

STUDENT SELF-EVALUATION OF SEMINAR ACTIVITIES

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Abstract

This study is focused on the curricular innovations of methodological subjects for acquiring of teachers competences at undergraduate education where students as prospective chemistry teachers serve as a goal group. The redesign of seminar as an essential curricular form is based on consistent consideration of topical didactic principles. Research into the optimal performance of seminar work focuses particularly on their organisation, methodology and evaluation. These three model parameters serve to implement student seminar activities in accordance with Bologna teachers competences. Using the descriptive empirical method for students self-evaluation of seminar work defined in methodological subject module of three subjects (Didactics of Chemistry, Experiments and Natural Activities-Mentorship) some efforts in bettering the competence mastery over.

Key words: *teaching skills and competences; Student autonomy; Didactic principles (activity, democracy, graduated process learning, seminar).*

Introduction

Implementing the curricular aims of the methodological module, consists of Didactics of Chemistry, Experiments and Natural Activities-Mentorships (hereafter abbreviated as DCEM), is carried out by the application of generic competences (Tuning project 2000-2004, Key Competences) from the pedagogical-psychological-didactic subject module¹ is the areas of knowledge and acquisition as well as key subject-specific competences (Sikosek, 2008). The standard determination of acquired professional target competences is defined in the program under the didactic parameter "Students obligations". The seminar represents a significant curricular form for our realisation of the above mentioned DCEM module. Students involved in peer-presentations elaborate several topical themes, after which colleagues-discussants can compare or apply the presenter's ideas to their own specific situations (Tiberius, 1999). Both vital parts of seminar's activities, i.e. peer-presentations and colleague discussions, offer to students a real opportunity for developing their skills in communicating scientific information and exercising it, and strengthen their problem-solving abilities (Challen and Brazdil, 1996).

Another important aspect of seminar's activities is to develop some generic competences, characterized also for teaching (Sikosek, 2008). One stressed characteristic of our seminar's activities presents the so called key work functions of seminar groups (Sikosek, 2008).

An effective training in performing various sociological forms from peer to various forms of group work is intended for systematic introducing of students into rational organisation of group-based seminar's work. Priority is given to individualized group-based work which we have been developing for some years past. This form of most effective group work could be

¹ As equal component is the syllabus of any pedagogical program carried out at former Faculty of Education, University of Maribor, is the pedagogical-psychological-didactic subject module (Pedagogy, Psychology and Didactics).

placed into collaborative group-based work (Coppola, 1996). For collaborative learning tradition (Coppola, 1996) we can point out the following attributes: (1) a great deal of self-governance and accountability by individuals; (2) use of facilitators; (3) evaluation of individual contributions.

In order to monitor the efficiency and quality improvement of executed seminar's activities we make use of the feedback provided by students as seminar-participants², communicated to teacher-trainer who ensures the collection of continuous feedback, which takes place at the end of the seminar programs of individual DCEM subjects. In order to correct our organisational model of seminar's work we have identified the consideration of didactic principles as an evaluation aspect.

This research is focused on the curricular innovations for acquiring of teachers competences at undergraduate education. The redesign of seminar as an essential curricular form is based on consistent consideration of topical didactic principles. Research would like to point out that the optimal performance of seminar work must be focused particularly on their organisation, methodology and evaluation.

Methodology of Research

The descriptive empirical method is used by students for self-evaluation of the quality of seminar tasks defined in a DCEM subject module. The DCE questionnaires consist of 14 questions, distributed over five sections, with the following key words: (1) aims, (2) content in terms of students expectations and vocational needs, then evaluation of (3) methods and group work from organisational in social points of view, (4) internal organisation of group work as well as (5) evaluation of innovative elements of the seminar work organisation. Students take the following functional roles with innovative elements: researchers task holders, coordinators, evaluators and recorders. One of the questions deals with the teacher-trainer's role in the articulation of seminar tasks and preparation of students' reports. The evaluation of presentations is one the narrower points of evaluation, but some questions also refer to a general evaluation of seminar work in terms of students' vocational needs (such as achievements, deficiencies, improvements, suggestions or ideas). A notable element of this evaluation is the student's learning experience in a variety of fields of teaching activities well as his/her autonomy.

