

# Educational Workshops: Positive Impact on Teaching and Learning

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**KLJUČNE BESEDE:** učne delavnice, zdravstvena vzgoja, inovativno izobraževanje, interaktivni pouk, evalvacija učnih delavnic

**POVZETEK** – V raziskavi, ki jo predstavljamo, smo proučevali učinke uporabe učne delavnice v okviru predmeta zdravstvena nega na srednji zdravstveni šoli. Uporabili smo model raziskovanja paralelnih skupin, v okviru katerega smo primerjali učinke učne delavnice z učinki tradicionalnega načina poučevanja. Zanimali so nas predvsem taksonomske stopnje znanja, ki so jih učenci usvojili, stopnje miselnih aktivnosti, nivo pedagoške komunikacije in možnosti individualiziranega in diferenciranega dela. Ugotovili smo, da didaktično organizirane učne delavnice omogočajo povečano miselno aktivnost učencev, kakovostnejšo učno interakcijo, boljšo didaktično izrabo učnega časa in večjo stopnjo sodelovanja učencev. Rezultati kažejo, da so rezultati v skladu z našimi predhodnimi teoretičnimi raziskavami in predstavljajo dobro osnovo za nadaljnja tovrstna raziskovanja.

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**KEYWORDS:** educational workshop, health care education, innovative education, interactive teaching, educational workshop evaluation

**ABSTRACT** – The research discussed in this paper sought to explore the effects of the implementation of an educational workshop in the Health Care course at a vocational medical school. We applied the parallel group design where we compared the effects of the educational workshop with the effects of the traditional teaching mode in the Health Care course. In this study we investigated the levels of knowledge acquisition, the students' active thought process, pedagogical communication, and the process of individualization and differentiation in the teaching of professional medical school subjects. By means of an empirical study, we sought to learn whether there are differences in the quality, efficiency and impact of the educational process. We observed an increase in the participants' active thought process, interaction, pedagogical organization and collaboration. The results of our study are partly in accordance with our preliminary assumptions and they can be the basis for further research in the field of teaching.

## 1 Introduction

Health Care is a basic course in the professional education of nurses at a vocational medical school. It is an obligatory course extending through four years of secondary nursing education. In the first two years of professional nursing education, the course setting involves school cubicles, which are equipped with all the necessary apparatuses needed for practical training. In the third and fourth year of nursing education, the Health Care course is essentially organized at primary, secondary and tertiary health-care institutions. During these courses, students are primarily introduced to the theoretical background, and later, they are guided by a healthcare teacher through the practical implementation (Ranković Vasiljević, 2003). However, in past decades, the traditional form of teaching Health Care courses was criticized and some other interactive models

of teaching were advocated. Critical thinking has advanced, in contrast to the traditional memorizing of course material. Additionally, in the modern practice of healthcare professionals, it is expected that nurses are acquainted with professional literature and the up-to-date findings within the health care profession (Zhang et al., 2012). In line with this, workshops can be introduced into formal education as a method of interactive teaching, which has long-term effects on learning: students are more attracted to learning, retain more information and, consequently, are more satisfied (Kutbiddinova, Eromasova & Romanova, 2016; Steinert & Snell, 1999).

Some previous studies indicated the importance of workshops as a teaching mode in healthcare education (Allcock, 1992; Grugnetti et al., 2014; Hutnik & Gregory, 2008; Steinert & Snell, 1999; Treisman, 1992; Zhang et al., 2012). Educational workshops are methodical solutions that belong to interactive and student-centred learning aimed at developing skills and/or strengthening sensitivity to specific problems. The workshop is designed according to the model of experiential learning (Kolb, 1984), which focuses on the process and acquisition of skills, rather than the immediate outcome and acquired knowledge. During the workshop, cooperative and experiential learning are encouraged. Teachers as educational leaders create a warm sociable climate, and provide better and varied feedback on achievement. They prepare additional learning materials and provide students with more opportunity to respond and to be involved in the learning process (Knapp & Hall, 2006; Steinert & Snell, 1999). The greatest challenge of a programme which provides cooperative learning is being thought-provoking and emotionally supporting pedagogical communication. According to Assilkhanova, Tazhbayeva and Ilimkhanova (2014), pedagogical communication is the key instrument in a teaching process, and Tubbs and Moss (2006) stated that effective communication is characterized by understanding, satisfaction, influence on attitudes and relationships, and triggering action (Tubbs & Moss, 2006; Toseland & Rivas, 2005).

