

RESEARCH ARTICLE

Development Model for Connecting Educational Institution with Economy over the Students Project work

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Abstract

The article shows a successful means of connecting higher educational institutions (College for Multimedia) and students with the economy and in the same time building a social network. Since we are working in multimedia production, modern multimedia and IC technologies are the basis for study and work, which is interesting and attractive to students; it is a fast-developing and demanding field that offers plenty of challenges and opportunities.

We developed the model for the cooperation between the school and companies which is based on student creative project work, which is a fundamental concept of the College educational process. Cooperation mostly consists of solving authentic tasks and problems, which is upgraded with joint creative and practical projects. Since the 2010 more than 700 students multimedia projects were prepared with more than 150 companies. The benefit is mutual as companies acquire new ideas, projects and cadres, and the youths acquire references and possibilities to be included in the work process, and the educational institute acquires quality of study process and employable cadres.

Based on these issues, demands and possibilities, we have built a quality educational institution, which successfully connects with the economy.

Keywords: Human resource management, Multimedia projects, Modern education, Project management, Students project work, Training & Development.

Introduction

The article describes the operating concept and model of the IAM (Institute and Academy of Multimedia, Ljubljana, Slovenia) where students are qualified for preparation and implementation of multimedia projects, with detailed description of our cooperation with the Slovenian energetics company, who has been our project partner for several years.

This concept and the model was developed on the basis of research, which we reviewed and analyzed a number of successful examples in the world.

We are constantly monitoring and analysing project work so we can introduce novelties and changes to optimise our work.

The increasing gap between the educational system and the fast-changing economy which is based on modern technologies and globalisation troubles all stakeholders. The economy does not get suitable cadres, youths cannot get a job, and everyone blames the educational system and the

government who is allowing this situation, as well as the companies who are supposedly not taking care of their cadres. It is a system where everyone is concentrated on their own work and confident that others do not do enough for the situation to improve. If this is happening during recession where work force is at least temporarily abundant, then the interest for cooperation is even lower. There have been subsidies lately for employing the youth, but this does not affect quality of knowledge, skills and competences of graduates, that is why different mechanisms should be used.

With fast development and demands for novelties and changes, educational institutes still have various problems and reject the introduction of novelties which is partially due to a lack of funding for new technologies and teacher education. The goals of schools are also not changing fast enough which is justified to a certain degree. The right path is not avoiding novelties, but active monitoring and critical use of

new technologies and different work methods. One of the solutions is increased practical work in schools and the inclusion of experts from the field into the study process.

Cooperation of educational institutes with the economy can be achieved only if the economy can expect from this cooperation some business benefit which leads directly to new, innovative and successful products and services, and consequently cadres. One of the efficient possibilities is the linking of education institutions with the economy in solving authentic tasks and problems or by upgrading such cooperation with common, creative projects and cooperation in tender applications. Such, where the educational institution is applying for a tender with the company, and such where companies prepare tenders, intended and adapted to students.

Preparation for tenders or preparing initiatives on new topics presents an important segment of encouraging ideas and new solutions, and a big opportunity for connecting educational institutions with companies as, alongside a knowledge of technology and implementation, additional geostrategic, political, economic, marketing and other skills and knowledge is necessary. The process of creating ideas, initiatives and suggestions must in their very conception follow strict ethical, medical and environmental security standards, principles of sustainable development and optimized inclusion into a specific social environment. These elements are essential ingredients of a modern study programme.

When applying for EU tenders, it is extremely important that we include new, innovative solutions with sufficient added value which can be used on the EU level, but where transfers to the local environment also exist (EU International Strategy for Research and Innovation)[1]. Cooperation in the preparation of contents and application to tenders require international cooperation and partnerships which additionally increases opportunities for doing business for school, individuals, companies and institutions, and it also requires strict verification and selection of suggestions. It is extremely important that all activities are related with modern technologies and (multi)media production and media.

Great attention will be paid to modern education and technologies, as is evident from the action plan Open Education Europa from 2013 [2], which encourages an increase in innovation and

teaching digital skills in schools. There will be opportunities for innovation in school within this programme, especially for spreading use of free-accessible sources for improving the information-communication technology (ICT) structure.

Hobbs R. [3] has performed many researches in multimedia production among the youth, from aspects of production and use. He finds in these researches that youth daily uses information, creates it, plays with it and manipulates it in various media, therefore it is extremely important that they are appropriately educated and made aware of it. With sensible and applicative use of modern technology, the attitude of youths to science and technology is also changing. There is a democratization of techno-science, and the field of product and services usability is moving away from technological determinism [4].

