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Animation of science culture – evaluation of courses and analysis of students' attitudes

Introduction

The purpose of popularization of science is to communicate research results to the members of the knowledge-based society, search for pedagogical forms to adapt the language of art to scientific issues, inspire teachers to expand their professional, pedagogical and cultural competencies. It recognizes the important role of science in culture and public discourse, and the connections between culture, civilization, science, technology and art based on proper communication lead to a change in the perception of science. Scientific culture doesn't entirely focus on knowledge, but also on the thinking, reflection and effective operation of the mind in terms of asking questions about how the world works. Therefore, it is important that the cultural animator could transform the public imaginations by triggering inside them a self-reliant construction of thought-out scientific knowledge (Raichvarg et al., 2015). Popularizing knowledge needs to be conducted in a proper manner and should be based on communication, creative dialogue, and built connections between science and society. The task of the animator is to identify and promote the claim that book expertise in a particular field of science may be available not only to researchers, but also to every member of society. It is important to determine the content of the message, logical argumentation and be aware that substantive competences are accompanied by social competences such as: creativity, communication, interpersonal skills, organizational skills, educational skills, managing creative development of one's own and others (Potyrała, 2011).

Comparison of attractive form of scientific information is essential if we want it to reach out to the recipient. These should be exciting and motivating that the audience would want to give up the time to get to know them. Interesting form of statement is culture animator responsibility – animator should know and adapt to the type of audience with whom he has to deal with. He should use his experience of informal education to get to know the attitudes of the recipients of animation activities, embrace modern information and communication technologies, as well as be aware of the need to pay attention to both the global and local character of various kinds of phenomena and processes (Carton, Daragon, 2013).

The purposes of the courses 'Interactions and communication platforms', 'Science and society', 'Bases of public debate'

All of the analyzed courses realized in the frame of 'Animation of the scientific culture' specialization had a strictly defined educational purposes. The list of objectives included table 1.

Tab. 1. The list of educational objectives of the courses 'Interactions and communication platforms', 'Science and society', 'Bases of public debate'

Subject	Objectives
'Interactions and communication platforms'	conscious use of communication competencies in the social, scientific and natural aspects
	engage communication behaviors important in interpersonal relations in various kinds of didactical and social situations and school and outside school environments
	negotiation of scientific and popular scientific knowledge on various communication platforms
	characterization of history of development interpersonal communication in different grounds of social and cultural contacts, as well as the ways of popularization of knowledge through communication platforms
'Science and society'	characterization of social and philosophical issues of development of science and transformation of societies
	popularization of scientific knowledge in society under the current state of scientific knowledge and in a interdisciplinary and creative way
	analysis of relations between science and society in the context of mediation of natural conflicts and popularization of knowledge
	making individual and social activities towards promotion of science in formal and informal education
	acquiring social competencies serving to salvation of socio-natural culture issues as well as critical reception of information about scientific discoveries and using them for the public good
	evaluation of methods and area of popularization scientific knowledge in selected journals, books, TV programs, internet portals, etc.
'Bases of public debate'	characterization of models and ways of popularization of knowledge based on scientific debate, interpersonal and social communication
	enhance the didactical culture of students who will follow a profession based on social communication in the future
	preparing students to conduct properly in terms of scientific and cultural scientific debate which is a way to solve environmental conflicts
	perfecting public speaking
	promotion of cultural and social activity in natural aspect

Contents executed within courses 'Interactions and communication platforms', 'Science and society', 'Bases of public debate'

Courses were realized in conversational form of lectures and classes. A detailed list of topics discussed within each course is presented in the Table 2.

Tab. 2. The list of the subjects realized during 'Interactions and communication platforms', 'Science and society', 'Bases of public debate' courses

