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# DEVELOPMENT OF PEDAGOGUES' PROFESSIONALISM THROUGH CO-DESIGN AND CO-REFLECTION

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# Abstract

At present, in the modern socio-cultural and economic conditions, characterized by openness and maximum dynamism, society has higher requirements for the qualification and education of cadres. In these conditions, the educational space must respond flexibly to these constantly changing conditions. For the professional development of educators, the reflection of their practical experience of activity plays an important role. Interaction in the group of partners with different professional and life experiences, different forms of perception contributes to the intensification of the process of adopting a consolidated point of view. The choice of the format of communicative and distributed activities for teaching specialists is dictated not only by the effectiveness of mechanisms of co-construction and co-reflection, but also by the need to maintain a high motivational component in them while developing innovative components of the organization of the educational process at school. On the basis of international and Russian studies, as well as their own research, the authors of the article consider the potential of co-construction and co-reflection carried out in the process of designing and analyzing lessons during lessons as a resource for the development of pedagogue's professionalism in the context of the implementation of the Federal Education Standards for General Education.

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**Keywords:** Communicative strategy, educational space, co-construction, co-reflection.



# 1. Introduction

## 1.1. Co-construction and co-reflection as forms of professional communication.

## 1.1.1. Professional communication in the modern educational space.

At present, in the modern socio-cultural and economic conditions, characterized by openness and maximum dynamism, society has higher requirements for the qualification and education of cadres. In these conditions, the educational space must respond flexibly to these constantly changing conditions. It is proved that if the educational space is built outside the socio-cultural code, this negatively affects the quality and level of education (Kayner, 2016). Scientists Sorina G.V. and Mieskov V.S. consider as a characteristic of the socio-cultural dimension of the modern educational space the focus on the acquisition of knowledge, competences, creative development, ability to create a subject of cognitive activity (Kayner, 2016). It means that if space is built on ignoring the features of time, as well as the state of objects and subjects that fill it, then it does not reflect the actual tendencies of the surrounding reality. One of the most important characteristics of the present is the expressed communicative component of the professionalism of a highly qualified specialist. The scientist Kurilovich N.V. believes that without a developed culture of professional communication, which is a key component of professional culture, professional growth is virtually impossible (Kuzmina, 1989).

# 1.1.2. The influence of co-construction on the growth of pedagogues' professionalism.

Studies of both foreign and domestic scientists have shown that one of the most productive ways of developing professionalism is co-design. (Berkemeyer et al., 2011, Ruess, 2017, Reusser, 2001). In particular, K. Reusser identifies co-design as a productive dialogue within the team that helps to perform socially-divided knowledge (Shamlikashvili, 2014). Grasel, Hertel, Shamlikashvili consider the dangers and difficulties of using cooperation for professionalization, since the process of such joint activities contains a potential conflict (Grasal, Fussange &, Probstel, 2006, Hertel, 2016; Schon, 1983). The basis of group interaction lies in the socio-cognitive conflict. Socio-cognitive conflict is a psychological mechanism that triggers the processes of thinking and provides an impact on the development of interaction (Dushkina, 2004; Ruess, 2017). Its essence lies in the fact that the partners in the interaction have their own views on the resolution of the problem (the learning task) that confronts them, compare these opinions, and exchange them. Overcoming this socio-cognitive conflict is possible in the process of coordinating these different points of view and internalizing this agreement. The goal of this coordination should be not so much the choice of the opinion accepted by the majority of participants in the interaction as the streamlining and coordination of all the proposals put forward. In the course of the internalization of this agreement, the development of intelligence occurs, that is, the cognitive breakthrough of each member of the group and the effective increase in competencies. The coordination of different positions rallies the group to cooperation, that is, it improves the system of social interrelations and interactions (Dushkina, 2004; Ruess, 2017).

## 1.1.3. Influence of reflexivity on the growth of pedagogues' professionalism.

For the professional development of pedagogues no less important role is played the reflection of their practical experience of activity (Kopoteva & Logvinova, 2012; Zasobina & Zmeyov, 2015).