One of the most important paths to success in the educational system is the motivation of youths who want to study and do modern and interesting things by agile project work [5] and at the same time show and develop their creative potential, meet new people and see new places.

It is crucial that schools have modern programmes which are based on information communication technology and multimedia technology. They are interesting to youths, who at the same time acquire modern knowledge, skills and competences which make them competitive in the environment and facilitate their joining the work process.

The Basis for Developing Model

Multimedia production uses modern planning and implementation methods, project and team work, instructions, programmes and equipment which require and at the same time enable technical, engineering, and organisational education and qualification; language and communication tasks require communication knowledge. The basis for multimedia production is content and artistic production where creativity can and must be developed.

We are finding that learning and using techniques of creative thinking gives students better results, and they are also more pleased with their work than with the classical approach to multimedia production [6].

Among many creativity techniques [6], which have been used at the IAM and are transferred with multimedia production to other areas of the school's life and work, let us count just some. The most important and often used work method is

the group work method where we have brainstorming [7] or writing and upgrading ideas in written form (brain writing); both techniques can include mind maps. Exploring ideas by distancing thinking and finding things on the web is very popular with the youth, along with different processing and rearrangements of existing products in the multimedia market where are most commonly used Osborne [8] and SCAMPER [9].

As a very successful has been shown involvement in projects of professional film writers and directors to help students build their ideas into quality products.

Project Work as a Fundament for Modern Educational Program

Project work is most characteristic of multimedia production as it usually includes the development of an idea, planning and execution of tasks in a specific time, and within a specific budget. It is very important to have good ideas [10]. We used experience and instructions from numerous sources, [11-13].

We use rules for project work according to the IPMA at the IAM, as well as an adapted methodology for multimedia projects which we have developed by ourselves. Students become familiar with IPMA (International Project Management Association) literature (IPMA Competence Baseline) [14], and useful literature from the American PMI (Project Management Institute) which has issued the PMBOK®Guide (A Guide to the Project Management Body of Knowledge) [15]. Both approaches are similar, and identical in many elements. An agile approach is also quite established in multimedia production. Students also learn the PRINCE (Prince 2) [16].methodology which conforms to ISO 9000 standards and is used in EU countries, and in EU tenders.

Within the IAM technology which is built from the best solutions from previously mentioned technologies, we use spreadsheets and calculations which enable good definition of risks, prevention measures and measures in case certain events will occur. A very important element in project planning with the IAM application is evaluation of the influence of the project on people and environment.

Projects must use modern technologies and networks by using efficient means of communication and promotion, increasingly through social networks [17-18]. Project results

must be shown in the form of various prototypes, products and services which benefit companies, and represent an important reference to the youth at the same time.

Project Work within the IAM Study Process

The IAM (Institute and Academy of Multimedia) has a 2-year professional higher education study programme Media Production, and a 3-year higher education programme Multimedia Production; the latter requires planning and implementation with the latest technology and the methods enabled by such technology. Alongside the educational programme we have a research and development, as well as a production unit.

IAM (the Institute and Academy of Multimedia) is oriented to (multi)media production consisting of a series of material products and services. An overview of fields, products and services shows that we mostly meet and use them every day, which means that they are mass, global, but also local and language specific products which are regularly upgraded, revised and replaced. All this is an opportunity for permanent work in local environments and a great opportunity for inclusion in the educational system and connecting the latter with the environment.

The basis for quality education is a school with excellent equipment, a modern and adaptable programme and teachers who are also practical workers – in development, planning and implementation. Cooperation with companies is also extremely important where experts cooperate in the preparation and implementation of individual segments of education and qualification, and in external, independent evaluation of achieving designated goals – students' or graduates' knowledge, skills, and competences.

The educational process is mostly based on projects and is tightly related with the use of modern technologies and networks [19]. Our experiences with project work in connection with networks are extremely positive as we successfully provide quality programme and suitable competences and references for students and, at the same time, achieve a very modern, interesting and motivational study programme where students acquire the knowledge, skills and competences necessary for work in a modern, global and project oriented (multi)media production. The IAM has a superbly developed Moodle educational platform which is mandatory

for all students and lecturers, we systematically use the educational portals Lynda and Video lectures, and we are active on FB and YT where we also implement a part of our study process. We are also active on other social networks. Video products of IAM students are mostly uploaded to YT. We strive to divert students to professional networks for project work as soon as possible, and we give them access to more specific and adjustable software.