Subject	Objectives
'Interactions and communication platforms'	Models and ways of communication and mediation of contemporary civilization problems (natural, social, cultural, scientific). History of development of interpersonal communication. Closing the distance between people through the development of forms of transport. Development of media. The need to create a global time. Traveling as a way of ‚dwindling the world' and the way of exchanging information. Development of oral communication and handwriting. Transfer of information from Antiquity to ‚liquid modernity'. Mass communication. Socioscientific communication. Interactions of communication scientific, cultural, natural, social problems. The meaning of communication platforms in mediation natural and social problems. The meaning of new technologies in social communication. Platforms of communication of natural and cultural issues in the area of media and new media. Communicating ‚myself' and ‚about myself' through the media. Global society. Immediacy civilization. Visual civilization. Popular culture as a platform for interpersonal communication. 'Culture of risk' as a form and effect of media communication. Marketing strategies advertisers in a consumer society.
'Science and society'	History of development and popularization of science; theories of development of society. Civilization challenges vs paradigms of education and the need of permanent education. Knowledge essential for members of knowledge-based society. Interdisciplinary of science. The ways of facilitating new scientific knowledge in the face of hyper-reality. Problems of contemporary formal and non-formal education in the framework of lagging behing the development of science and social needs. Qualifications and competencies necessary for people in the 21st century to embark on scientific conflict mediation. Critical/righteous transmission and reception of information on scientific and technological discoveries in terms of social relations and contact with nature. Access to knowledge on a global scale, the issue of ethical research, use of scientific achievements for the public good. Promoting contemporary, holistic science in the framework of sustainable development of societies. Information and knowledge.

'Bases of public debate'	Types, objectives, functions and language of debate. The ways of communication and social mediation. Basic communications models and strategies. Effectiveness of communication. Communication competencies. Spaces of existence of scientific debate and its participants. The rules of scientific debate vs social expectations towards its forms and quality. Animation of culture as a form of activities facilitates society participation in promotion of nature and culture of a specific region. Public debate vs changes in the media and visuality of contemporary culture. The development of research on communication and media interaction to popularize science. The participants of communication - actors, media, society - their position and relations between them; theoretical models and case studies. Debates devoted to issues and events which become the themes of public and environmental discussions. Interpersonal and group communication. Conflict as a source of the processing of the objectives; identifying barriers in communication and use of appropriate methods to overcome them on the basis of specific situations.

Students' attitudes towards the courses 'Interactions and communication plat-forms', 'Science and society', 'Bases of public debate' (results of the evaluation survey; substantive assessment of the classes)

Students who participated in detailed courses of the specialization expressed their opinions of the scope of knowledge and skills they acquired during different classes. The results of students' opinions are included in table 3.

Tab. 3. Students' answers about acquisition of knowledge and skills connected with evaluation of the classes realized during 'Interactions and communication platforms', 'Science and society', 'Bases of public debate' courses

	'Interactions and communication platforms'	'Science and society'	'Bases of public debate'
The number of students who filled the survey	14	25	13
I gained new knowledge and skills	10 students 72%	14 students 56%	7 students 55%
New knowledge and skills will help me during realization of other 'Animation of scientific' courses	6 students 43%	15 students 60%	9 students 69%
New knowledge and skills increase my competitiveness on the labor market	2 students 14%	7 students 28%	6 students 46%
I know only basics; I expected more advanced level	-	3 students 12%	-
I learnt nothing new; I knew everything earlier	2 students 14%	2 students 8%	1 student 7%
These classes motivated me to further learn/development	-	4 students 16%	3 students 23%

Evaluation of 'Interactions and communication platforms' course shown that 72% of students of students perceived the increase of their knowledge and competencies, 43% used them during another courses of 'Animation of scientific culture', 14% claimed that new knowledge and skills increase their competitiveness on the labor market. In turn 4% (2 students) did not learn anything new because they knew everything earlier (before the start of this courses).

During the evaluation of 'Science and society' course, 56% of students admitted that the field of qualifications related to a culture animator occupation extended gradually with participation in the different courses of specialization, moreover the knowledge and skills gained during this course will help them to realize next courses of this specialization. Additionality, 16% of students admitted that the classes motivated them to further learning and development, and 28% of them predict that the new knowledge and skills will increase their competitiveness when they will be looking for a job. A small number of students claimed that they did not learn anything new because they had knew everything earlier (8% of students) or learned the basic knowledge only and they expected a more advanced level of this classes (12% of students). Some of the students had suggestions that some of the courses should be expanding on subjects such as: psychological conditions, verbal and non-verbal communication, body language.

