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PRINCIPLES OF ORGANIZING COLLABORATIVE TRAINING ACTIVITIES OF ADULT LEARNERS

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Abstract

The article presents contemporary research into collaborative training activities for adults in the system of supplementary vocational education. The authors point out that despite wide-range application of collaboration-based teaching strategies there is no verified and pedagogically grounded structure of collaborative training activities. Hence a 3-layered frame of learning interactive situation is proposed that comprises learning; practice / expertise acquired while learning and interaction. This frame poses internal structure of collaborative learning. External structure is represented by motivation, goal, actions / operations and result. Having verified the structure of collaborative learning the authors have uncovered key markers to assess the level of collaboration. To apply this structure a set of instructional principles for adult learners is proposed: “effect” principle, “internalization” principle and a principle of developing cumulative fund of opinions, evaluations, judgments and actions. They condition instructional prerequisites for organizing collaborative training activities for adult learners. The authors of the article provide a detailed outline for each of the following teaching arrangements: "multi-actor" method of constructing a competency model; inclusion of social and subject-related contexts of professional activities in the competency model; designing collaborative profession-focused learning situations that reflect invariables of FEP graduate's competence; ensuring "3-layered" nature of task structure; the instruction to solve each training task collectively; ensuring mono-mattered performance and activation of prior experience of the adult learner; providing contingent feedback; supporting development of group dynamics; supporting group discussion with the purpose building cumulative fund of opinions, evaluations, judgments and actions and feedback on training content.

Keywords: Adult learner, collaborative training activities.

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1. Introduction

Today when vocational education inevitably passes through our lifetime, the search for effective forms of organizing educational activities for adults becomes an urgent task for pedagogical research. An adult learner is different from a "non-mature" student (Caruth, 2014). The former plays a key role in defining all parameters of the learning process, her/ she is committed to the operational application of knowledge and skills acquired (Taylor & Laros, 2014). What is most importantly, an adult learner has EXPERIENCE that can and must become the training cornerstone both for them and their partner learners (Knowles, Holton & Swanson, 2005). How to organize specific training which allows to bring about professional and personal experience of the learners, to enrich and accumulate each learner's experience? This being said, learning must remain as it is (activity aimed at obtaining new practices and developing new competencies[1]) even in terms of short-term training programs (16 hours[2]). The answer is obvious - via collaborative learning situations, communication and interaction (Obozov, 1997). Collaborative training activities within a group of learners have enormous potential for fulfillment of professional and personal expertise, as well as development of socio-psychological competence of learners that undertake further education programs (FEP).

Relevant research

Studies of co-curricular activities and prerequisites of their organization were carried out by a number of Russian and foreign educators, psychologists and methodologists (R. Biller, L. J. Dowell, D. Johnson, R. Johnson, M. Deutsch, I. Zimnyaia, M. L. Karegianes, H. H. Kelley, M. Liberman, B. F. Lomov, V. Ya. Lyaudis, E. McClintock, N. N. Obozov, E. T. Pascarella, H. Pierson, K. N. Polivanova, S. W. Pflaum, J. Rudduck, F. L. Ryan, V. V. Rubtsov, R. S. Selman, R. E. Slavin, C. C. Smith, J. A. Sonquist, J. Thibaut, R. Wheeler, L. I. Umansky, S. C. Fraser, R. Hartill, H. Hook & G. A. Zuckerman etc.). These studies have shown the layering of interpersonal situation of educational interaction. Its multi-layered composition puts learning, practice obtained during learning and ways of educational interaction into a subject of collaborative training (Almazova, Khalyapina, & Popova, 2017; Popova, Almazova, Khalyapina, & Tretjakova, 2017). However, psychological structure of collaborative learning for adults still remains insufficiently developed.