The Sample of Students Polled

Students' self-evaluation of quality during seminar activities produces a real continuity in my strategy for teacher education. Among the feedback providers are students from all current academic year generations. As an illustration, some evaluation summaries were gathered during the study process from two student generations who finished the seminar for the subjects "Didactics of Chemistry" and "Experiments" in the academic year 2003/04:

The sample from the selected generation regarding to the quality of seminar activities consisted of 22 students respondents to the questionnaire, which comprised of five answer's items with the following key methodological parameters and their explanatory points (in brackets): (1) goals (students' expectations/vocational concerns); (2) content (theme suggestions in connection with such goals expectations as above); (3) teaching methods and organisational forms (evaluation includes both the social and organisational points of view); (4) organisation of group activities; (5) evaluation elements a-h: (a) *functional roles* (topic's holders, coordinators, evaluators, recorders), (b) *teacher-trainer's role* (content conception), (c) *time frame*, (d) *product presentations* (evaluation of student's individual presentations), (e) *experience* (pedagogical work), (f) *individual student autonomy*, (g) *design of research report* (authors, seminar outline, suggestions for improvement); (h) *evaluation of seminar work from the point the perspective of future professional activities* (achievements, deficiencies, improvements, propositions or ideas).

² In this case the word "seminar participant" is a student-teacher, who is included in the seminar work.

Analysis and processing of feedback information (evaluation opinions)

Processing of statistical feedback data from the “seminar” questionnaire was done using the Excel programme and is presented in frequency tables as well as graphically and (or) descriptively. For illustration, some questionnaire answers are presented graphically and (or) descriptively (only characteristic answers). Briefly are the results of this research presented in my previous paper (Sikosek et al., 2004).

Evaluation of Seminar Work

What does feedback from the seminar participants tell us?

Tables 1-5 show the respondent’s feedback (characteristic answers and/or bar graph) presented in one question example, composed from items a -e.

Table 1. Item a: Evaluation of functional roles

Question: What are the advantages and disadvantages of the functional role you have been learning through performing seminar work for the subject Experiments?

Advantages	(Dis)advantages
Seminar participant’s role: The task owner	
<ul style="list-style-type: none"> ① to acquire knowledge/new cognition ② to gain new experience ③ to take responsibility in cooperation with other designated students ④ to practice work organization and working teams ⑤ to experience the satisfaction of work successfully completed ⑥ to learn to select and take over work that is done perfectly 	<ul style="list-style-type: none"> a) lack of individual responsibility, tasks incomplete from certain task owners b) reliance on other group members, disagreement between task owners c) dependence on coordinator d) problem of unequal individual work divisions e) large extent on individual work f) if the organizer is poorly organized, the task owners also feel confused g) lack of a holistic perspective
Seminar participant’s role: Coordinator	
<ul style="list-style-type: none"> ① to gain organizational experience / competences (leading the group, managerial experience) ② to learn activity planning (e.g. equal division of work among task owners) ③ to get an overview of groupwork ④ to learn guide and shape a group 	<ul style="list-style-type: none"> a) problems attitude among task owners b) too little time c) too much responsibility (even for the work of other members of the team) d) extensive work with computer (final preparation of research report) e) great pressure and volume of work f) physical and mental overload
Seminar participant’s role: Evaluator	
<ul style="list-style-type: none"> ① to gain organizational experience ② to learn the necessary objective stance ③ to use intelligence in new situations ④ to take primary responsibility for one’s own work 	<ul style="list-style-type: none"> a) be fear and just b) to experience the effort of presenting feedback c) to avoid subjectivity in evaluation

Seminar participant's role: Student record-keeper	
<ul style="list-style-type: none"> ⑤ to experience organizing team leadership ⑥ to introduce the creation and completion of documenting various formats 	<ul style="list-style-type: none"> a) to be always available b) passive participation in preparing content of a task c) time consuming task of specific written record keeping d) necessity of diligence, since as documentation quality is proportional with time spent at the computer

Table 2. Item b: Evaluation of seminar experience

Question: Enumerate those acquired experiences from seminar work that you consider as an investment for your teaching career!

