

DOI: 10.12731/2218-7405-2013-8-21

DESIGNING CROSS SUBJECT COMMUNICATIONS AS THE CONDITION FOR DEVELOPING SOCIAL SKILLS IN TEACHERS

Lygina N.I., Makarenko O.V.

In this paper we will present the results of a pedagogical experiment aimed at studying the level of social skills in university professors. Planning cross subject communications in an academic subject with consideration of the previous and associated knowledge and skills of students in the educational programme formed the basis of the pedagogical experiment. Problems have occurred when university professors are faced with elaborating cross subject communications. It was discovered that the problems professors had were connected to their responsiveness and to the various strategies they applied while working within small groups. We will analyze the results, provide recommendations and show the change in the level of the professors' social skills during elaboration of cross subject communications.

Key words: pedagogical planning, intersubject communications, social skills, pedagogical experiment, strategies for working within small groups, professors' responsiveness.

ПРОЕКТИРОВАНИЕ МЕЖПРЕДМЕТНЫХ СВЯЗЕЙ КАК УСЛОВИЕ РАЗВИТИЯ СОЦИАЛЬНЫХ КОМПЕТЕНЦИЙ ПРЕПОДАВАТЕЛЕЙ

Лыгина Н.И., Макаренко О.В.

В статье представлены результаты педагогического эксперимента, целью которого было изучение уровня компетенции социального взаимодействия преподавателей высшей школы. Основой педагогического эксперимента

служило проектирование междисциплинарных связей в учебной дисциплине с учетом предшествующих, сопутствующих и последующих знаний и умений студентов в основной образовательной программе. Выявлены затруднения, возникающие у преподавателей при проектировании междисциплинарных связей. Обнаружено, что затруднения преподавателей соответствуют различным стратегиям поведения при работе в малой группе и уровня рефлексивности. Авторы статьи проводят анализ полученных результатов, дают рекомендации и показывают изменения социальных компетенций преподавателей в процессе проектирования междисциплинарных связей.

Ключевые слова: педагогическое проектирование, междисциплинарные связи, компетенции социального взаимодействия, педагогический эксперимент, стратегии поведения при работе в малой группе, рефлексивность преподавателей.

One of the quality parameters of present-day education is its integration at various levels, therefore, instructional design of cross subject communications at the highest educational institutions becomes the way of solving it. Presently, for the successful design of cross subject communications a university professor has to both possess a deep knowledge of the subject and have good social skills and be able to work within a small interdisciplinary group.

We have conducted a pedagogical experiment within the framework of a refresher programme for university professors ‘Designing and planning collaborative activity of university professors in basic educational programme in multi-level education’.

The research was performed around the process of designing and planning of cross subject communications by university professors. The problems, which university professors had during the design and planning of external communications were the subject of the study. The goal of the pedagogical experiment was to detect the influence of university professors’ social skills – the ability to work within a small

interdisciplinary group in particular – on the results of instructional design of educational process in the academic subject and on academic communications in particular.

The pedagogical experiment was conducted in several stages. In the first stage we have analyzed the problems professors had when devising and planning cross subject communications and detecting the roots of problems. This gave grounds for creating a hypothesis. In the second stage we chose methodologies and tested professors' social skills level. In the third stage we analyzed the results of testing, and defined efficient techniques to eliminate problems during instructional design for representatives of various behavioral strategies when working within a small group.

The analysis showed that most professors do not think they have any problems with designing cross subject communications. We subdivided the professors into three groups by their attitude to the development of academic communications on the basis of the first results obtained during their study at the Advanced Teacher Training Faculty. The first group was devoted to the idea of 'subject-centeredness', i.e. teaching the subject as self-sufficient without any connection with other subject areas. In most cases the reason was that professors relied on existing academic communications, in 'old-style' basic academic programmes, which they did not completely realize. They thought the situation natural ('it has always been this way') and consequently, perceived the task of academic communications superficial, thus providing a standard list of academic subjects, which were connected to their area of teaching, i.e. their approach to the problem of elaboration of cross subject communications was rather formal. The second group of professors could only detect the initial level of students' knowledge needed for successful digestion of their academic subject. They expressed their demands in terms of the initial knowledge students needed to possess without any connection with other subjects 'at the input'. The third group of professors, who realized the importance of cross subject communications, started this process being unsure whether they would be able to obtain the necessary information from their colleagues.