Research into adult education, including through collaborative activities, has been performed by A. A. Verbitskii, P. Jarvis, J. Johnston, S. I. Zmeyov, A. I. Kukuev, Yu. N. Kulyutkin, M. S. Knowles, F. Poggeler, D. Savievi, B. Samolovcev, R. M. Smith, G. S. Sukhobskaya, L. Turos & P. Furter etc. The research outcomes form the ground for designing pedagogical prerequisites of organizing collaborative training activities for adult learners in FEP. We can also point out that there is no pedagogical pattern that defines principles of adult learning in their collaborative activities. Among them are principles of composing the target for FEP, namely, the competency model of a prospective graduate.

[1]According to fundamental legal act regulating supplementary vocational education, i.e. order of Russian Ministry of Education №499 from 01.07.2013, the main purpose of a further education program is to build competencies.
[2] Referring to this act, minimal length of an advanced training program comprises 16 hours.

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2. Problem Statement

2.1. No transparency is describing the structure of collaboration

Collaborative learning in educational practice is realized in the form of group activities. To indicate them different concepts are used: "collective", "joint and distributed", "learning cooperation", "partner learning", "collective learning method (CLM)", "mutual learning", "pair work" etc. Outwardly, this form is different from the individual one: a group (more than one person) is responsible for a solution of a training task. The number of participants in group work is significant, but it plays the key role only in single training methods. A more significant aspect in determining pedagogical value of group learning, in our opinion, lies in its internal, psychological structure, maturity of the group as an entity ("group entity") and medium of collaborative activities. They are aimed at achieving a common goal through setting and solving intermediate tasks, distributing functions, activities, operations, their conjunction, planning, coordination and control (Scager, Boonstra, Peeters, Vulperhost, & Wiegant, 2016). Analysis of psycho-pedagogical and socio-psychological research into the structure of collaborative learning showed the absence of a sufficiently developed categorical apparatus for the analysis of interaction (Ljaudis, 2000). Therefore, researchers frequently utilize concepts developed while analysing the structure of individual activity: objective (building mechanisms of self-regulation), product (independent goal-setting), means (forms of interaction). Herewith the subject of collaborative training activities is actually represented by learning, practice acquired during learning as well as ways of interaction. With this approach we can observe the so-called "3-layered nature" of situation of learning interaction (Iliazova & Panarina, 2017). The first layer is represented by learning. The second layer suggests practice or expertise acquired while learning, the third one - interaction. The structure of collaborative training activities also gives a clue of a vector that can determine pedagogical prerequisites of designing such a situation. This vector is seen as different formats of interaction, which in turn depend on the level of interconnectivity of participants in group activities.

2.2. Lack of instructional principles

Collaborative adult learning in FEP should be organized so that professional and cultural experience of each learner (Salavastru, 2014) should be fulfilled during group training activities. It is crucial that this experience be effectively built in the educational content of the program, be aimed at forming learning outcomes that are claimed in the program (competencies). However, pedagogical principles and prerequisites for organizing such learning activities for adults are still insufficiently developed today. FEP educators often do not possess the necessary skills to organize effective collaborative training activities for adult learners.

2.3. Multi-actor approach to competency modelling

The list and content of FEP learning outcomes (competencies) is determined by the developer of a program based on professional and educational standards in close cooperation with the customer (involving multi-actor approach). Still, the theory of vocational education devotes little attention to methodology of building a competency model utilizing multi-actor approach. Today we observe lack of concentration in FEP content requirements. Thus designing goal and content related FEP components, on the one hand,

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leaves a wide scope for creativity for the developer of such a program, on the other hand, it poses risks of its lower quality.

3. Research Questions

Based on the observations above, the authors have determined the following research questions:

- justify and develop the structure of collaborative training activities for adult learners in FEP;
- determine levels of collaborative training activities for adult learners in FEP, as well as criteria and markers at these levels;
- identify and describe pedagogical principles and prerequisites for organizing collaborative training activities for adult learners in FEP.

4. Purpose of the Study

The authors seek to justify and pilot-test pedagogical prerequisites for collaborative training activities for adult learners in FEP.