Sork (1984) defines a workshop as a short-term, intensive, problem-focused learning from experience that actively involves the participants in the identification and analysis of the problem, but also in the development and evaluation of the solution. Furthermore, Fleming's (1997) definition of a workshop emphasizes the development of competencies, interactive learning, practical work opportunities, intensive interaction, work in small groups and the application of new knowledge and skills.

According to these previous studies, it could be concluded that workshops are most beneficial in acquiring particular skills. For example, Zhang et al. (2012) point out that some skills, such as searching for literature, are not greatly encouraged at the secondary level of nursing education. In their study, nursing students were given a scientific paper to review. Later, during the workshop section, students were encouraged to provide comments on the article. The authors believed that students utilized critical thinking during this interactive process. Furthermore, the students' level of satisfaction with the workshop was very high, and consequently the authors concluded that the workshop, as a teaching technique, should be promoted in healthcare education. Grugnetti et al. (2014) applied Clinical Skills Workshops in order to train and to improve drug dosage calculation skills. In this study, nurses attended 30 hours of workshops over a two-week period. During that period, participants learned new innovative calculation techniques. Pre-test and post-test differences showed significant improvement in mathematical skills. Allcock (1992) implemented experiential workshops for developing assessment

skills, which is a very important part of the nursing process. Hutnik & Gregory (2008) utilized workshops in the interest of the development of cultural sensitivity of health-care professionals.

Born, Revelle and Pinto (2002) implemented the full experimental design in their research. They conducted a two-year experimental study, in order to explore the effects of peer-led workshop groups on the performance of undergraduate Biology students. In particular, they sought out the effects of workshops in student minority groups. They assumed that the workshop environment would encourage minority students towards interpersonal interaction, which would consequently lead to an improvement in Biology study performance. The results of their study confirmed this presumption.

In this study, we wanted to compare the quality, efficiency and effects of two teaching models at a vocational school: the model of an educational workshop and the traditional teaching model. The quality of our study is reflected in the fact that we utilized a control group in our design, and that we introduced follow-up measures after six months. In line with previous studies (Adcock, 1992; Grugnetti et al., 2014; Zhang et al., 2012), it was assumed that significant differences would be recorded in the quality, efficiency and effects of the educational process between the experimental and the control group. Specifically, we hypothesized that the experimental group would achieve a higher score in solving the knowledge and skills test immediately after the implementation of the programme, and after the six months' follow-up. Furthermore, we expected that the quality of the teaching time and the students' active participation would benefit most from the implementation of the workshop programme.

## **2 Method**

### *2.1 Participants*

The participants were students who attended the second year of the vocational medical school "7. April". All of them were enrolled in the Health Care – Theory course. The final sample consisted of 111 students: 56 of them were assigned to the experimental group and 55 were assigned to the control group.

### *2.2 Study Design*

We applied the  $2 \times 3$  mixed factorial design. The between-subject factor was the teaching model with two levels – the traditional teaching mode applied in the control group and the workshop mode applied in the experimental group. The within-subject factor was the time of testing. Namely, two groups were tested at three time points: before the intervention (baseline measurement), immediately after the intervention, and six months after the end of the programme. We recorded eight dependent variables: the level and quality of knowledge operationalized as a score (percentage) on the knowledge test; three components of the protocol for monitoring teaching – students' thinking activity defined as a score on the activity protocol checklist; pedagogical communica-

tion expressed as a score on the scale which evaluates didactic organization and class interaction; and individualization and differentiation of the educational process defined as a score on the scale which evaluates the individualization of teaching. Furthermore, the four components of the protocol for teaching time were also collected: communication and cooperation, rationality and organization, encouragement of students, and application of knowledge (all of them represented as a score on the subscale). The control variables were the overall school achievement expressed as an average mark from all the courses attended by the students, the mark in a particular subject defined as a number from one to five, where five denotes the highest mark, the attitude towards the course, and their opinion of the teacher.

