) consisting of 56 undergraduate students of the 4th year of studying at the Faculty of Pedagogy of the Vasyl Stefanyk Precarpathian National University (Ivano-Frankivsk, Ukraine). They participated only in the ascertainment experiment. The third experimental group (EG) of 22 students who participated in the formula and control stages of the experiment was singled out from them.

The basic parameters of research work - hypothesis, goal, methodological principles - have been formulated. The hypothesis is the assumption that BGP, as a component of blockchain technology, can become a productive tool for resolving interpersonal and group conflicts in various social and professional environments. The purpose is to substantiate the idea and develop a methodology for resolving conflicts in social and professional environments using blockchain technology and their testing in the process of scientific research.

Constructive resolution of psychological conflicts is a key factor in shaping the barrier-free competence of students. Psychological barrier-freeness is understood as an integral characteristic of the socio-psychological environment that enables every individual to freely express themselves, feel acceptance, respect, and safety without prejudice or discrimination [9]. It implies overcoming stereotypes, developing empathy, tolerance, and communicative culture, as well as ensuring access to psychological support. By mastering these skills, future specialists form barrier-free competence — the readiness for effective interaction, professional activity in diverse environments, and the creation of a humanistically oriented educational and social space.

The development of the research methodology involves an organic synthesis of two components i.e. the theoretical foundations of psychological and professional conflictology and BGP as a component of blockchain technology. While developing the first component, they relied on representative studies on the theory of psychological and professional conflict [2; 8]. During their analysis, in line with the raised problem, emphasis was placed on the following provisions. Conflict is an important natural component of human interaction. Applying the principles of conflict theory to various components of the education system (medical, pedagogical, etc.) creates a theory of conflict in education. The use of conflict theory allows us to better understand the behavior of different social groups in educational institutions of different levels and types.

Psychological conflict is understood as an open or hidden clash, confrontation between two or more subjects of interpersonal interaction. They are based on different ideas, views, goals, needs, interests, values, attempts to resolve such conflicts are accompanied by high emotionality. Psychological conflicts arise in the process of professional and interpersonal interaction of participants in the educational process as a manifestation of subject-subject contradictions and involve a review of their relationships.

In the structure of psychological conflict, we distinguish four categories of participants: 1) main subjects (conflicting parties) who carry out direct active / passive and overt / covert offensive or defensive actions, actions against each other; 2) instigators, organizers who initiate, plan and directly or indirectly influence the development of the conflict; 3) support groups that indirectly influence the course and consequences of the conflict through their active or passive actions; 4) middlemen (mediators, facilitators) who occupy a neutral position, called to help the conflicting parties reach an agreement, understanding.

The core of the research methodology is the model of conflict regulation [9], which will be discussed further.

The essence of the second component of the research methodology, i.e. Byzantine General's Problem, is determined through the prism of the theory of conflict theories in educational and professional activities [10-12]. Understanding and using the complex phenomenon of BGP in professional activities facilitates its visual representation.

Let's imagine that a group of generals besieged a city and have a common goal in capturing it. Generals command their armies, which are located in different places and do not have a common command. Under the conditions of decentralization, generals need to determine a common strategy: when, with what forces to attack or refrain from active actions. The situation is complicated by the fact that the generals are subordinate to their kings and have different views on war, there is no trust between them, and there is a hidden conflict of interests. The messengers that the generals send to each other and to their kings can turn out to be traitors, so there is no guarantee that they will deliver the message as intended and not distort its meaning.

So, the essence of BGP is that in order to resolve conflicts (possible, existing; overt or hidden) and to achieve interaction and consensus, generals must communicate directly with each other and with their overlords. This requires a clear system that would: a) ensure reliable transmission of information (when and how to interact); b) ensured against non-fulfillment of agreements; c) stipulated actions in case one of the parties violates them.

According to the blockchain theory, solving these tasks requires a reliable, authoritative intermediary (facilitator) recognized by all parties. The basis of its actions can be the Byzantine Fault Tolerance (BFT) protocol as the optimal way of making effective decisions under conditions of uncertainty and the existence of potential or real contradictions and conflicts. He takes into account many nuances of how to act if one of the parties may disagree with something, oppose himself to others, or fail to fulfill agreements and commitments.