Interaction in the group of partners with different professional and life experiences, different forms of perception contributes to the intensification of the process of adopting a consolidated point of view. In the opinion of N. Berkemeyer, it is in the process of group reflection that distancing from oneself takes place, an awareness of the "blind spots" of one's own activity. A number of researchers note that pedagogues capable of reflecting are the best (Berkemeyer, Jarvinen, Otto & Bos, 2011). D.A. Schon, G.L. Kopoteva and others emphasize the advantages of collegial reflection (Kopoteva & Logvinova, 2012; Wahl, 2013).

# 1.1.4. Place and value of design and constructive abilities of pedagogues in the system of pedagogue's professionalism.

The notion of structural functional elements of individual pedagogical activity (hereinafter - IPA) is introduced into the scientific circulation of N.V. Kuzmina (Molodych, 2016). They make it possible to characterize the features of the IPA, its merits or demerits allow analyzing the solution of problems of pedagogical interaction with students. These include: gnostic, design, constructive, communicative, organizational elements (Molodych, 2016). Under the design element N.V. Kuzmina understands the actions connected with the pedagogue's ability to anticipate goals, tasks, ways of students' activity further one training session in advance, and in the long term on the whole topic or the entire training course. The constructive element includes the ability to carry out the compositional construction of the forthcoming occupation in the conditions of the system of prescriptions dictated by the programme, the textbook, etc. Nowadays, in connection with the introduction of Federal State Educational Standards of primary and basic general education, this system of prescriptions, related to the target indicators of the lesson and its performance characteristics, has seriously changed. The implementation of the scientific and methodological support for the introduction of Federal State Educational Standards has been developed for many years using the increase in the practice-oriented component of the educational process in the system of additional vocational training. Therefore, the practical training system used by us within the framework of the additional professional education courses of the federal state scientific institution "The Institute for Strategy of Educational Development of the Russian Academy of Education" is aimed at these changes and at those skills that will enable them to be implemented in the real educational process at school.

We have already pointed out that the choice of the format of communicative and distributed activities for teaching specialists is dictated not only by the effectiveness of mechanisms of co-construction and co-reflection (Ruess, 2017), but also by the need to maintain a high motivational component in them while developing innovative components of the organization of the educational process at school. As teachers master new and cognitively complex activities (designing an activity learning situation, a lesson based on a technological map that forms subject and meta-subject results), then in the process of individual fulfillment of these tasks, tension and self-doubt are inevitable. As a result, the motivation for the forthcoming activity is reduced, and the quality of the product created by educators is affected (Gormin, 2016; Reusser, 2001).

In order pedagogues could master both technologies more firmly, we actively use them in other methods of group interaction: facilitation sessions, WorldCafé, "Ideologue" brainstorming (Nummi, 2012; Baeten & Simons, 2014; Kosinar, 2013).

# 1.2. Development of design and constructive skills of pedagogues in the process of improving professional communication through co-design and co-reflection.

Object: professional communication of the teacher through the use of technologies of coconstruction and co-reflection.

Subject: formation of design and constructive abilities of the teacher.

#### 2. Problem Statement

The development of design and constructive abilities of the teacher in the system of additional vocational education is intensified if:

- the training will occur in the process of active professional communication in the form of coconstruction and co-reflection;
- the lesson will be designed using the appropriate methodological tools (based on templates models a technological map that fixes the activity character of the lesson and all groups of results of mastering the main educational programmes);
- the training will be carried out using diagnostic tools to assess the development of design and constructive skills (forming criterial tasks).