### 2.3 Instruments

*The initial test* was designed to collect basic data about the participants (gender, year of schooling, class, general achievement, mark from a specific course) and to record the initial levels of knowledge relating to the educational units of diagnostics, which is part of the Health Care course. This test contained 16 questions and was rated on a six-point scale.

*Parallel forms of tests* were created to measure the level of student competence immediately after the intervention and six months after the intervention. Additionally, students evaluated teachers and the degree of satisfaction with the Health Care course in general.

Independent observers – pedagogical specialists – evaluated teaching time in the Health Care course in both the experimental and the control group. They observed the time according to an original protocol for monitoring teaching. This protocol evaluates four aspects of teaching time: communication and cooperation, rationality and organization, encouragement of students, and application of knowledge. The protocol contains 26 items; Table 1 presents an analysis of the reliability of the used scales expressed by Cronbach's alpha coefficient.

*Table 1.* Protocol for monitoring teaching time – Reliability of the used scales expressed by Cronbach's alpha coefficient

<i>Teaching time</i>	<i><math>\alpha</math></i>
Communication and cooperation (8)	0.81
Rationality and organization (7)	0.85
Encouragement of students (7)	0.78
Application of knowledge (4)	0.68

*Legend:* The number in brackets represents the number of items in each subscale.

The teachers also evaluated the course with the protocol for teaching. The protocol for teaching consists of 40 items, which we followed in order to measure students' thinking activities, pedagogical communication, and individualization and differentia-

tion of the teaching process. Table 2 presents data on the reliability of questionnaires for measuring mental activity, pedagogical communication, individualization and differentiation expressed by Cronbach's alpha coefficient. We have concluded that the reliability of the obtained data is satisfactory.

*Table 2.* Reliability of questionnaires for measuring mental activity, pedagogical communication, and individualization and differentiation expressed by Cronbach's alpha coefficient

<i>Mental activity</i>	<i><math>\alpha</math></i>
Thinking activity (32)	0.93
Pedagogical communication (38)	0.85
Individualization and differentiation (8)	0.67

*Legend:* The number in brackets represents the number of items in each subscale.

## 2.4 Statistical Analysis

The data collected were processed in the statistical software SPSS 11.5 for Windows. The data were analysed with the t-test, chi-squared test, and analysis of covariance for repeated measures.

## 2.5 Procedure

The survey was conducted during the 2013–2014 school year. Six teachers participated in the study; half of them utilized the traditional form of teaching, and half of them implemented the educational workshop in their course. The control group was educated in the traditional manner, where two lessons lasted 45 minutes each. In the experimental group, students were taught according to a special programme, which lasted 90 minutes.

In the workshop mode, the following teaching methods were applied: monologue, dialogue, modified lecture, plenary work, group work, and individual work. An overhead projector, a computer, whiteboard, multimedia presentation, and various workshop material were used as tools. The aim of the methodical unit was an *Introduction to Nursing Interventions in Laboratory Diagnostics* (Curriculum of Vocational Subjects of Secondary Vocational Education in the Field of Health and Social Welfare, 2015). It was expected that the students would acquire basic knowledge about the procedures in which the nurse and technician participate in laboratory diagnostics. Additionally, another expected outcome was the development of humanity and altruism as necessary values for healthcare professionals. In Table 3, an example of the methodical lesson structure in the workshop mode is presented, without the learning content.