Due to 'Bases of public debate' course, 55% of students gained new knowledge and skills, 69% of them used it during realization of other classes of the specialization, and 46% claimed that new knowledge will help them during looking for a job in the future. Only 1 student learned nothing during the course. Students also expressed their opinions/remarks about 'Bases of public debate' classes, for example: "Subject area of this course is more interesting than earlier/another courses – I think it will be good to increase the number of hours of this classes"; "During this classes I had the opportunity to participate in discussions about very important social issues. I think this form of classes was very congruous"; "In every debate/discussion I overcame my fear connected with public appearance".

After completing the **'Interactions and communication platforms'** course 14 survey questionnaires were analyzed. More than half of students (79%) considered that scope of the contents of this classes met their expectations to a good and very good degree, and 58% of students made a judgment that scope of contents of this course is generally useful for the area of specialization subject. Most students admitted that teaching methods used during course met their expectations (29% evaluated it as good and 43% as very good). The organization of classes was evaluated as good by 50% of students and only one student deemed it bad. Details of students' opinions are included in Table 4.

Tab. 4. Evaluation of the 'Interactions and communication platforms' course

Part of the evaluation	Very poor	Poor	Average	Good	Very good
To what extent did the scope of the courses content meet your expectations?	1 student 7%	1 student 7%	1 student 7%	6 students 43%	5 students 36%
To what extent is the scope of the courses content related to specialisation subject?	1 student 7%	1 student 7%	2 students 14%	8 students 58%	2 students 14%
To what extent did the teaching methods used during the courses meet your expectations?	1 student 7%	1 student 7%	2 students 14%	4 students 29%	6 students 43%
	Very poor	Poor	Average	Good	Very good
Classes organization/teaching	1 student 7%			7 students 50%	6 students 43%
Teacher's involvement in the classes	1 student 7%			9 students 64%	4 students 29%
Knowledge transfer – presentation of contents	1 student 7%		3 students 21%	6 students 43%	4 students 29%
Teacher's attitude towards students		1 student 7%	1 student 7%	2 students 14%	10 students 72%

After completing the **'Science and society'** course 14 survey questionnaires were analyzed. More than half of the students (60%) admitted that the area of contents of these classes met their expectations to a good and very good degree, and 50% of students rated the course as useful for the specialisation subject. Most students assessed that teaching methods used during the courses met their expectations (28% evaluated it as good and 24% as very good). The organization of classes was evaluated as good by 48% of students and as very good by 32% of students. Presentation of contents was evaluated as good by 40% of students, as very good by 32% of students and again, only one student considered it bad. Details of the evaluation are presented in Table 5.

After completing the **'Bases of public debate'** course 13 survey questionnaires were analyzed. 78% of students thought that it met their expectations to a good and very good degree and it was useful and very useful for the subject in generally. Most students claimed that teaching methods used during the classes met their expectations (23% evaluated them as good and 55% as very good). The organization of classes was evaluated as good by 23% of students and as very good by 70% of students. The presentation of content was evaluated as good by 23% of students, as very good by 77% of students and one person thought the presentation was average. Details of this evaluation are include in Table 6.

Tab. 5. Evaluation of the 'Science and society' course

Part of the evaluation	Very poor	Poor	Average	Good	Very good
To what extent did the scope of the courses content meet your expectations?	–	3 students 12%	7 students 28%	12 students 48%	3 students 12%
To what extent is the scope of the courses content related to specialisation subject?	4 students 16%	1 student 4%	8 students 32%	8 students 32%	4 students 16%
To what extent did the teaching methods used during the courses meet your expectations?	1 student 4%	3 students 12%	8 students 32%	7 students 28%	6 students 24%
	Very poor	Poor	Average	Good	Very good
Classes organization/teaching	–	–	5 students 20%	12 students 48%	8 students 32%
Teacher's involvement in the classes	–	–	4 students 16%	11 students 44%	10 students 40%
Knowledge transfer – presentation of contents	–	1 student 4%	6 students 24%	10 students 40%	8 students 32%
Teacher's attitude towards students	1 student 4%	–	5 students 20%	8 students 32%	11 students 44%