We have advanced a hypothesis that the attitude to designing cross subject communications is connected with the behavioral strategies used when working within a small interdisciplinary group. Burnout and professional deformation often prevent pedagogues from developing cross subject communications. As the result of a burnout a pedagogue adopts a formal approach to work and is guided by stereotypeness in their professional activity. Their work seems meaningless, but preparing for classes becomes easier, they tend to use passive forms of instruction more often, and the unequal relations between student and teacher require less effort in the design of cross subject communications.

Therefore, the ability of a teacher to reflect helps to prevent subject-centeredness and burnout, and becomes an important professional skill, presupposing the involvement of others and a concern with unusual systems of interpersonal and business relations. According to G.P. Schedrovitskiy, responsiveness is self-awareness that ensures mutual understanding and coordination of partners' actions during cooperation [5].

79 professors of various universities with 15 to 25 years of teaching experience participated in the experiment. By their attitude to designing cross subject communications in their academic disciplines and ability to work in a team the professors fell into two large groups: one found developing academic communications hard and the other did not have any problems with it. Each group had its peculiarities. The group which found designing cross subject communications hard (51% of the sample) had two subgroups. In one of them the professors understood the importance of academic communications, but because of natural reticence were unwilling to cooperate with their colleagues. In the other subgroup the professors lacked understanding of importance of academic communications in education. The group that did not have problems with creation of cross subject links in their subjects (49% of the sample) also had two subgroups. In the first one the professors had a formal and superficial approach to the task, while in the second one they performed a deep analysis of cross subject communications in cooperation with

their colleagues who taught other subjects in the same academic programme.

In our opinion, the work of professors in integrating external subject links into their teaching is best performed within a small group and targeted at solving group tasks. The experiment showed four major behavioral strategies when working within a small group: 'The first strategy is when professors can solve the task only by dominating others. The second communicative strategy is adapting to the group. Professors from the third group tend to solve tasks on an individual basis; the fourth group tends to work collaboratively'. [1 p.99].

Following the results of the abovementioned experiment, our observations and studies we have designed and tested a diagnostic test [3], which allows us to recognize the behavioral strategies professors use when working within a small group: self-asserting, adaptive, individualistic, collectivist.

Typical characteristics of a self-asserting behavioral strategy when working within a small group are: its representatives can perform tasks collaboratively by setting their requirements and articulating their wishes, but if these are not accepted they lose interest to collaborative work. They show a high level of initiative, but are not always ready to bear personal responsibility for collective result. We have discovered that professors who tend to use a self-asserting strategy when working within a small group did not have any problems with designing cross subject communications in their academic subjects, but their approach was superficial without consideration of propaedeutic, developing and didactic components of cross subject communications.

Adaptive strategy of working within a small group is very much a conformist approach to performing collective tasks. The professors who were referred to this group according to the pedagogical experiment test results, did not take initiative or bear responsibility for any collective results. They tried to carefully avoid this work by asserting that designing cross subject communications was a task of minor importance and considered it useless for the academic process.

Representatives of the individualistic strategy of working within a small group

did not dominate others; however they took little interest in collective results. They were rather targeting individual results. In some sense they tried working ‘for themselves’ than ‘for others’. Unfortunately, the difficulties they had were rooted in their psychological distance and their inability for effective social interaction. However, professors from this group tried to analyze the goals ‘to know’ and ‘to have a skill’ as proceeding from previous, associated and subsequent disciplines of the discipline they were teaching.

Professors with a collectivist strategy tended to work collaboratively and were targeting common results and did not expect personal rewards. They were interested in cooperation (working together), showed initiative, responsibility and saw collaborative activity as a value by itself. When working within a small group they showed the process of designing cross subject communications in their subjects vividly and to its fullest.

As the result of experiment and testing we have obtained the following percentage of sample representatives of the four strategies applied when working within small groups: self-asserting strategy - 22%, adaptive strategy – 19%, individualistic strategy – 32%, collectivist strategy – 27%.

The same sample was put through the test designed by A.V. Karpov, V.V. Ponomareva [4] to measure responsiveness level, which contained four scales: retrospective reflexiveness (ability to analyze past events), present reflexiveness (ability to estimate current situation) and future reflexiveness (ability to plan future events and set goals), interactive reflexiveness (ability to estimate efficiency of social interaction).

When processing the results raw points are transformed into stens. There are always 10 stens as they are much more convenient to use than raw points as rates for every age group are different and stens allow comparing test results of the professors from various age groups. 7 and higher is indicative of high reflexiveness, results lower than 7 show lower reflexiveness. You can see average rate of reflexiveness (in stens) for every strategy of working within a small group in Table 1.