*Table 3.* Example of the methodical lesson structure in the workshop mode in the experimental programme for the implementation of educational workshops in nursing teaching unit models

<i>Methodical lesson structure</i>		
<i>Time</i>	<i>Activity</i>	<i>Activity – short description</i>
20'	Introduction	Writing students' expectations, fears and previous experience on Post-Its; The teacher reads the students' answers and together they discuss their expectations, fears and previous experience;
	Defining a "Contract"	Creation of expected behaviour in a group and characteristics of group dynamics;
40'	Highlighting the goal of a lesson	The teacher introduces the students to the title of the methodical unit;
	Students' individual work	Writing students' first associations about the importance of the unit on Post-Its;
	Short discussion in plenum	The teacher summarizes the students' answers by developing a short discussion and concludes with the importance of the unit;
	Modified lecture	After the students' responses and the discussion, the teacher presents a part of the new lesson material;
	Cooperative learning in small groups	Cooperative learning of new group material;
30'	Working in plenum	Students present the results of group work. Each group has the right to create a presentation method;
	Discussion in plenum	The teacher summarizes the presented results of students' small group work and develops a generalization of the new knowledge;
	Student evaluation time – asking a question in plenum	Students anonymously write one question about the unit; The teacher reads them and together they search for answers;
	"Check-out" – giving feedback	"Outgoing message" – students write a message about how they felt and what they think about the lesson on paper and place it on the door.

### 3 Results

#### 3.1 Testing the Effects on Knowledge Adoption and Retention

At the beginning of our study, we tested the participants from the experimental and control groups on four aspects: initial knowledge test, overall school achievement, and participants' opinion on the Health Care course curriculum and their opinion of the teacher. Table 4 presents the average score, the t-test and its significance. It can be noticed that the experimental and control groups were matched for initial test achievement, the overall school achievement, and the score from the participant.

Since a statistically significant difference in the students' opinion on the course between groups was recorded (Table 4), this variable was statistically controlled in subsequent analyses (Table 6).

Table 4. Descriptive statistics of the control variables and the difference testing

	Group	N	M	t	df	P
Initial knowledge test	Control	56	54.57	0.344	109	0.73
	Experimental	55	53.43			
Overall achievement	Control	56	4.21	-0.99	109	0.32
	Experimental	55	4.33			
Opinion of the course	Control	56	8.93	2.44	109	0.016
	Experimental	55	8.45			
Opinion of the teacher	Control	56	8.48	0.34	109	0.73
	Experimental	55	8.40			
		N	M	$\chi^2$	df	P
Score from the participant	Control	56	4.68	4.28	3	0.23
	Experimental	55	4.62			

Legend: N – number of participants; M – mean; t – t-test; df – degrees of freedom; p – p value.

Table 5. Mean scores for knowledge tests at three measuring time points

	Group	N	M $\pm$ SD
Initial knowledge test	Control	56	54.57 $\pm$ 19.2
	Experimental	55	53.43 $\pm$ 15.5
Test 2 (immediately after intervention)	Control	56	55.95 $\pm$ 16.4
	Experimental	55	50.42 $\pm$ 15.5
Test 3 (six months' follow-up)	Control	56	70.53 $\pm$ 15.7
	Experimental	55	72.61 $\pm$ 16.3

Legend: N – number of participants; M – mean; SD – standard deviation.

Table 6. Multivariate effects of the group and opinion on achievement at the initial knowledge test, the test immediately after the completed programme, and the test six months after the conducted programme

	Wilks' $\lambda$	F-test	P-value
Measurement	0.95	2.78	0.06
Measurement x groups	0.96	2.01	0.29
Measurement x opinion on the subject	0.97	1.23	0.13

We tested the benefits of the applied workshop with the mixed ANOVA. We tested the differences between three measurements. In Table 5, the average scores on knowledge tests are presented. Contrary to our prediction, the control group achieved a higher score compared to students from the experimental group (a score higher by 5.53 points). Although the experimental group achieved better results in the follow-up, there was no significant difference between measures (Table 6). In Table 6, multivariate effects of the group and measurement, as well as their interaction are presented. None of the effects were significant. According to these results, we cannot confirm the benefits of educational workshops on knowledge adoption and retention.