#### 2.1. Theoretical Basis of the Study

- The general theory of professionalism, professional activity (K.A. Abulkhanova-Slavskaya, A.A. Bodalev, V.I. Rerkach, E.M. Ivanova, N.V. Kuzmina, A.K. Markova, V.A. Slastenin and others);
  - The theory of modeling (A.V. Vardanyan, U.N. Umov, V.A. Shtoff, etc.);
- Theories of communicative technologies and the culture of professional communication (V.P. Bespalko, N.I. Vynova, A.B. Drobovich, I.Ya. Zyazyun, E.N. Ilyin, V.A.Kan-Kalik, E.A. Levanova, M.M. Levina, A.M. Makarenko, E.Sh. Natanzon, A.Ya.Savelyev, S.A. Smirnova, F.A. Fradkin, N.E.Shurkova and others).

# 3. Research Questions

The research question was to define the conditions which would foster the design and constructive abilities development.

# 4. Purpose of the Study

**Purpose of the Study**: an empirical test of the influence of professional communication in the form of co-construction and co-reflection on the development of design and constructive abilities of the teacher.

## 5. Research Methods

Theoretical: analysis; synthesis; specification; generalization; modeling, designing.

Diagnostic: the method of problems and tasks.

Empirical: observation, analysis, examination of products of activity.

*Experimental:* ascertaining and forming stages of the experiment. Methods of mathematical statistics and graphical representation of results.

# 6. Findings

# 6.1. The ascertaining experiment.

#### 6.1.1. Implementation of co-construction.

The observational part of our research consisted in the fact that the teachers, before starting the study of the content of the training course, fulfilled the task of drawing up a thesis plan-a summary of the lesson (number of students was 5-7 people, communication was in the form of interaction), where they had to record the development of the activity learning situation and the formation all groups of results of mastering the basic educational programme. This activation takes place due to intensive discussion of theoretical material, as well as joint development of methodical products for educational process implementation. Strictly regulated time limit was given for its development. Drawing up the abstract plan was carried out by teachers in the computer, then the finished product was printed. The list of substantive and meta-subject results of mastering the basic educational programmes of general education in the form of universal educational activities was distributed to each group in paper and electronic form. The result of primary co-construction was the development of 32 lesson plans reflecting the real initial state of the formation of the design and constructive skills of the participants in the study.

The analysis of the interaction of teachers in the process of primary co-construction was carried out by us on the basis of ideas about technological stages of professional communication by N. Kurilovich, as well as the communication strategy by N.A. Bazova, M.V. Zagidullina (Basova, & Zagidullina, 2008; Kuzmina, 1989). Observation of the process of task No.1 showed a positive attitude of teachers towards joint activities. The information stage of the discussion of the created lesson plan was not performed too fast in the groups, not all communication subjects were involved in it. The affective stage of primary co-construction, which affects, above all, the emotional sphere of communication participants, in the two groups revealed a certain nervousness and individual interpersonal conflicts. In other groups of the experimental sample, there were subjects of communication that refer to activity indifferently (mainly those who evaded the communicative process). The regulatory stage reflected insufficiently good compatibility of the participants in the initial co-design, a certain disagreement between the actions of the team members. However, according to its results, the leaders were distinguished. All these factors in the aggregate led to the fact that the process of consolidation of efforts to develop a lesson plan was delayed:

**Table 01.** The results of compliance with the time limit for the assignment before training

Streams of students	8 groups	
	Groups that completed task  No 1 within the time limit	Groups that did not complete task № 1 within the time limit
1 stream	6	2
2 stream	5	3
3 stream	7	1
4 stream	4	4

Summarizing the process of primary co-construction, it becomes evident that there is a lack of sufficient experience among the teachers of joint collective activity. However, the ability to organize it is necessary for the formation of communicative universal educational activities among schoolchildren in accordance with the Federal State Educational Standards of general education.