Table 1

Average reflexiveness rate in professors (in stens)

Scale	Behavioral strategies of working within small groups			
	Self-asserting	Adaptive	Individualistic	Collectivistic
Retrospective reflexiveness	8	9	8	8
Present reflexiveness	8	8	10	8
Future reflexiveness	5	4	9	8
Interactive reflexiveness	9	6	5	10

Analysis of the results showed the following. Representatives of self-asserting category have a well-developed retrospective, present and interactive reflexiveness, but low future reflexiveness. This could probably explain their superficial and formal approach to designing intersubject communications and they have weak goal-setting skills.

Teachers with adaptive strategy of working within a small group showed high retrospective and present reflexiveness and low future and interactive reflexiveness. We can suppose that being capable of analyzing their activity in the past and at present they are not always able to set productive professional goals and cooperate to achieve them. This is probably the reason why they tend to have problems with designing intersubject communications and underestimate their importance in education.

Professors with individualistic strategy possess a high level of retrospective, present and future reflexiveness, which is probably the reason why they are capable of deep analysis of intersubject communications in their academic subjects. However, a low level of interactive reflexiveness presents an obstacle in cooperation with other people and for proper performance of the task.

Professors with collectivist approach demonstrated a high level of reflexiveness in all the scales. This type of teachers analyze their teaching practice and other people's actions, tend to detect the reasons and consequences of their actions in the past, at present and in future. They tend to think over their activity in detail, elaborate it and forecast possible consequences.

Designing cross subject communications within the suggested approach is based on goal-setting in the field of the academic subject. The quality of goal-setting in an academic subject has to comply with quality 'standards'; i.e. the goals of the academic subject are formulated as diagnosed goals of students at various levels of material digestion. [2] Diagnosability of academic goals presupposes tests to check material digestion. Levels of material digestion can be described in terms 'to know', 'to have a skill', 'to have experience'.

Designing and using cross subject communications according to the suggested quality 'standards' allows a professor to see the place of the subject in the academic process and its 'borders' (which helps to avoid repetitions of the material), to detect initial level of knowledge and skills necessary for successful digestion of the material (which allows preparing propaedeutic materials), to plan how much focus has to be put on certain topics depending on how important they are for subsequent disciplines according to the curriculum (which allows devoting more time to the most important topics). It allows putting emphasis on the types of academic activities necessary for successful achievement of academic goals (which makes the process of planning intersubject communications practical).

Behavioral strategies when working within small groups are usually formed in a certain environment and can change during professional development of the professor. We think that representatives of collectivist behavioral strategy demonstrated a high level of social skills. At the same time we view the process of designing cross subject communications in an academic subject as an efficient way of developing the social competencies of a professor.

The technique of teaching instructional design in this pedagogical experiment

is aimed for adults and is to foster the change of attitude during the training. Teachers are very selective about things connected with drafting an academic subject. The knowledge that is a part of personal experience can be perceived as easier. Therefore, actualization of the professors' experience is the initial point in teaching instructional design. Illustrative method (examples of interdisciplinary communications in various disciplines) and practical techniques (exercises) were used.

Problem issues provoked certain creative efforts, made the teachers express their opinion, draw conclusions and make hypotheses and test them in a dialogue with opponents. The use of discussion as a technique when working in small groups helped to detect two approaches to designing cross subject communications (traditional and the new one, suggested by the programme of advance training) and helping teachers to adopt a respectful position towards other people's opinion.

The suggested quality 'standard' of interdisciplinary communications being the new material cause a certain disagreement with the teachers' personal experience, which evokes cognitive activity and acts as a catalyzer when solving the task of instructional design.

Preliminary analysis of other professors' experience by an expert allows them to relate their experience to that of colleagues and introduce new elements into their practice. In the course of training problem situations are created. They are problem-solving tasks, where the trainee can perform a 'person-oriented' action, i.e. to see themselves in relations with other professors, make conclusions from personal experience, overcome psychological crisis and plan a programme of further actions in designing cross subject communications.

Table 2 shows the changes that occur in the professors' consciousness (no matter what behavioral strategy they use when working within a small group), which in case the professors adopt the innovation 'instructional design of intersubject communications' becomes their personal professional goal.