### 3.2 Effects on the Teaching Process

In the second part of our study, we explored the effects of an educational workshop on the teaching process. Two independent pedagogical specialists recorded their answers in the protocol for monitoring the teaching process. Table 7 shows the average scores on the four components of the teaching process: communication and collaboration, rationality and organization, encouragement of students, correlation and application of knowledge. The independent t-test was applied; the values of tests and p-values are presented in Table 7. It can be noticed that significant differences between the experimental and control group were recorded for all measured components. For every component, the experimental group performed better compared to the control group.

*Table 7.* Protocol for monitoring teaching time – Differences between experimental and control group

<i>Component</i>	<i>Group</i>	<i>N</i>	<i>M±SD</i>	<i>t</i>	<i>df</i>	<i>P</i>
Communication and collaboration	Experimental	14	28.2±3.5	3.38	21	0.003
	Control	9	23.6±2.8			
Rationality and organization	Experimental	14	24.9±3.2	4.28	21	0.000
	Control	9	19.3±2.8			
Encouragement of students	Experimental	14	21.8±3.9	3.77	21	0.001
	Control	9	16.0±3.0			
Correlation and application of knowledge	Experimental	14	11.5±2.7	3.62	21	0.002
	Control	9	8.0±1.2			

*Legend:* N – number of participants; M – mean; t – t-test; df – degrees of freedom; p – p-value.

In the second protocol for monitoring teaching, we measured students' thinking activity, pedagogical communication, and individualization and differentiation of their activity. The results of the difference tests, as well as the average scores recorded in each group, are presented in Table 8. For all three components, the experimental group



showed an advantage compared to the control group. An independent t-test showed that these differences are statistically significant (Table 8).

*Table 8.* Protocol for monitoring teaching – Differences between experimental and control group

<i>Variable</i>	<i>Group</i>	<i>N</i>	<i>M</i> ± <i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Thinking activity	Experimental	14	57.4±10.0	3.49	21	0.002
	Control	9	43.4±8.2			
Pedagogical communication	Experimental	14	65.0±9.0	3.29	21	0.003
	Control	9	51.4±0.7			
Individualization and differentiation	Experimental	14	25.5±5.3	4.58	21	0.000
	Control	9	15.7±4.4			

*Legend:* N – number of participants; M – mean; t – t-test; df – degrees of freedom; p – p-value.

## 4 Discussion

In this study, we wanted to explore the effects of implementing an educational workshop in the Health Care course at a vocational medical school. We applied a corresponding group design study where we compared the effects of the educational workshop with the effects of the traditional teaching mode in the Health Care course.

Previous research on workshop implementation, as a teaching method in health care education, showed that the application of this teaching method is beneficial from several aspects (Allcock, 1992; Grugnetti et al., 2014; Hutnik & Gregory, 2008; Treisman, 1992; Zhang et al., 2012). In the present study, we investigated the implementation of a workshop as a teaching method for knowledge acquisition, and for teaching and student activity.

According to some of the previous studies in which the effects of workshops in the acquisition of specific skills were recorded (Grugnetti et al., 2014), we assumed that students from the experimental group would show a greater level of knowledge acquisition immediately after the intervention and in the follow-up testing. However, our results have not shown such an improvement. In conclusion, from the aspect of knowledge acquisition the workshop was as good as the traditional form of teaching. Furthermore, similar results were recorded six months after the intervention. The reason why there were no dissimilarities could lie in the fact that students talk about the new method of teaching, and that the control group were extra motivated to show good results on their final test.