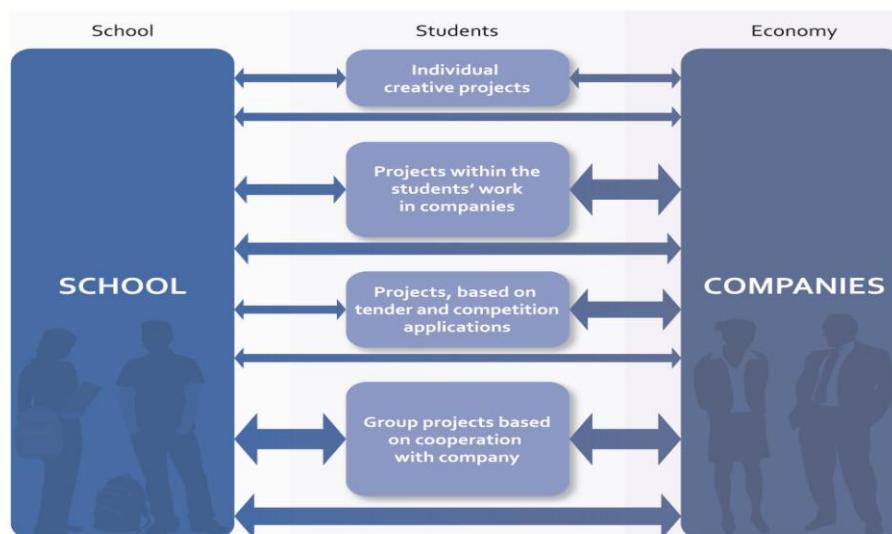
Since (multi)media production is a wide field, students, after they learn the basic theory and tools in (multi)media production (writing, texts, graphics, design, photography, audio and video technology, basics of animation), can focus in their second year on one of the fields (audio, 2D and 3D animation, photography, graphic design, internet, video). They acquire in-depth knowledge and skills from this field and then they become acquainted with modern project work (theory, methodology, application) which is tested in practical work with a minimum of two specific projects, but the number is usually higher. This way, they start to acquire suitable competences and learn to cooperate with clients.

Results and Discussion

We have developed a model for student project work with the outer environment in the IAM, which consists of four parts:

a.) Individual projects of their choice.

Scheme 1: Model for connecting educational institution with economy over the students project work



a.) Individual creative projects with specification and content of the students' own choice

At the IAM we also have a subject Organisational Work in Media Production within the higher-education programme in 2nd year of

Students themselves suggest, plan, organise and lead their minor projects where they create a practical product within the subject Project work in a selected field.

b.) Projects and assignments within students' work in companies.

Over 80% of students in their second year cooperate in the working processes (as regular employees or in various temporary work contracts) and perform specific projects and work assignments to link the teaching and working process in the best possible way.

c.) Projects, based on tender and competition applications, or by external contracts.

IAM students apply for various local and international tenders and competitions or cooperate in projects where an external client shows interest.

d.) Group project with a specific subject.

In this project and within the subject Media production planning, students prepare projects in groups (4 to 5 students) on the basis of a tender and instructions from experts from a larger company (we have been cooperating with the national energetics company for the past four years) for a specific topic.

The model is shown in Scheme 1

have to prepare a specific media product or service with certain specifications, together with the corresponding documentation. The work is done as a project as it is a one-time assignment which must be done in a specific time frame. About 50 % of projects is for economy, while others other areas. As this is a student project and the IAM provides the premises and equipment, and students work within the study process, project expenses are assessed according to rates and amounts of a real project. Students

use their products for their own needs, 30% of the time scale of the project may include technical assistance have their classmates.

An order or idea for a project is used as the starting point for project preparation, based on which a project suggestion is prepared. Data shows (Table 1) that more than 90 % of students conceive their projects and only a few take the suggested ones. This shows a high motivation and desire to create and for self-affirmation.

Table 1: Individual student's projects work within the framework of the study program

Year	Number of students in 2 nd year of study	% of students with individual students projects work	% of students with individual students projects work for economy
2011	121	89	46
2012	110	90	49
2013	111	92	53

Students prepare the synopsis, script and documentation by themselves; they play, organise, manage and technically implement, and finally present their project. They must invite their classmates from specific fields for technical implementation in order for the product to be as professional as possible. This way we provide all students with as much practical work as possible and project managers acquire organisational and managerial competences.