To resolve BGP, the BFT protocol offers a model of the recursive algorithm expressed in the formula: $n + m = 4$, where: n is the total number of generals, m is the number of traitors, 4 is the number of steps to reach consensus. Each of these steps provides multiple options for when generals and traitors can pass on the right or wrong information. But in the end, it is proved that in a system where m elements work incorrectly, agreement can be reached when $2m+1$, that is, when there are more than two-thirds of loyal generals [11].

This is the core conceptual and methodological idea of our research work: it is not necessary to reach a complete consensus among all participants to resolve the conflict. For understanding, it is enough for the majority (conditionally 2/3) to take an agreed compromise position.

Then the participants in the conflict, who make up the minority (conditionally 1/3), must accept the consensus and consciously, by force of internal conviction, agree and fulfill the agreements reached by the majority.

The conceptualization of this approach to the resolution of pedagogical conflict is expressed by the "leader-follower" scheme as a component of BGP [11]. We interpret it through the prism of the investigated problem. To reach a consensus, all generals and their subordinate lieutenants (participants in the conflict) must agree on a certain decision. Meanwhile, the following conditions are taken into account: a) among them there may be "traitors" who are not interested in positive resolution of contradictions, have their own hidden interests, and may sabotage the search for consensus; b) generals for various reasons do not want or cannot communicate directly, so messengers (in our case, a facilitator) are needed to establish a dialogue.

Thus the question arises is: "Under such conditions, how can consensus and trust be achieved for the performance of joint tasks?" To cut this "Gordian knot", BGP relies on an algorithm that can guarantee that: 1) most generals and lieutenants (advocates of productive conflict resolution) share a similar point of view and adopt a coherent plan of action to achieve it; 2) traitors (opponents of a positive resolution of the conflict) are in the minority, so they can only slow down, but are unable to prevent the adoption of a plan to achieve consensus and understanding.

Such a component of BGP as Distributed Ledger Technology (hereinafter DLT) will contribute to the implementation of this approach. It requires all DLT nodes to agree on a specific set of rules (agreements) and be able to move forward by agreeing on a specific valuation of a transaction before it is added to the database. Agreements reached about the validity of new information are added to a common database, which prevents bad actors from sabotaging them and revising the agreements reached [12]. In other words, the use of the consensus algorithm allows the facilitator to coordinate the conflict resolution process purposefully through the gradual reconciliation of individual misunderstandings and contradictions between its participants. Meanwhile, most importantly, the reached agreements are clearly recorded, so they cannot be revised or falsified. This creates a favorable basis for reaching a consensus among the majority of the participants in the conflict.

CONFIRMATORY EXPERIMENT

The main goal of the ascertainment experiment is to develop and test prognostic tools to determine the level