The second part of this study examined the teaching process as well as students' activity during the workshop and during the traditional lessons. Two independent pedagogical specialists observed the lessons and recorded their answers as part of the pro-

protocol for monitoring teaching and student activity. One protocol measured four aspects of teaching activity: communication and collaboration, rationality and organization, encouragement of students' activity, and application of knowledge. Significant differences were noted in all of these aspects. It was noted that in the experimental group the majority of the students were creative and acquainted with their independent work (talking, writing, illustrating, exploring, discovering, solving, concluding, etc.). Teachers who led the workshops stimulated thinking activity. They did not raise rhetorical questions nor present the facts or an opinion on the content or the procedure. Furthermore, the evaluation of the didactic organization and social interaction showed that, at the time of experimental teaching, a tense emotional atmosphere had not been achieved, that various forms and didactic ideas were used over time, and that the teacher did not structure or limit the situation.

Differences between the experimental and the control group were recorded in the analyses of the second protocol, which was created for monitoring students' activity: thinking activity, pedagogical communication, and individualization and differentiation. In all of these aspects, students who attended the workshop lessons were better than the students who took part in the traditional forms of teaching. The teacher in the experimental group encouraged students to ask and discuss, gave examples that were interesting and related to the students' experience, stimulated a search for a solution through group interaction, devoted attention to students who were less motivated, determined the work in accordance with the students' abilities, and adjusted the programmes according to the students' interests. The teacher encouraged students to express their opinions and observations, encouraged the use of knowledge and skills in other fields, used all available teaching materials, and applied different forms, methods and techniques. Also, the teacher told students to do research work, used the space and environment in accordance with the content, encouraged solidarity and responsibility in group work, and encouraged students to apply the learned content in nursing practice. Although the workshops were not beneficial to the cognitive aspect of the teaching process, they influenced pedagogical communication as a crucial part of the teaching process (Assilkhanova et al., 2014) and an essential link for learning.

The results of our study are partly in accordance with our preliminary assumptions. Even though we did not confirm the workshop's effects on knowledge acquisition when compared to the traditional mode of teaching, we clarified the significant contribution of the workshop implementation from several aspects. Firstly, we confirmed improved pedagogical communication through the social interaction during the lesson. Furthermore, the workshop lessons provided better individual support to each student with a more individualized educational process in the field of formal higher education. Finally, in relation to the learning process, we observed greater students' activity, motivated interaction in the classroom, and a higher quality of pedagogical organization and collaboration.

To sum up, the present study has demonstrated the need to build a pedagogy of learning – a pedagogy that will enable learners to learn. Our study showed that the implementation of an educational workshop as a method of interactive learning in formal secondary education develops pedagogical communication, which is essential for the learning process. The evaluation of educational workshops should be encouraged, not

only for this educational profile and subject – it could act as a platform for higher quality formal methodical studies.

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## **Vpliv učnih delavnic na pouk in učenje**

*V raziskavi, ki jo predstavljamo, smo proučevali učinke uporabe učne delavnice v okviru predmeta zdravstvena nega na srednji zdravstveni šoli. Uporabili smo model raziskovanja paralelnih skupin, v okviru katerega smo primerjali učinke učne delavnice z učinki tradicionalnega načina poučevanja. Zanimale so nas predvsem taksonomske stopnje znanja, ki so jih učenci usvojili, stopnje miselnih aktivnosti, nivo pedagoške komunikacije in možnosti individualiziranega in diferenciranega dela. Ugotovili smo, da didaktično organizirane učne delavnice omogočajo povečano miselno aktivnost učencev, kakovostnejšo učno interakcijo, boljšo didaktično izrabo učnega časa in večjo stopnjo sodelovanja učencev. Rezultati kažejo, da so rezultati v skladu z našimi predhodnimi teoretičnimi raziskavami in predstavljajo dobro osnovo za nadaljnja tovrstna raziskovanja.*

*Nekatere predhodne študije so nakazovale pomembnost učnih delavnic kot način učenja in poučevanja v zdravstvenem izobraževanju. Učne delavnice so bile opažene kot metodično-didaktične rešitve, ki omogočajo interaktivno, procesno in na učence osredotočeno poučevanje. Proces učenja je v okviru interaktivnega učenja usmerjen na razvijanje spretnosti in krepitev občutljivosti na specifične probleme. Učne delavnice so oblikovane po modelu iskustvenega učenja, ki se osredotoča na proces in pridobivanje spretnosti v večji meri kot na pridobivanje znanja.*