The lesson plan made by the group was assessed as a collective product based on the following criteria:

Table 02. Criteria for evaluating the task No. 1

Criteria	Points
The plan records the development of the activity-based learning situation; formation of	3
all groups of results of mastering the basic educational programme (subject, meta-	
subject and personal) at all stages of the lesson.	
The plan records the development of the activity-based learning situation; formation of	2
all groups of results of mastering the basic educational programme (subject, meta-	
subject and personal) only at some stages of the lesson.	
The plan records the development of the activity-based learning situation; the	1
formation of some groups of results of mastering the basic educational programme	
(subject, meta-subject and personal) is fragmentary, episodic.	
The plan does not fix the development of the activity-related educational situation and	0
the formation of all groups of results of mastering the basic educational programme	
(subject, meta-subject, and personal).	

In the individual sheet, each teacher was given a score, which he received for the lesson plan developed by his group in the process of co-design. The results of the analysis of the quality of the lesson plans developed in the performance of the task No.1 are presented in the following table:

**Table 03**. The results of task Nole 1 before training (n = 224)

Points	Number of respondents	%
	(ppl)	
3	22	10%
2	48	21%
1	141	63%
0	13	6%

As you can see, 69% of the participants in the study completed the assignment with serious defects (0 and 1 points), which allows us to conclude that their pedagogical design and constructive skills are inadequate.

# 6.1.2. Implementation of co-reflection.

For the implementation of the co-reflection, the following organizational and chronological model was chosen: one estimated thesis plan is elaborated and seven estimated agreed opinions are expressed. The oral presentation of the developed plan lasted for 3 minutes, the co-reflection of the evaluation opinion on the plan lasted for 3 minutes, the presentation of the consolidated plan evaluation - 2 minutes.

Thus, in each stream, 8 developed lesson plans and 56 assessment verdicts were heard. Co-reflection had a clear target for criticism and comparison of the developed projects.

Observation of the process of co-reflection revealed a lower activity of group members than in coconstruction. Therefore, the consolidated opinion reflected the position of not all participants in the group work. Despite the task to evaluate the lesson plans from the position of criticism, the speakers devoted most of their statements to the approval of the presented works. The comparison was also mainly carried out from the position of finding the positive features of each lesson plan and was descriptive in nature:

**Table 04.** The results of primary co-reflection (before training)

Steams of students	8 groups	
	Groups that developed a	Groups that did not develop a
	critical evaluation	critical evaluation
1 stream	3	5
2 stream	4	4
3 stream	3	5
4 stream	2	6
Average value	3	5

The implementation of primary co-reflection, as we see, demonstrated even less experience of teachers in this type of activity than in co-design. Although in this case, the teacher's mastery of the methods of reflection in general, and collegial reflection in particular, is necessary for the formation of regulative universal learning activities in schoolchildren.

### 6.2. Forming experiment.

#### 6.2.1. Implementation of co-construction.

At the forming stage of the experiment, the pedagogical workers of general education organizations mastered the supplementary vocational education (advanced training) programmes "Organization and Maintenance of the Educational Process in School in Accordance with the Federal State Educational Standards of General Education" or "The Lesson that Forms the Universal Educational Activities: from Design to Analysis (author's methodology of G.L. Kopoteva, I.M. Logvinova (Kopoteva & Logvinova, 2012; Kopoteva, 2015)). " The goal of the programme is to increase the readiness of teachers to implement the Federal State Educational Standards and the formation of the necessary competence, including the development of design and their design skills. Both courses are distinguished by a large number of practical classes designed to master the technique of designing a lesson on the basis of templates of technological maps. All practical exercises are conducted using co-construction and co-reflection. This template of the lesson's technological map, which makes it possible to implement Federal State Educational Standards requirements, the methodology of designing and analyzing the lesson based on this map, was developed on the basis of a systemic, activity and reflexive approach (Helsper, 2011; Hertel, 2016).