Table 1. Questionnaire for identifying typical forms of behavior in conflict

Answer "A"	Answer «B"
1. I provide an opportunity for others to take responsibility for conflict resolution	Instead of discussing what we disagree with, I'll focus on what we do agree on
2. I always try to find a compromise in controversial issues	I try to settle the case, taking into account my interests and the interests of the other party
3. I usually persistently strive to achieve my goal (at any cost)	I try to understand and calm the other and save our relationship
4. I always try to find a compromise, mutually beneficial solution	I can sacrifice my interests for the sake of another person
5. When fixing a controversial situation, I look for support from another person	I try to do everything to avoid tension
6. First of all, I try to avoid trouble for myself	I try to achieve my goal at any cost
7. I try to postpone the resolution of the disputed issue in order to finally resolve it later	I consider it possible to give in temporarily in order to achieve my goal later
8. I usually strive to achieve my goals	First of all, I try to clearly understand what the essence of the dispute, conflict is
9. I think that you should not worry too much about minor disagreements in a relationship	I make every effort (means, resources) to necessarily achieve my goal
10. I firmly and steadfastly strive to achieve my goals and interests	I always try to find a compromise
11. First of all, I try to clearly find out what is the essence of the case, the dispute	I try to calm the other person down and thus maintain a good relationship.
12. I mostly avoid situations that could cause an argument	I give the other person the opportunity to stick to his opinion, if he also goes to meet
13. In any disputes, I look for (offer) the "golden mean"	I insist that my position prevails in the dispute
14. I express my position and try to find out the other person's opinion	I try to convince others of the merits of my views
15. I try to calm the other and keep our friendly relationship	I do everything necessary (depending on me) to avoid tension, arguments
16. I try not to hurt the feelings of another person	Trying to convince the other of the advantages of my position
17. I try hard to achieve my goal	I do everything possible to avoid tension in the relationship
18. If my concession makes another person happy, I will give him that opportunity	I give the opportunity to the other to stick to his opinion, if he also goes to meet
20. I try to immediately overcome misunderstandings that arise	I am looking for optimal ways (options) that harmonize my interests and those of others
21. During negotiations, I treat the other person's wishes and aspirations with respect	I always strive for frank discussion of the problem
22. I try to find a "golden mean" between my position and the interests of the other	I persistently defend my wishes
23. I strive to satisfy the wishes and interests of all parties to the conflict	Sometimes I give the opportunity to another to take the initiative and responsibility for solving a controversial issue
24. If the other person's position is important to him, I try to meet him, agree on positions	Trying to convince the other that my position is better
25. I try to prove to others the logic and merits of my views	During negotiations, I try to be attentive to the wishes of the other
26. I always look for a mutually beneficial solution to the case	As a rule, I try to satisfy my interests and desires and those of others
27. I avoid a position that could cause disputes	If it makes the other person happier, I make concessions
28. I usually persistently and uncompromisingly strive to achieve my goals	Fixing a case, a dispute, I am looking for the support of another
29. In a difficult situation, I look for and offer a solution that should satisfy all parties	In conflicts, all parties should not show excitement
30. I try never to hurt other people's feelings	I take a position on a controversial issue to achieve understanding and success

Source: compiled by the authors of this study

of readiness of future teachers to resolve pedagogical conflicts in the context of BGP postulates. Its development is based on the Thomas-Kilmann Conflict Regime Instrument (Thomas-Kilmann Instrument –hereinafter TKI), which assesses human behavior in conflict situations that arise due to incompatibility of the interests of individuals or groups. It is described according to two dimensions: 1) persistence - characterizes the behavior of a person who focuses on his own interests and ignores the needs of others; 2) readiness for cooperation (consensus), when opponents consider each other's interests and try to satisfy them. On this basis, scientists identified five ways to resolve conflicts: competition; cooperation; compromise; avoidance; adaptations [7; 9], which we consider further.

Based on the basic version of the TKI model [9] and the experience of its use [2; 3; 13], the "Questionnaire for identifying typical forms of conflict behavior" was developed (Table 1). CG members were asked to choose options "A" or "B" from 60 statements divided into 30 pairs. Processing of the results was carried out according to the following scales: rivalry: 3A; 6B; 8A; 9B; 10A; 13B; 14B; 16B; 17A; 22A; 25A; 28A; cooperation: 2B; 5A; 8B; 11A; 19A; 20A; 21B; 23B; 26B; 28B; 30B; compromise: 2A; 4A; 7B; 10B; 12B; 13A; 18B; 22A; 23A; 24B; 26A; 29A; avoidance: 1A; 5B; 6A; 7A; 9A; 12A; 15B; 17B; 19B; 20B; 27A; 29B; device: 1B; 3B; 4B; 11B; 15A; 16A; 18A; 21A; 24A; 25B; 27B; 30B. The number of points scored on each scale gives an idea of the tendency to display appropriate forms of behavior in conflict situations.

FRAMEWORK

The work was carried out according to the research work of I. Horbachevsky Ternopil National University "Development of communicative competence of students in the conditions of a medical university" (state registration number 0122U000033).

ETHICS

This work complies with the principles of the Declaration of Helsinki.

RESULTS

The data obtained on the basis of processing the answers of the CG members are accompanied by descriptive names of negotiation strategies that are often found in psychological and sociological studies to express their essence and perception. It turned out that 30.8% of respondents in conflict situations were inclined to take a position of rivalry («Shark»; «Boxer»),

which means striving to achieve one's own interests, regardless of the needs of the other. A rigid orientation to victory ("go for the breakthrough") is characteristic of people with certain character traits (egoism, narcissism, selfishness) and social status (formal and informal leaders, managers). In the long run, it is ineffective, because the affected parties to the conflict will sabotage such decisions.