5. Research Methods

The authors resorted to theoretical (inductive and deductive reasoning, synthesis, generalization and abstraction, comparing and contrasting) as well as empirical (pedagogical experiment, educational observation, questionnaire, interview, expert evaluation, learner testing) methods.

6. Findings

Analysis of psychological and educational research into the issues and prerequisites of organizing adult learning activities showed that an adult learner differs from a student. The former determines parameters of the educational process independently for themselves and their partner learners. Indeed, an adult wage-earning person aiming at skill development, already has experience, which is a potential instrument of learning for him- or herself, and his/ her partner learners. This experience can be as meaningful as the educator's expertise. That is why it is so vital to pay more attention to collective modes of training when training adults. The essence and structure of collaborative learning condition its effective organization.

In order to tackle the first research challenge – to validate and design the structure of collaborative training activity for FEP adult learners – we have conducted an overview of studies in joint learning. We have attempted to uncover its internal and external composition, as well as teaching arrangements to ensure its effectiveness. Results from research have provided strong research support to highlight various designations for collaborative learning – "collective", "jointly distributed", "educational cooperation", "partner learning", "collective learning method (CLM)", "mutual learning", "pair work" etc. A more significant aspect in determining instructional value of group learning, in our opinion, lies in its internal, psychological structure, maturity of the group as an entity ("group entity") and medium of collaborative activities (Lomov, 1976). They are aimed at achieving a common goal through setting and solving

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intermediate tasks, distributing functions, activities, operations, their conjunction, planning, coordination and control.

6.1. Collaborative learning: key features

Group work becomes collaborative learning as it is only under the following conditions: some form of spatial and temporal co-presence, unity of purpose and common motivation, distribution of functions, moves, and operations among the parties ("qualification by tasks"), coordination of individual learner performance, positive interpersonal relations, a unified end result. We have also determined that collaborative training activities for adult learners in FEP is a learning activity of a group of students, whose key features are:

- focus of each participant on achieving a common goal, namely the search for a solution of a task;
- setting and solution of transient challenges during group discussion which further results in cumulative fund of opinions, evaluations, judgments and actions (Lomov, 1976);
- distribution of challenges, functions, activities, operations among group members and their subsequent coordination in group discussion
- Please replace this text with context of your paper.

6.2. External structure of collaboration

Collaborative learning activities as a system are composed of internal and external outlines. The external composition of collaborative training activities is represented by learners' joint actions and operations aimed at solving a problem. We have concluded that within the structure of collaborative training activities, which are aimed at tackling a corporate training task, each of the stages is implemented during group discussion. As a result cumulative fund of opinions, evaluations, judgments and actions is yielded with their subsequent conjunction (coordination). The ongoing performance of each and every in organization and maintenance of interaction at every stage is crucial. We are talking about each phase – from understanding connection between achieving the goal and method of distribution of group activities through distribution of functions, actions and operations and coordination of their implementation to corporate decision-making.

Based on the structure of learning activities that address a training tasks (motivation → goal → action/operation → result) (Ljaudis, 2000), we have defined components in *the external structure of collaborative training activities* – motivation, goal, actions / operations and result.

At the stage of motivation learners grow aware of a problem situation (Verbitskii, 2014), in other words they are accepting a challenge (Ning & Hornby, 2014). The next step is goal setting. It involves setting a task, data analysis, defining requirements for solving the problem during group discussion. Once the problem is stated, learners become aware of and mentally construct relationships between reaching an objective and a method of distributing joint activities. During the discussion this stage engages building cumulative fund of opinions, evaluations, judgments and actions. We see this fund as a result of collaborative training activities, which is characterized by unity of actions, standpoints and evaluations of group members in relation to the goals and objectives of group work.

Further actions/operations are implemented. This step consists of several stages. First, a strategy of solving a task is worked out. Hypotheses are put forward in group discussion. Such exchange also leads to

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the formation of cumulative fund of opinions, evaluations, judgments and actions. Based on this strategy, single moves and operations are allocated. Then they are distributed among group members. This phase is also completed by formation of cumulative fund of opinions, evaluations, judgments and actions. The final stage of the component "actions/ operations" comprises execution of individual actions / operations and their coordination with the subsequent formation of cumulative fund of opinions, evaluations, judgments and actions.