Projects within the Students' Work in Companies

Most IAM students have some sort of practical work experience during their studies or within a

mandatory practical education (400 hours a year), or in the regular work process as employees or in temporary contract jobs where most of them work (more than 70 %) on specific projects (one or more) and tasks, connecting learning and working processes in a most efficient way (Table 2). It is very important to encourage students to connect their learning and working processes which means that they can do exercises, homework and seminars, projects, diploma theses related to their work in a company which assures a rationalisation of study time, increases the usefulness and efficiency of the studies and convince companies and students that we have a modern study programme which ensures benefits to students and companies, who therefore decide to cooperate with us.

Table 2: Students projects work in companies

Year	Number of students (1 st and 2 nd)	% of students with the projects in companies	Number of companies
2011	243	56	112
2012	221	67	134
2013	208	74	143

Projects, Based on Tender and Competition Applications, or by External Contracts

A particularly efficient and realistic example of project work is cooperation in competitive tenders or contests, organised by companies and

in specific modified forms intended only for students (Table 3). In these cases students (as is characteristic for cooperation in general projects) are not included just as team co-workers, but as independent project team members who can successfully achieve specified goals as these are adjusted to their knowledge and competences.

Table 3: Students projects work based on tenders and competition applications

Year	Number of students	Number of projects work based on tender and competition
2011	17	7
2012	31	11
2013	52	16

They become acquainted with the real client environment and the importance and ways of cooperation with clients. Students learn to respect deadlines, and the best ones are also awarded with monetary prizes and purchases of their work.

Table 3: Students projects work based on cooperating with the energetics company

Year	Number of students in project with the energetic company	Number of projects work
2010	62	13
2011	119	29
2012	110	27
2013	122	25
2014	93	19

Students, who want to have successfully completed the 2nd school year, must attend a promotion contest of specific product or field which is suggested every year by energetics company, and they also prepare suitable tender documentation with certain obligatory elements of corporate advertising (corporate identity, AV elements, rules for cooperation and product publishing, etc.). At the presentation, experts from Energetics Company explain in detail to students the purpose, goals, content and tender requirements, and then discuss with them all aspects of tenders; they are always available for students' questions, discussion and evaluation of semi-products. Some students prepare a group projects in collaboration with other companies, on the similar methodology.

The basic tender starting point is to prepare products for media promotion of energetic company products which are environmentally friendly, are energetically efficient and meet demanding quality standards.

This way, students learn the notion and importance of sustainable development, and at the same time the whole concept and elements of modern media campaign for consumer goods. They become acquainted with all the characteristics and demands of such projects (technical, location, legal and financial problems, risk elements related to media, trends, competition, influence of stakeholders, etc.) within the project. It is a very complex approach providing knowledge and experience that is very useful to students in this and in next projects.

The final project is an assembled product which includes: AV product (video or animated clip up to 1 minute long), graphic material (poster, packaging, leaflet), website.

Projects Based on a Tender in Cooperation with the Energetic Company

We have been successfully cooperating with the energetics company since 2010 (Table 3).

In the 2013, the topics of the tender were motor oils and car cosmetics.

In the project, students in groups of 4 or 5 develop the idea, project documentation and product. Groups are put together in such a way that each group has at least one student who is in charge of graphics design, AV production and web production. One of the students assumes the role of the manager or project leader.

In all project phases, students have expert assistance from energetic company available, and the school helps with literature and advice in the phase of developing the idea, writing the script and managing and implementing the project. Students meet experts from energetic company four additional times after the initial meeting; when preparing the script and recording book, when creating rough materials, before finalising products and at the presentation.

Work is done with the IAM web application which is intended for multimedia production, communication on the basis of communication plan via meetings, Moodle platform, e-mail, Wiki and increasingly through social networks. Weekly meetings are obligatory to ensure personal contact.

Based on the survey we performed among students who prepared energetics company projects in 2010, 2011, 2012, and 2013 we have determined that FB is being increasingly used to communicate during project preparation.

In 2013, 95% of project teams mostly communicated and prepared the project documentation and photo selection on FB while the Moodle forum practically ceased to be used (table 4).