Secondary co-construction was carried out in groups in a more constructive and coherent way than at the stating stage of the experiment, although the design of the lesson based on the proposed template of the technological map was carried out by them for the first time, i.e. it was the primary mastery of the

mode of activity (task No.2). It is quite obvious that this was the result of the acquisition of communicative experience in the performance of task number 1. The cooperation of teachers was carried out more effectively at all stages of communication. At the information stage, the discussion of the necessary content of the lesson's technological cards was quicker, more expeditiously than during the development of the lesson plan, all communication subjects without exception entered into it. The affective stage, as we know, potentially dangerous with possible conflicts, passed without excesses, stabilized the relations that arose during the initial co-design, increased the compatibility of the subjects of communication. This time all the groups performed without conflicts. The leaders, revealed during the primary co-reflection, helped to overcome the conflicts. They, in fact, performed the function of mediators (Kurilovich, 2012). The regulatory stage increased the synchronization of joint activities. As a consequence, the groups have better kept within the time limit for the task:

Table 05. The results of observing the time limit for the task before and after the training

Streams of students	8 groups	
	The ascertaining stage	The forming stage
	Groups that did not complete	Groups that did not complete
	task № 1 within the time limit	task №2 within the time limit
1 stream	2	0
2 stream	3	1
3 stream	1	0
4 stream	4	1

The output diagnostics based on the results of the training was conducted using the same criteria as in the ascertaining stage of the experiment. But here there was the assessment of the technological map of the lesson developed by the teachers, rather than the lesson plan. Analysis of the performance of task number 2 after completion of training revealed the following results:

**Table 06.** The results of task No2 after training (n = 224)

Points	Number of respondents	%
	(ppl)	
3	120	54%
2	63	28%
1	41	18%
0	-	0%

Comparison of the results of the design of the educational process before and after the completion of the advanced training courses is presented in the following diagram (Figure 1):



**Figure 01.** Comparative results of the implementation of the forming criterial tasks for designing a lesson at the stage of ascertaining and forming experiments.

As we can see, from the data obtained, the productivity of joint activities has improved: the quality of the developed lessons, their compliance with the requirements for the modern educational process have grown significantly. It is obvious that the productivity of the activity has increased due to the mastery of teachers by such effective mechanisms of professional communication as co-design and co-reflection.

#### 6.2.2. Implementation of co-reflection.

At the stage of the forming experiment, the target settings and the time limit for co-reflection did not change. However, the nature of the activities of teachers has changed. Appraisal activity of subjects of communication and criticality of their opinions have grown very much, criticism not only of the product, but also of its difficulties and mistakes made in the process of developing the technological map of the lesson:

**Table 07.** The results of primary and secondary co-reflection (before and after training)

Streams of students	8 groups	
	The ascertaining stage	The formative stage
	Groups that did not develop a	Groups that did not develop a
	critical evaluation	critical evaluation
1 stream	5	1
2 stream	4	0
3 stream	5	2
4 stream	6	1

The analysis carried out in the mode of collective activity has acquired depth and volume, the objectivity of appraisal opinions has increased. Such an increase in the participation of teachers in the condemnation of the merits and demerits of their own products of activity we attribute to an increase in the motivational and value attitude to professional communication. Since it was in the course of co-construction and co-reflection that a deeper penetration into the essence of Federal State Educational

Standards came about; awareness of the advantages of describing a lesson in the form of a technological map in comparison with the lesson plan.

## 7. Conclusion

The conducted research confirmed the legitimacy of the formulation and solution of the problem of intensifying the formation of design and constructive abilities of the teacher through the use of co-construction and co-reflection.

Analysis of the experimental work results has revealed a positive dynamics in the increment of the professionalism of teachers in designing and analyzing the lesson.

The set of organizational and pedagogical conditions for intensifying the development of the design and constructive abilities of the teacher, which confirms their effectiveness and expediency, was identified and experimentally tested:

development of sustainable value motivation for the development of design and constructive skills; development of design and constructive skills in the process of co-construction and co-reflection;

diagnostic support of the development of design and constructive skills (use of forming criterial tasks);

methodical support of the process of development of design and constructive skills (designing a lesson on the basis of templates of the technological map, fixing the activity character of the lesson and all groups of results of mastering the basic educational programmes).

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