10 Experiences/ acquisitions
<ul style="list-style-type: none"> ① each complex has contributed something (new cognition, renovation of syllabuses, recording and handling of the experiment, using micro-experimental materials, etc.); ② topic itself (to be occupied with local and international literature on the subject); ③ group-work used in teaching; ④ various information source activities (searching for information, forming extracts, documentation, etc.); ⑤ rhetorical skills, public speaking, discussion, evaluation training; ⑥ organizational skills (planning, leading, moderating); ⑦ introduction to research work; ⑧ increase in tolerance, diminution of self-consciousness sense of, responsibility; ⑨ improvement academic writing skills virtues/competences (e.g. composition of research report); ⑩ consolidation of language mastery, English and German terminology.

Table 3. Item c: Evaluation of seminar participants' autonomy

Question: How is individual autonomy advanced through seminar work?

Experiences/ Achievements
<ul style="list-style-type: none"> ① comprehension of autonomy depends on individual interests; ② coordinator's guidelines were considered by students as individual; ③ each seminar participant can give his/her own opinion and suggestions.

Table 4. Item d: Evaluation and presentation of the seminar outcomes

Question: How would you evaluate the presentation of "seminar outcomes?" (Provide supporting evidence in your answer)

<table border="1"> <caption>Data for Table 4 Bar Chart</caption> <thead> <tr> <th>Category</th> <th>No. Students</th> </tr> </thead> <tbody> <tr> <td>suitable</td> <td>20</td> </tr> <tr> <td>UNsuitable</td> <td>3</td> </tr> </tbody> </table>	Category	No. Students	suitable	20	UNsuitable	3	Evidence of suitability
	Category	No. Students					
	suitable	20					
	UNsuitable	3					
The outcomes are great working results.							
The outcomes are an indispensable component of the quality of an author's overall presentation.							
Evidence of UN -suitability							
The author's rhetorical skill can cancel lower quality of the outcomes.							
The time limit for the presentation should be more specific, relative to the nature of the task / outcome.							

Table 5. Item e: Evaluation – potential improvements

Question: What are your suggestions for improving the concept of seminar work?

My ideas, suggestions, opinions
<ul style="list-style-type: none"> ① to foster a better atmosphere (relaxed, pleasant); ② scheduling of seminar work at the beginning of the week (Friday exhaustion); ③ workshops should be carried out before the start of June, because the students are not able to attend the exams; ④ punctuality in reporting (time constraints); ⑤ better organization (different seminar days for DC, E; internal organization of work/item group); ⑥ too much work on workshop item groups in comparison with NON-workshop; ⑦ group work without a computer is a waste of time; ⑧ motivation during the seminar; ⑨ feedback (simultaneous and holistic); ⑩ too little time devoted to seminar work.

Can we interpret the analytical findings in terms of viewing functional roles as an opportunity to acquire teacher competences?

Self-evaluation of the functional roles that were performed by students in these seminars is presented in items' statements a-e above. Several of the advantages (for example, a), that were mentioned within certain roles, can be recognized as generic (autonomy, (self)criticism, (self)reflection, (self)evaluation; organizational and leadership abilities), as well as subject-specific competences (especially the ability to organize, coordinate-moderate, evaluate and produce documentation). Each of these competences also includes the rest of the subject-specific competences, e.g. the ability to self-evaluate completed work, the ability to promote one's own achievements and the ability to articulate topical didactic material (lesson plans, scientific reports, posters/other presentations) while making active use of chemistry learning methods/groupings.

Any seminar's activity performed by our organisational model can be seen as an opportunity for training of self-regulatory competences (Perels et al., 2005). According to Zimmermann (in Perels et al, 2000, p. 124) "self-regulation refers to self-generated thoughts, feelings and actions that are planned and cyclically adapted to the attainment of personal goals." During the realisation of particular phases of functional roles some self-regulatory components come in sight (e.g. ability to motivate oneself).