Considering the mental attitudes common among today's youth, a fairly high percentage (28.2%) of supporters of the avoidance strategy ("Turtle"; "Kamikaze"), which means refusing dialogue and achieving one's own goals, was expected. Such behavior can be justified if the conflict situation does not affect the direct interests of a person and does not inhibit his development. However, avoiding negotiations often leads to forcing a person to change his attitude to the problem that caused the conflict.

The adaptation strategy ("Teddy Bear"; "Kindness") had the least supporters (11.3%). Modern young people are not always ready to sacrifice their interests for the sake of others. The strategy of settling the conflict at the expense of one's own losses contradicts the instinct of self-preservation and increases the tension in interpersonal relations, especially if one side is not ready for dialogue.

The strategy of compromise ("Fox"; "Kleister";), which involves understanding on the basis of mutual concessions, turned out to be unattractive for respondents (13.8%). People with this type of behavior are characterized by caution, balance, and equanimity; they strive to preserve good relations and normalize relations based on mutual concessions. The implementation of this strategy involves a joint analysis of all information regarding the content of the conflict, an open exchange of opinions with the help of an experienced facilitator. It facilitates the reaching of agreements that do not necessarily satisfy all participants in the conflict, but they, taking into account the agreed consensus, are forced to agree with the decisions made.

The strategy of cooperation ("Owl", "Virtuoso"), indicated by 16.7% of respondents, is aimed at a joint search for an alternative and reaching a consensus that satisfies the interests of all participants in the conflict. Discussing the "fan" of alternative proposals, they try to avoid unnecessary accusations and emotions, but make compromises, concessions and look for reasonable solutions that would satisfy the interests and ensure the productive activity of each individual and the entire group.

Therefore, each behavior style has its own strengths and limitations for conflict resolution. From the BGP's point of view, the most effective strategies for achieving

such goals are the strategies of compromise and cooperation, so the educational methodology implemented at the formative stage of the experiment was aimed at forming the knowledge, skills, and abilities necessary for their implementation.

FORMATIVE EXPERIMENT

The formative stage was organized in the form of a seminar. His task was to implement the author's curriculum, which consisted of three parts: theoretical, methodical, and practical.

The theoretical part provided for the development of EG members' understanding of the possibilities of resolving pedagogical conflicts on the basis of BGP. In three classes (lecture, seminar, discussion), students studied blockchain technology, which, thanks to the scheme of visual representation [10; 12], turned out to be interesting, understandable and useful for them.

Having taken into consideration new knowledge the members of the EG formed an understanding of the possibilities of conflict resolution using blockchain technology. To do this, they deepened the skills of diagnosing the psychological conflict (finding out its sources, biography, essence, features; determining the type of behavior of the participants in the conflict) [2; 14]. In the BGP projection, knowledge about facilitation as a model and technology for conflict resolution in medical and educational institutions was expanded [4; 15]. For this, the analysis of principles, values and techniques of mutual understanding and group decision-making proved to be particularly useful [16].

METHODICAL PART

The methodical part (seven seminars and laboratory classes) provided for the mastering by the members of the EG of original methods and techniques that, in the perspective of the principles of BGP, could be effectively used to resolve conflicts in various social and professional environments. A joint research, discussion, selection, as well as testing of such tools were carried out by the experimenters-teachers and students.

About 200 tools for supporting the group thinking process have been reviewed [16]. Knowledge of facilitation techniques in the in a professional environment where a manager or authority figure acts as a mediator in resolving interpersonal and group conflicts, was deepened [17]. The mediator's functions and methods of achieving understanding between conflict participants were studied: introspection (forms the ability to put yourself in the place of another person

and understand his thoughts, feelings, motives of activity and behavior); empathy (develops intuitive thinking, the ability to penetrate and understand the psycho-emotional state of another person); logical analysis (develops rational thinking and a system of intellectual representations for a better understanding of the interlocutor).