Table: 4. % of students who used specific networks for preparing the energetics company project

Year	E-mail	Moodle	Moodle forum	Facebook
2010	100 %	85 %	100 %	100 %
2011	100 %	100 %	90 %	15 %
2012	100 %	100 %	5 %	90 %
2013	100 %	100 %	2 %	95 %

All products are evaluated, and grades are part of the subject Work organisation in media production. This way, we additionally secure a serious approach, quality work and performance of specific tasks in estimated periods.

Originality, applicability and quality of products is evaluated according to several parameters. First when presenting them to the client and classmates, then all products are evaluated by the marketing committee of energetics company.

There is also a contest in the number of YT views where students promote their work on social networks and encourage followers or "friends" to view it.

The best products (posters, packaging, leaflets, and flyers) are also on display on the premises of energetic company and the IAM.

At the conclusion of the project, a meeting with a presentation of plaques, awards and practical awards is organised, and the best teams are given the chance to cooperate with the advertising agency working for energetics company and have options opened for various other projects which the schools is doing with companies and where students can also get financial awards.

Cooperation and especially awards and joining new projects present important references for students in their future work and can be added to their CV, which is obligatory for every student at the IAM.

We have been monitoring work since the very beginning with surveys among students. Table 5 shows survey results, done among 122 students who were a part of the project work in 2013.

Table 5: Answers to questions related to the implementation of the energetics company project in 2013**Answers percentage (%)****Question or statement**

		1. I strongly disagree	2. I disagree	3. Uncertain	4. I agree	5. I strongly agree
1. Cooperation in tenders of companies should be a mandatory part of the study process.	2	6	7	36	49	
2. Tenders for student projects are more suited than students applying to projects which are available to professionals as well.	0	5	21	16	48	
3. It is important that appropriate awards are given at the end of the project.	0	3	27	15	55	
4. Cooperation with experts is also considered as an award.	0	1	11	42	46	
5. A very important part of project cooperation is the possibility of acquiring references and presenting yourself on the job market.	0	2	9	24	65	
6. It is important that projects of companies are made for specific subjects and suggest tasks with useful effects.	0	2	4	37	57	
7. When creating the project, we also learned about real problems which we hadn't considered before.	0	13	12	49	26	

8. Companies could get many useful products or services, or solve a certain problem with award projects for students.	0	3	14	48	35
9. We would rather work on a project that is led by a professional, with us only implementing it.	24	19	23	19	15
10. Project work also encourages entrepreneurial mindset.	0	1	18	44	37
11. We have successfully used internet social networks for the promotion of a product and collecting votes.	0	2	6	36	56
12. I would gladly attend another tender of a company.	0	0	4	37	59

Results of the survey show that students positively evaluated cooperation on the project, and especially the possibility to work with experts from companies. They also think that references which can be acquired in such cooperation are extremely important. They think that it is better that they were able to lead and implement the project by themselves (question 9) than have a professional in their team who would lead them and the students would be only implementing the work. They also think that projects intended only for students are more appropriate than the option where students would apply for professional projects (question 2).

Answers to questions 10 and 11 show that the project had a positive effect also in segments of entrepreneurial thinking and use of social networks. This percentage increases each year of project work as a consequence of social networks development and, on the other hand, demand for searching entrepreneurial opportunities because of scarce jobs for the youth.

Awards are important for student cooperation, and it is extremely important for our future work that students would like to work on similar projects in the future.

This is shown in the overall actions of students who like to work on specific projects or create specific products, even more so if they can creatively cooperate in the development of the idea and the product conception.

Conclusion

The article presents the operation of the IAM institution which offers professional higher-education programmes in (multi)media technology. Studies in fast-developing and changing fields must be tightly related to practice as specific knowledge otherwise quickly becomes obsolete. The IAM is modern and geared towards projects, which enables its permanent updating of programmes. Quality equipment and a combined study programme (contact hours with lectures, practical work, exercises and field trips, the programme is connected with remote studies over Moodle), and project work in connection with companies enable permanent contact with the praxis and inclusion of external experts into school work. There is a career centre at IAM where we have been successfully helping students enter the work environment as over 85% of graduates become regularly employed. Special emphasis is placed on the development of the students' creative potentials as this is becoming a competitive advantage in the job market where new experts who are equally skilled to produce media products are present every day, and innovative products have the edge.

Cooperation between the IAM and companies has mutual positive effects, products or services which result from the cooperation of students and mentors, have a specific applicative value and, most importantly, they are a ticket to the professional job market for graduates.

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