Table 2

Comparative characteristic of former and new perceptions of instructional design of cross subject communications by the professors

Former perceptions	New perceptions
I have been teaching my subject for so many years that I do not need to learn how to plan academic process as no one knows how to teach it better than me.	Should there be any reasonable recommendations or variations of structuring the academic subject I am ready to learn how to do it better.
I do not know my abilities, do not believe that I will be able to alter my activity in my subject field and do not know how to do it.	I know what I am capable of, and I am sure that I will be able to alter my activity in the subject field and how to do it.
Intersubject communications cannot be used for assessing the quality of my work in my subject field.	Intersubject communications can be used for assessing the quality of my work in my subject field. It is one of the most important components of my academic discipline.
The most important and difficult task is to teach my academic discipline and control the students.	It is important to first design the academic subject including cross subject communications and then to teach it according to the pedagogical concept.
The content of the subject is its main component.	The main components of the subject are the goals of the teacher and the student, which are used for proper elaboration of cross subject communications.
I can design cross subject communications in my academic subject without the help of my colleagues.	High-quality designing of cross subject communications is performed better in case it is done collaboratively with the colleagues working in the same academic programme.

The following conclusions can be made as the result of the experiment: after adopting the suggested approach to designing cross subject communications within small interdisciplinary groups the professors notice that they get more interested in their teaching activities and get motivated in improving it as they start organizing academic process in a different way; their social skills benefit from collaborative work with their colleagues on the project.

References

1. Golubeva N.V. *Chelovek i obshchestvo* [People & Society]. 1966, pp. 98-102.
2. Lygina N.I., Makarenko O.V. *Pedagogicheskoe proektirovanie obrazovatel'nogo processa po uchebnoj discipline v usloviyah kompetentnostnogo podhoda* [Instructional design of educational process in the course unit within competency building approach]. Novosibirsk: Izd-vo NGTU, 2013. 132 p.
3. Makarenko O.V. *Problemy social'no-psihologicheskoy adaptacii / Ch.1: Kompetencija social'nogo vzaimodejstviya* [Problems of socio-psychological adaptation / Part 1: Social skill]. Novosibirsk: Izd-vo NGTU, 2011.
4. Orlova I.V. *Trening professional'nogo samopoznaniya: teorija, diagnostika i praktika pedagogicheskoy refleksii* [Training of professional self – cognition: theory, diagnostics and practice of pedagogical reflection]. SPb.: Rech, 2006.
5. Shhedrovickij G.P. *Lekcii po pedagogike / Iz arhiva G. P. Shhedrovickogo* [Lectures on pedagogy / From G.P. Schedrovitskiy archive]. Vol. 11. M., 2007. 400 p.

Список литературы

1. Голубева Н.В., Различия в коммуникативном поведении при решении групповых задач / Н.В. Голубева, М.И. Иванюк // В кн.: Человек и общество. Л., 1966, вып. I, С. 98-102.
2. Лыгина Н.И., Педагогическое проектирование образовательного процесса по учебной дисциплине в условиях компетентного подхода : учебно-методическое пособие для преподавателей / Н.И. Лыгина, О.В. Макаренко. Новосибирск: Изд-во НГТУ, 2013. 132 с.
3. Макаренко О.В., Проблемы социально-психологической адаптации / Ч.1: Компетенция социального взаимодействия. Новосибирск: Изд-во НГТУ, 2011.
4. Орлова И.В., Тренинг профессионального самопознания: теория, диагностика и практика педагогической рефлексии. СПб.: Речь, 2006.

5. Щедровицкий Г. П., Лекции по педагогике / Из архива
Г. П. Щедровицкого. Т. 11. М., 2007. - 400 с.

DATA ABOUT THE AUTHORS

Lygina Nina Ivanovna, Ph.D., Associate Professor

Novosibirsk State Technical University

pr. K.Marksa, 20, Novosibirsk, 630073, Russia

Makarenko Olga Viktorovna, Ph.D., Associate Professor

Novosibirsk State Technical University

pr. K.Marksa, 20, Novosibirsk, 630073, Russia

e-mail: omakarenko@mail.ru

ДААННЫЕ ОБ АВТОРАХ

Лыгина Нина Ивановна, доцент кафедры автоматических систем управления,
кандидат педагогических наук, доцент

Новосибирский государственный технический университет

пр. К.Маркса, 20, Новосибирск, 630073, Россия

Макаренко Ольга Викторовна, доцент кафедры психологии и педагогики,
кандидат психологических наук, доцент

Новосибирский государственный технический университет

пр. К.Маркса, 20, Новосибирск, 630073, Россия

e-mail: omakarenko@mail.ru