New and already known consensus technologies for conflict resolution were developed by future specialists: the ability to speak, listen, hear; chart-writing technique (facilitation; "alternative to open discussion"; "brainstorming"; "managing long lists"; "working with complex dynamics"; "effective agenda"). The effectiveness of the technology of facilitating viable agreements, which involves gathering and taking into account different points of view, was investigated; development of a common platform of mutual understanding; reconciliation of mutually exclusive interests approaches and search for and achievement of consensus [16; 17]. Different forms of arbitration were analyzed (binding, advisory, mediation, "final offer", arbitration) [4; 8].

PRACTICAL PART

The practical part became the most difficult in the formative experiment. It provided for the approbation of the possibilities of using the specified tools for resolving psychological conflicts through the prism of BGP. For this, the members of the EG, based on the implementation of a complex scientific and educational project, developed the model "Conflict facilitation", which was tested in the form of a simulated role-playing game. It is based on a typical plot: a group of students with deviant behavior carried out systemic bullying against several physically weaker classmates who were successful in their studies. This manifested itself in public bullying (pushing, kicking); social and psychological pressure; verbal threats, mockery, insults; taking and damaging personal belongings; bullying through social networks, etc. The rest of the students silently observed this process: some were on the side of the offenders and played along with them, but the majority condemned such actions, but they were afraid to stand up for their friends, lest they themselves become victims of bullying. Gradually, the latent tension turned into an open conflict.

In the process of the business game, the members of the EG implemented knowledge and skills on conflict resolution in various social and professional environments based on the postulates of BGP as a component of blockchain technology. This was carried out through the performance of role functions of conflict participants: facilitator and students as conflict participants ("offenders", "victims", "initiators", "instigators", "support-

ers"). On this basis the main components of the "Conflict facilitation" stage of the model were implemented.

In the process of diagnosing the conflict, knowledge and skills were improved in determining the types of behavior of its participants. In particular, the emphasis was on finding out how many of them are "Sharks", "Turtles", "Teddy Bears" and how to transform their views and attitudes so that they replenish the ranks of "Foxes" and "Owls". Acting alternately in the role of a facilitator, the members of the EG learned to establish mutual understanding between the participants in the conflict, stimulate their adoption of mutually acceptable compromise decisions, and cultivate a sense of joint responsibility for their implementation.

The participants of the experiment, teachers and students, modified the facilitation tools [16] in the context of blockchain technology and gained experience in their implementation. According to the EG members, the following techniques were the most effective: "active listening" (creating a comfortable atmosphere that facilitates the interlocutors to express their thoughts and views); open discussion and alternative open discussion (allow to find out the positions of each participant in the conflict and compare them with other group and individual positions); "cipher" (allowed participants in the conflict to change their roles as subjects of the conflict) and others. When performing the circular survey technique, each participant received a cardboard image of a "Shark", "Turtle", "Teddy Bear", "Fox", and "Owl", which figuratively reflected the proportion of representatives of the corresponding types of conflict behavior.

Finally, these two tools were tested. The decision-making scale technique, which, based on a differentiated scale (voting pattern) from 1 - "strongly disagree" to 7 - "fully support", made it possible to identify and formalize the general attitude of the participants in the conflict towards the decision on its settlement. The technique of asking open-ended questions developed in coaching [18] proved to be effective for establishing a dialogue between various conflicting parties and convincing the "offenders" that their behavior not only offends the "victims" of bullying, but also does not correspond to the feelings of the majority of students in the class and contradicts humanistic values of modern society.

THE CONTROL STAGE OF THE STUDY

At this final stage, on the basis of the same prognostic toolkit ("Questionnaire" and the key to it), changes in the attitude of the EG members to the strategies of behavior in the conflict were clarified. The obtained results in comparison with the indicators of the ascertainment experiment are presented in Table 2.

DISCUSSION

A comparison of the data of the ascertainment and control stages of the experiment proves the real impact of the experimental program on changing the attitude of the EG members towards behavioral strategies, because they explained their choice through their comparison. Analysis of students' answers allows us to generalize the results of the experiment.

Among the EG members, the number of supporters of the rivalry strategy decreased most significantly (by 4.3 times). They formed a clear conviction that the "shark" type of behavior, strictly oriented towards victory "in any case" and "at any cost" and defending one's interests at the expense of another person, allows to obtain only a temporary victory in the conflict. On the basis of this, the rejection of the authoritarian style of interaction between the teacher and the student was strengthened.