Tab. 6. Evaluation of the 'Bases of public debate' course

Part of the evaluation	Very poor	Poor	Average	Good	Very good
To what extent did the scope of the courses content meet your expectations?	1 student 7%	–	2 students 15%	5 students 39%	5 students 39%
To what extent is the scope of the courses content related to specialisation subject?	1 student 7%	–	2 students 15%	6 students 46%	4 students 32%
To what extent did the teaching methods used during the courses meet your expectations?	1student 7%	–	2 students 15%	3 students 23%	7 students 55%
	Very poor	Poor	Average	Good	Very good
Classes organization/teaching	1 student 7%	–	–	3 students 23%	9 students 70%
Teacher's involvement in the classes	–	–	–	3 students 23%	10 students 77%
Knowledge transfer – presentation of contents	–	–	1 student 7%	4 students 31%	8 students 62%
Teacher's attitude towards students	–	–	–	4 students 31%	9 students 69%

Evaluation survey conducted after the courses showed that (the total) 82% of students gained interdisciplinary knowledge of the biological and social sciences. These students admitted that they acquired competencies such as: organization of

one's own actions, coordination of the audience activities, compilation of pedagogical tools, social involvement, communication, mediation of educational issues towards urban and rural environment, mediation of science issues, creation of project for special groups of audience.

Results of pedagogical observation during the courses
'Interactions and communication platforms', 'Science and society',
'Bases of public debate'

During 'Interactions and communication platforms' course, it was observed that students: used a variety of communication techniques during the contact with different groups of audience; defined forms and contents of different kinds of socio-cultural activities, for example: performances, exhibitions, conferences, workshops; known the rules of creating their own cultural projects in cooperation with different people.

The subject 'Bases of public debate' allowed students to practise the ability to rely on adapting their own activities to audience reactions of every kind of projects, implementation of specific pedagogical animation techniques and communication strategies to work with different types of recipients. Students prepared 'performances' in very creative ways; performances were oriented at bringing people to the world of science and involving the audience in the interpretation of specific project.

In the frame of 'Science and society' course, students perceived interdisciplinary character of science in the aspects of: history of art, culture, artistic actions, literature, technique, innovations and inventions in the field of sciences and humanities. Students presented examples of achievements of science and art over the centuries and those of contemporaries. Furthermore, they noticed evolution and transformation of non-formal education institutions (for example museums) in terms of the forms of communication, rules for visitors, or including the audience in animation on their area.

Conclusions

A good animator is able to consciously animate basing on solid knowledge and responsibility. This is a person who can create a good atmosphere accompanying the conduct of educational projects and adapt to the category of people participating in the particular animation. Animator presents to the audience a certain viewpoint of the world, helps to understand discussed cultural space, approaches the complexity of the specific 'spectacle'. All this requires highly developed communication skills, openness to debate and dialogue, and use of scientific knowledge to share it with the participants of cultural mediation.

There are some specific social competencies which are required from an animator and which enable audience participation in interdisciplinary projects, solve the scientific issues and promote socio-cultural events. The task of the

animator is also to trigger creative potential and creativity of recipients, as well as motivation to learn/promote culture and integration with other participants of animation projects, sustainable development educators, scientific culture animators working in centers of science education.

Evaluation of such courses as 'Interactions and communication platforms', 'Science and society', 'Bases of public debate' showed that there was an increase in students' skills connected with: moving into the space of stage; realization of didactical, cultural and documental events; organizing and coordinating projects and educational activities; popularization of science; processing of information towards creation of knowledge; shaping attitudes connected with emotional and intellectual experiences. One of the most significant skills acquired by students was the use of mediation actions which ease every category of audience access to contemporary creation which is based on connection between science and art and animator narration/dialogue with audience.

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Animation of science culture – evaluation of courses and analysis of students' attitudes towards classes

Abstract

One of the many tasks of a culture animator is cultural mediation, which relies on the assist of different types of audience interpretation of places and objects by active narration and require a dialogue with customers. His job also relies on creating a 'stage' which allows to give new meanings to different objects of cultural heritage (Caune, 1999; Da Lage & Gellereau, 2005).

Moreover, the important thing in this job is the skills to rely on proper choice of aims and ways of communication with the audience based on knowledge about history of development of science and bases of public debate. Program of field of study 'Animation of scientific culture', which was implemented at the Pedagogical University of Cracow included education in the frame of such courses as 'Interactions and communication platforms', 'Science and society', 'Bases of public debate'. There was an analysis of aims and scope of each of this courses and survey of students' opinions about them.

Key words: science culture, animation of science culture, students, academic courses, evaluation

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