Component "Result" completes external structure of collaborative learning. It includes the following phases: obtaining the result, checking the result, coordination of individual actions/ operations with subsequent formation of cumulative fund of opinions, evaluations, judgments and actions. The final step is accepting the result.

Here we have also attempted to answer the question: if compared with individual training, what parameters should the structure and content of adult collaborative learning possess, so that an adult FEP learner could contribute their own expertise to educational content (Table 1).

6.3. Internal structure of collaboration

Internal structure of collaborative training activities for adult students is determined by its object, giving it "3-layered nature":

- the first layer – learning methods;
- the second layer – ways of practice, mastered while learning;
- the third - ways of interaction.

Ways of interaction are conditioned by the level of interconnectedness of group members. In order to address the second research objective - to determine levels and their markers of collaborative training activities for adult FEP learners, we have identified three levels:

- level 1 "Co-presence" is characterized by pronounced individual differences of group members and less dependence on their group partners;
- level 2 "Interdependence" is represented by directed control, coordination of evaluations; compliance with the stages of collaborative learning and focus on generating more practical ideas in the inner structure of collaborative training activities;
- level 3 "Interaction" is characterized by formation of peculiar mindset oriented at success of collaborative learning. Also, mutual dependence grows among group members.

6.4. Level-relevant markers and criteria

To diagnose the rate of each level ("Co-presence" / "Interdependence" / "Interaction") (Obozov, 1997) we relied on subjective (student assessment) and objective (observer assessment) markers and criteria, designed as to the structure of collaborative training activities.

We have uncovered five key markers of the level of collaborative training activities:

- marker 1 – "mono-mattered performance" during group work (the focus of each participant on achieving a unified group goal (solution of a training tasks), setting and solution of intermediate problems in course of group discussion (developing a cumulative fund of opinions, evaluations, judgments and actions, and their conjunction), distribution of functions, activities, operations

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among group members and their further linking during group discussion (developing a cumulative fund of opinions, evaluations, judgments and actions, and their conjunction);

- marker 2 – compliance with internal structure of collaborative learning activities during group work (learning – practice acquired while learning, ways of interaction)
- marker 3 – compliance with key characteristics of external structure of collaborative training activities during group work (motivation – goal - actions / operations – result);
- marker 4 – group interconnectedness;
- marker 5 – effectiveness of collaborative training activities (yield of learning outcomes).

Table 01. Comparative analysis of the structure of individual and collaborative learning

<table>
<tr><th>Components</th><th>Individual learning</th><th colspan="2">Collaborative learning (interaction)</th></tr>
<tr><td>Motivation</td><td>Awareness of a problem situation (accepting a challenge)</td><td colspan="2">Awareness of a problem situation (accepting a challenge)</td></tr>
<tr><td rowspan="2">Goal</td><td rowspan="2">Statement of the task / data analysis (allocation of known and unknown information, defining requirements (goal setting)</td><td>Statement of the task / data analysis (allocation of known and unknown information, defining requirements (goal setting) during group discussion</td><td>Understanding the relationship between reaching the objective and the method of distributing collaborative performance</td></tr>
<tr><td colspan="2">Cumulative FUND of opinions, evaluations, judgments and actions– CONJUNCTION</td></tr>
<tr><td rowspan="6">Actions / operations</td><td rowspan="2">Development of a strategy to solve the task, hypothesis (es)</td><td colspan="2">Development of a strategy to solve the task, hypothesis (es) during group discussion</td></tr>
<tr><td colspan="2">Cumulative FUND of opinions, evaluations, judgments and actions– CONJUNCTION</td></tr>
<tr><td rowspan="2">Allocating individual actions / operations (intermediate task-setting)</td><td>Allocating individual actions / operations (intermediate task-setting by group members) during group discussion</td><td>Distribution of functions, actions / operations</td></tr>
<tr><td colspan="2">Cumulative FUND of opinions, evaluations, judgments and actions– CONJUNCTION</td></tr>
<tr><td rowspan="2">Individual actions / operations</td><td>Individual actions / operations</td><td>Coordination of individual actions / operations</td></tr>
<tr><td colspan="2">Cumulative FUND of opinions, evaluations, judgments and actions– CONJUNCTION</td></tr>
<tr><td>Result</td><td>Reaching an objective</td><td colspan="2">Reaching an objective</td></tr>
<tr><td rowspan="2"></td><td rowspan="2">Verification (comparison of the result with the original data)</td><td>Verification (comparison of the result with the original data) during group discussion</td><td>Coordination of individual actions / operations</td></tr>
<tr><td colspan="2">Cumulative FUND of opinions, evaluations, judgments and actions– CONJUNCTION</td></tr>
<tr><td></td><td>Accepting the result (of task solution)</td><td colspan="2">Accepting the result (collaborative task solution)</td></tr>
</table>