*V okviru teoretičnega dela raziskave smo opredelili osnovne koncepte raziskovanja s filozofskim ozadjem s poudarkom na praktičnih tendencah raziskovanja v učnem procesu. Teoretični okvir vključuje teorije konstruktivističnih razsežnosti interaktivnega učnega procesa, koncept razvojnega pristopa pri delu z učenci, teorije interaktivnega učenja in pouka, modeliranje oblik učnih delavnic in tudi metode spremljanja in vrednotenja kakovosti učnega procesa.*

*Za preverjanje hipotez smo uporabili deskriptivno metodo in izvedli raziskavo s paralelnimi skupinami. Uporabili smo naslednje raziskovalne tehnike: analizo podatkov, intervju, anketiranje in načrtovano opazovanje učnih ur v eksperimentalni in kontrolni skupini. Podatke smo zbrali s testi znanja, vprašalniki, s pomočjo lestvic stališč za učence in učitelje ter s pomočjo protokolov za spremljanje in ocenjevanje pouka. Uporabili smo deskriptivno statistiko, t-test, HI-kvadrat test in analizo kovariance.*

*Glede na nekatere predhodne raziskave, v katerih so bili zaznani učinki učnih delavnic pri pridobivanju specifičnih spretnosti, smo sklepali, da bodo učenci iz eksperimentalne skupine dosegli višji taksonomski nivo usvojenega znanja takoj po izvedbi in v okviru ponovljenega testiranja. Vendar pa rezultati niso pokazali takega izboljšanja. Ugotovili smo, da so učenci v okviru učne delavnice pridobili oz. usvojili približno enako znanje kot v okviru tradicionalnih didaktičnih pristopov. Podobni so bili tudi rezultati vrednotenja po šestih mesecih. S pomočjo racionalnega pristopa smo poskušali dobiti*

ustrezen odgovor. Menimo, da se ustrezne statistično pomembne razlike niso pojavile, ker so učenci o eksperimentu in novem didaktičnem pristopu razpravljali in da je bila kontrolna skupina dodatno motivirana za doseganje dobrih rezultatov na zaključnem preverjanju učne snovi.

Drugi del te študije govori o učnem procesu in dejavnostih učencev med učnim procesom, torej med izvajanjem učne delavnice in med tradicionalnimi didaktičnimi pristopi. Dva neodvisna pedagoška strokovnjaka sta opazovala pouk in zapisovala odzive učencev, kar je del protokola za spremljanje pouka in aktivnosti učencev. Prvi protokol je meril štiri vidike učne dejavnosti: komunikacijo in sodelovanje, racionalnost in organiziranost, spodbude za aktivnost učencev in oblike povezovanje znanja. Pri vseh teh vidikih so bile opažene pomembne razlike. Opaženo je bilo, da je bila v eksperimentalni skupini večina učencev ustvarjalna in seznanjena s svojim samostojnim delom. Učitelji, ki so vodili delavnice, so spodbujali miselno aktivnost. Poleg tega je ocena didaktične organizacije in socialne interakcije pokazala, da med eksperimentalnim učenjem ni bilo doseženo napeto čustveno vzdušje in da so bili uporabljeni različni didaktični postopki in učne oblike. Učitelj ni natančno strukturiral učnega procesa in ni omejeval možnosti različnih učnih situacij pri učnih urah.