The self-evaluation statements presented in Item b (table 2) deal with the seminar participants' experiences as an investment in their teaching needs for the near future. These achievements, apart from teacher competences are generic as well as subject-specific in nature, that is the above mentioned ability to articulate topical didactic material and the ability to use a variety of literature in the field of Chemistry education. There are also other assumptions, such as introducing the seminar students to approaches involving autonomy, (self)criticism, (self)reflection and (self)evaluation as significant components of a teacher's character. A convincing evaluation from one respondent is worded as follows: "I believe the foundation is solid, but what house will be built on this foundation depends on me and my further work."

The statements from Item c (table 3) confirm the seminar students' positive opinions about encouragements to acquire competence in autonomy. According to the students' opinion, the presentation of seminar work outcomes (Item d) represents an opportunity to promote one's own achievements, which is one of the subject-specific competences (table 4).

Based on the participants' suggestions for improvements from Item e (table 5), we can be warned against having a disproportionate amount of time for individual seminar projects. The performers of two publicly realized seminar projects ("Holiday workshop on molecular dwarves" and "How the curricular aims from kindergarten through the 3 levels of elementary to the programs

of secondary vocational education can be realised by active learning?) were more time engaged in comparison with the less complex activities that were carried out internally.

But what comes as a surprise is the need for continuous (external) motivation while performing seminar work, which certainly indicates an insufficiency in the type of internal motivation that should be encouraged by the achievement of various competence goals. The seminar participants-main researchers also mention the giving and receiving of simultaneous as well as overall feedback from Item e (table 5), even though consultations of the coordinators with the teacher-trainer (including simultaneous evaluation of completed activities) take place continuously. Those responsible for individual tasks take part in feedback sessions immediately following the presentations. But the overall feedback, including presentations and scientific report is done after the end of the seminar as a final evaluation.

Conclusion

Teacher's beginning qualification needed for teaching can be explained as the competences developed during under-graduated study. Seminar is according to definition a such methodical curricular form where students make the presentations for various topics which then are followed by discussions and questions (Tiberius, 1999). Performing these activities brings to the students ideal opportunity for developing various pedagogical competences from knowledge to methodical as well as social skills.

Considering the Generic Competences (Tuning project 2000-2004, Key Competences) we can set out especially the following four abilities: (1) interdisciplinary team working, (2) organizing and planning (time managing, self-preparing, self- controlling of plans carrying out), (3) critical and self-critical approach as well as self-reflection ; (4) oral and written communication. During a seminar program, the students are in charge of various functional roles, through which they acquire these generic as well as chemical competences. Performing various seminar task concerns a professional community. It involves by Mulford (2006) shared norms and values including valuing differences and diversity for all that collaboration and critical dialogue are outstanding competences.

Successful acquiring of teacher's competences through various seminar's roles provides clear evidence of the realization of the principle of activity and differentiation with individualization. Of course, the established content consensus of offered (by teacher-trainer) and expected (by students) in seminar programme gives proof of performing not only the principle of suitability regarding to professional needs but also a principle of content's exemplification. Indeed, consideration of democracy and autonomy principles might be especially stressed for a knowledge society in which our teachers take an active part what is clearly seen from our organizational model of seminar work, based on performing of topical functional roles. Without a democracy isn't an autonomy!

Enough persuasive example of democratic principle is evaluation of seminar work: students-evaluators as colleague evaluators assess presentations and expert's detailed reports while assessment of performing of functional roles is an example of combination of colleague- and expert's (teacher's) evaluation. Evaluation of organizer's and coordinator's knowledge and skills is implemented by colleague while assessment of student evaluator's and student record-keeper's competences is admitted to teacher-trainer.

The findings experienced by our students as performers of seminar's activities also confirm the following two characteristics valid for all group-based work, namely : (1) developing important higher order interpersonal and group skills; (2) promoting the development of self-learning skills so that students can occupy themselves with new information (Coppola, 1996).



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