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6.5. Instructional principles and prerequisites

Organization of collaborative training activities for adult FEP learners is conditioned by a number of instructional principles, including:

– "effect" principle: adult listeners' experience is to be fulfilled in collaborative learning;

– "internalization" principle: each learner's fulfilled experience is to be adopted by their partners in collaborative learning;

- principle of developing cumulative fund of opinions, evaluations, judgments and actions in each component and at every stage of collaborative learning.

Instructional prerequisites for organizing collaborative training activities for adult learners are a set of measures of pedagogical influence and capacities of material and spatial surroundings that are aimed at yielding scheduled FEP learning outcomes. These teaching arrangements advance implementation of each FEP phase.

The first FEP phase involves design. The following challenges are covered: developing a competency model of FEP graduate, designing a system of training tasks and assessment tools on the ground of this competency model.

Instructional prerequisites for organizing collaborative training activities for adult FEP learners are conditioned by FEP target, namely professional competence of FEP graduates. In course of our research professional competence of FEP graduate is scheduled FEP learning outcomes. They constitute a complex of professionally-focused and socio-psychological competencies. They are integral, substantial and procedural characteristics of an individual that determine the success of professional activities and responsibility for their results. We have identified the following instructional prerequisites for organizing collaborative training activities for adult FEP learners at design stage:

- "multi-actor" method of constructing a competency model of FEP graduate. Multi-actor approach involves all interested bodies: FEP ordering customers, FEP learners, FEP providers, representatives of real economics. They all are engaged in designing goals and learning outcomes that further determine learning content;
- inclusion of social and subject-related contexts of professional activities in the competency model of FEP graduate. In other words, both occupation-oriented and socio-psychological competencies are to be incorporated in the competency model;
- designing collaborative profession-focused learning situations (CPFLS) that go with invariables of FEP graduate's competence. Every exercise is drafted in order to build certain competency invariables : motives, values and attitudes, knowledge, skills and expertise, professionally important qualities and mechanisms of experience implementation;
- ensuring "3-layered" nature of the task structure. The strategy of drafting an exercise is based on "3-layered" nature of interactive learning situations. These layers include learning, practice acquired while learning and interaction. This allows to adhere to the internal structure of collaborative training activities of adult FEP learners. According to the internal structure of the learning situation, each exercise is distributed into three layers at the design phase. The first layer is composed of learning actions and operations performed by students in course of solving a problem situation. The core of the second layer is laid by job functions and professional challenges

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faced by professionals, FEP graduates in their professional activities. The third layer is supported by ways of interaction among group members, which are planned to be implemented in course of solving learning situations;

- the instruction to solve each training task collectively (Ljaudis, 2000; Herrmann, 2013): specification to each task should comprise the imperative to solve it collectively.