Razlike med eksperimentalno in kontrolno skupino so bile zabeležene v analizah drugega protokola, ki je bil pripravljen za spremljanje miselne aktivnosti učencev, pedagoške komunikacije, individualizacije in diferenciacije učnega procesa. Na teh področjih so bili dijaki, ki so se udeležili učnih delavnic, boljše od učencev, ki so pridobivali znanje v okviru tradicionalnih oblik poučevanja in učenja. Učitelj eksperimentalne skupine je učence spodbujal, da postavljajo vprašanja in se vključujejo v razpravo, navajal je primere, ki so bili zanimivi in so povezani z izkušnjami učencev, spodbujal je iskanje rešitev s skupinsko interakcijo, pozoren je bil na učence, ki so bili manj motivirani, svoje delo je prilagajal sposobnostim učencev in učno snov interesom učencev. Učence je spodbujal, da izražajo svoja mnenja in ugotovitve, spodbujal je uporabo znanja in spretnosti na drugih področjih, pri čemer je uporabil vsa razpoložljiva učna gradiva in različne didaktične strategije, oblike, metode in tehnike učenja. Prav tako je učitelj učence spodbujal k raziskovalnemu delu, uporabljal prostor in okolje skladno z vsebino, spodbujal solidarnost in odgovornost pri skupinskem delu ter učence spodbujal k uporabi naučenih vsebin v strokovni praksi.

Rezultati statistične analize vpliva učnih delavnic na kakovost, stopnjo pridobljenega znanja, kognitivno aktivnost učencev, pedagoško sporazumevanje ter proces individualizacije in diferenciacije v poučevanju so se pokazali kot odločilni na podlagi treh od petih opredeljenih raziskovalnih spremenljivk. To nas pripelje do zaključka, da med temi spremenljivkami obstaja vzročna zveza. Raziskava je pokazala, da so učne delavnice kot metodološki model poučevanja strokovnih predmetov omogočile boljšo interaktivno izobraževalno komunikacijo. Če učitelj ustvari ustrezno interaktivno didaktično podporo, postanejo učenci bolj aktivni in ustvarjalni dejavniki v učnem procesu. Poleg tega smo ugotovili, da so v okviru učnih delavnic v večji meri upoštevana načela individualizacije in diferenciacije učnega procesa. Vendar pa podatki kažejo, da med pridobljenim znanjem med eksperimentalno in kontrolno skupino ne obstajajo statistično pomembne razlike.

Analiza rezultatov raziskave je pokazala, da uporaba učnih delavnic kot metode interaktivnega učenja v formalnem srednješolskem izobraževanju večinoma razvija iz-

obraževalno komunikacijo. Komunikacija je bistvenega pomena za učni proces. Poučevanje vedno predpostavlja učenje in je funkcija učenja. Poučevanje obstaja zaradi učenja. Po drugi strani pa si učiteljeve dejavnosti ni mogoče predstavljati brez ustreznih dejavnosti učencev. To pomeni, da se od učencev pričakuje intenzivno intelektualno delo, iskanje in odkrivanje novih rešitev, skratka ustvarjalen pristop. Vsekakor bi se morale izobraževalne institucije oz. učitelji v večji meri osredotočiti na procese pridobivanja znanja in ne toliko na same rezultate. Učence je treba v večji meri usposobiti, da iščejo in razvijejo lastne poti, algoritme do odgovorov in rešitev problema, ne pa da se rešitve samo naučijo. Vztrajanje pri zahtevi samostojnega iskanja odgovorov in rešitev prispeva k razvoju kognitivnih sposobnosti in ustvarjalnih potencialov, kar so temelji hevrističnega učnega pristopa. Nehevristični pristop od učenca zahteva izključno dober spomin. Iz vsega povedanega seveda ni mogoče sklepati, da sta proces in rezultat ločeni in medsebojno neodvisni kategoriji, pač pa da se v celovitem učnem proces dopolnjujeta in sta v komplementarnem odnosu.

Učne delavnice kot didaktičen fenomen so primerna oblika dela na vseh stopnjah šolskega sistema, od predšolskih ustanov do visokošolskih institucij. Zagotovo predstavljajo platformo za oblikovanje in razvijanje novih specialno-didaktičnih pristopov, ki bodo bolj osredotočeni na učenca in sam učni proces.

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