The decrease by 1.8 times among the supporters of the "turtle" behavior, which hides in its shell in a conflict situation, is due to the awareness of the falsity of the victim's "passive-suffering" position. It indicates a person's reluctance, inability to solve a problem, change circumstances. The students understood that authoritarian parents, teachers, managers and entire social systems encourage this, but coercion or voluntary acceptance of the role of a victim does not correspond to the ideals of freedom and democracy, it prevents the free development and realization of personal aspirations and interests of a person.

A slight (by 1.3 times) decrease in supporters of the "Teddy Bear" type of behavior was due to the understanding that the restoration of peace and stability does not come close, but sometimes complicates the resolution of the conflict. Meanwhile, many students admitted that the accommodation strategy can be justified under the conditions, if the subject of disagreement is "more important to the opponent than to me"; it is necessary to admit one's mistake; there is a threat of further escalation of the conflict; maintaining good relations is more important than satisfying certain personal interests.

Evidence of the growth of the conflict-related competence of future teachers is also a 2.2-fold increase in the number of supporters of the compromise strategy, which was emphasized in the implementation of our curriculum. The principle of actions of the "Foxes" ("I will give in if you also give in"), the members of the EG supplemented with the principle of BGP, according to which consensus can be reached, understanding is possible under the conditions, if not all, but most of the participants in the conflict agree with a certain decision. Thus, due to "moral coercion", the minority voluntarily gives up part of its interests for the resolution of the

Table 2. Results in comparison with the indicators of the ascertainment

Type of negotiation strategy (behavior) in conflict	Declarative experiment (CG - 56 people)	Control experiment (EG - 22 people)
Rivalry ("Shark")	30,8 %	7,2 %
Evasion ("Turtle")	28,2 %	15,4
Device ("Teddy Bear")	11,3 %	8,3
Compromise ("Fox")	13 %	28.7 %
Cooperation ("Owl")	16,7 %	40.4 %

Source: compiled by the authors of this study

conflict as a whole. To implement this strategy, the person (specialist of any specialty) must have the special knowledge and skills of a facilitator [5].

The attractiveness of the strategy of cooperation (the number of its supporters increased by 2.4 times) was explained by a purely humanistic view of the conflict: "so that everyone wins." The analysis of the students' answers revealed that they did not draw a clear line between the "Fox" and "Owl" types of behavior, which in both cases required balance, caution and focused on "working with the problem, not with the conflict", that is, on its constructive solution. "Owls", like "Foxes" to some extent, strive for an equal dialogue, therefore they do not exploit the weaknesses of "Turtles" and "Teddy Bears" and categorically do not perceive the aggressiveness of "Sharks". Respondents noted that the consensus is appropriate and justified if the "Owls" fail to take into account the interests of all conflicting parties. The strategy of compromise was considered by them as an intermediate stage of a fair resolution of the conflict and the achievement of results that would satisfy all parties.

CONCLUSIONS

The presented results of the research generally confirmed the hypothesis that BGP, as a component of blockchain technology, can become a productive tool for resolving interpersonal and group conflicts in in various social and professional environments. The conceptual

and methodological idea based on the analysis of the BGP phenomenon assumes that in order to resolve the conflict, it is not necessary to reach complete agreement between all its participants. To achieve understanding and consensus, it is enough for the majority to take an agreed compromise position, then the participants in the conflict who are in the minority, due to their internal moral convictions, will be forced to agree and fulfill the agreements reached by the majority.

At the level of experimental practice, this approach is confirmed by the author's educational program implemented in the process of simulation games. It provided for the formation of theoretical aspects of the use of BGP for conflict resolution among the EG members and the approbation of conflict resolution methods developed on the basis of the blockchain. A comparison of the results of the ascertainment and control stages of the experiment showed significant changes in the respondents' attitude to conflict resolution strategies. The number of supporters of the strategies of rivalry, avoidance, adaptation, which are the least productive for achieving positive consequences of conflicts, has significantly decreased, while the number of supporters of more effective strategies of compromise and cooperation has significantly increased.

The results of research work can be useful for the further development of the theory and practice of pedagogical conflictology and find practical use in resolving conflict situations in various social and professional environments.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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