Implementation phase of FEP is basically into organizing group training. Given the structure of collaborative training activities and characteristics of adult learning, we have developed the following instructional prerequisites of its organization:

- ensuring mono-mattered performance of group members. The point lies in instructional monitoring of a common objective for all group members of the group (Zuckerman, 1992). The monitoring is based on the constructing by all learners a common way to regulate individual operations. This helps to implement a given pattern in accordance with its content;
- ensuring activation of prior experience of the adult learner (Herranen, Vesterinen & Aksela, 2018). Adult FEP learners ground their personal insights on their professional knowledge and expertise;
- providing contingent feedback at each stage of collaborative training activities. Co-learners are expected to reflect on interaction strategies and results while solving CPFLS;
- supporting development of group dynamics during collaborative learning. This teaching arrangement supposes observation over group cohesion and maintaining closer cooperation in cases where transition from one level of collaboration to another is stunted;
- supporting group discussion with the purpose building cumulative fund of opinions, evaluations, judgments and actions at each stage of collaborative learning. Instructional tactics include suggestions to discuss opinions, findings and ideas of collaborators to piece together and analyze individual contributions.

Feedback and assessment stage of FEP is evaluation of training process content and quality by all actors: an instructor and adult FEP learners. Feedback on training content is group discussion and evaluation of collaboration effectiveness. Feedback on training content is linked to reflecting on the competencies developed or optimized during FEP training. With respect to instructional implications, we singled out an instructional prerequisite for feedback and assessment stage of FEP. It implies ensuring feedback on learning outcomes and effectiveness of collaborative training activities for adult FEP learners.

7. Conclusion

Collaborative training activities for adults is a learning activity of a group of students. The external structure of collaborative learning includes the following components: motivation, goal, actions / operations and results. The internal structure is determined the object of collaboration, giving it "3-layered nature": the first layer – learning methods, the second layer – methods of subject-relevant activity acquired while learning, the third layer - ways of interaction.

The key characteristics of collaborative training activities for adult FEP learners are summarized below. A task should be constructed in such a way that it could be solved only by collaborating and have a collective result. The instruction to problem-solving must consider and specify multi-layered nature of interpersonal interaction (Zuckerman, 1992). Instructional strategy must assure spatial and simultaneous

co-presence. Each group member is expected to generate sense making of collective goal as a personal goal of participation in this group performance; different possibilities of distributing and sharing functions, actions / operations in addressing group challenges (Zuckerman, 1992). A training task must specify "3-layered nature" of interpersonal interaction. Instructional guidance of collaborative problem-solving search is basically managing group dynamics and supporting mono-mattered performance and conjunction of various opinions.

We have also categorized 3 levels of collaborative training activities for adult FEP learners. Level 1 "Co-presence", level 2 "Interdependence", level 3 "Interaction". Efficiency criteria of collaborative training activities for adult FEP learners are allocated into subjective and objective ones. Level markers are associated with internal and external structure of collaborative learning.

We have outlined principles of organizing collaborative training activities for adult FEP learners: effect" principle: adult listeners' experience is to be fulfilled in collaborative learning; "internalization" principle: each learner's fulfilled experience is to be adopted by their partners in collaborative learning; principle of developing cumulative fund of opinions, evaluations, judgments and actions in each component and at every stage of collaborative learning.. The present research has also led to determining instructional prerequisites for organizing collaborative training activities for adult FEP learners: at design stage ("multi-actor" method of constructing a competency model of FEP graduate; inclusion of social and subject-related contexts of professional activities in the competency model of FEP graduate; designing CPFLSs that go with invariables of FEP graduate's competence; ensuring "3-layered" nature of the task structure; the instruction to solve each training task collectively), at implementation stage (ensuring mono-mattered performance of group members; ensuring activation of prior experience of the adult learner; providing contingent feedback at each stage of collaborative training activities; supporting development of group dynamics during collaborative learning; supporting group discussion with the purpose building cumulative fund of opinions, evaluations, judgments and actions at each stage of collaborative learning) and reflexive evaluation (reflection of learning outcomes and effectiveness of joint training activities among adult learners).

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