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Message from the Editor-in-Chief

TOJCAM welcomes you.

We are very pleased to publish volume 3 issue 3 in 2017. As an editor-in-chief of The Online Journal of Communication and Media (TOJCAM), this issue is the success of the reviewers, editorial board and the researchers. In this respect, I would like to thank to all reviewers, researchers and the editorial road.

The Online Journal of Communication and Media (TOJCAM) editorial team will be pleased to share various researches with this issue as it is the miracle of our journal. All authors can submit their manuscripts to tojcam.editor@gmail.com for the next issues.

TOJCAM, TASET, Governor State University, Vienna University of Technology & Sakarya University will organize ITICAM-2017 International Communication and Media Conference (www.iticam.net) between in July, 2017 in Berlin, Germany. This conference is now a well-known communication and media event. It promotes the development and dissemination of theoretical knowledge, conceptual research, and professional knowledge through conference activities. Its focus is to create and disseminate knowledge about communication and media. ITICAM-2016 conference book has been published at http://www.iticam.net/iticampubs

Call for Papers

TOJCAM invites you article contributions. Submitted articles should be about all aspects of communication and media. The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to TOJCAM. Manuscripts must be submitted in English.

TOJCAM is guided by it's editors, guest editors and advisory boards. If you are interested in contributing to TOJCAM as an author, guest editor or reviewer, please send your cv to tojcam.editor@gmail.com.

July 01, 2017
Editor in Chief
Prof. Dr. Aytekin İŞMAN

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POSTER AS A MEANS OF COMMUNICATION IN EDUCATION: METHODOLOGICAL AND APPLIED ASPECTS OF DESIGN

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ABSTRACT

The relevance of the research is due to the existence of the poster design features as a means of communication in education.

Objective. To identify the methodological, pedagogical, marketing, art graphic design features incorporated in the design of contemporary posters in education.

Research methods. Such scientific methods as logical and content analysis, comparison of analogues and groups are used as research tools. These methods have allowed systematizing the methodological aspects of graphic design and applying them at the implementation of specific project.

Results of the research. The article presents the results of theoretical generalizations of the history of the emergence and development of the poster as a means of communication and artistic work. It shows systematized elements, rules, principles and techniques of graphic design used in posters creation, identifies techniques of graphic design used in poster production, justifies the specific character of posters used in education in sphere of service provision.

Practical significance. Article submissions are of practical value, since they have formed the basis for poster designing for the University Open Day and can be used in the educational process in future.

Keywords: graphic design, poster design education, research methodology, teaching methodology.

1. INTRODUCTION

Human environment is filled with vast amount of communications media, each of which performs a specific task: to interest or to motivate to action or deed. A poster is one of such communications media. This instrument of visual communication with potential consumers of particular goods or services has been used in trade, social and political advertising for a long time. Nowadays in time of new communications media, Internet advertisement, social networks, sms-marketing and other innovations this communications media is still relevant.

Under condition of strong competition between different firms, poster as a means of communication and an element of human environment takes major place. It is aimed to solve tasks set to communication policy: to attract customers', investors' and partners' attention. To achieve this aim art rendering of a poster should ensure the efficiency of communication. Its content and visual elements should comply with certain rules, take into account the psychology of the perception of colors and shapes, used texts being convincing and filled with information.

The problem of graphic design technology development is the subject of numerous works of foreign authors (Cutler, Javalgi, 1993; Gomez-Palacio, 2009).

It is obvious that with the purpose of professional graphic designing studying the problems of origin and evolution of the poster as a communication tool is necessary (Beauvais, Arens, 2012).

Problems identifying the role and place of the poster in the visual communication system have been studied to a great extent (Shevchenko, 2004).

Poster design, and consumer perception research require studying the psychology of perception and the art of poster creation (Kudin, Lomov, Mitkin 1987).

The art of photography and poster became the basis for the emergence and development of poster graphics and anticipated graphic design development (Voronov, 2003).

Meanwhile, the principles and techniques are used in poster design in specific industries particularly in advertise services, including education remain not fully studied.

As research shows, posters are created with different rules due to the usage of different approaches. As to social and commercial posters they differ according to the tasks. Besides, the sphere of application influences the poster creation. Different methods and means can be used for different industries. There are noticeable differences in the use of expressive means of communication in the promotion of goods and services.

It goes without saying that the specific features of the promoted product should be taken into consideration when creating the posters used in education. For the promotion of educational services professionals have developed specific preferences, traditions, special techniques, which are necessary to be investigated and applied. These characteristics have become the subject of the study conducted by the authors, and the results have formed the basis for the development of a poster for the Open Day of the University of Technology.

2. METHODOLOGY OF RESEARCH
The methodology of the research has identified the methods used- the logical and content analysis, the analogues and groups comparison.

2.1. Research objectives
Research objectives involve the following:
* to explore the specific features of the poster as a means of visual communication;
* to explore the main artistic techniques used in the art of the poster;
* to assess the significance of the social poster;
* to examine the role of social poster in educational activities in Russia;
*to analyze the social poster counterparts in educational activities;
* to describe the characteristics of the main expressive and formal means used to study the posters;
* to formulate a poster concept for the Open doors Day of the University of Technology (Korolev);
* to develop a poster design sketches and subsequent registration in the program Adobe Photoshop and CorelDraw.

The study includes the following:
- analyzing the analogues;
- considering the features of the advertised product - in this case educational services;
- collecting textual information, which should be present in the text of the poster as a filling;
- showing peculiarities of the institution style, or if it is formulated presenting some familiar visual characteristics of the university;
- studying the conditions for placing a poster and evaluating them in terms of the visual characteristics of the poster;
- taking into account the steady characteristics of the institution, in this case the logo.

The selection of analyzed analogs includes 57 posters used in the educational environment.

2.2 Connection of the work with scientific research and realized practical tasks
The article is based on the use of the results of research carried out by specialists of the Design Department of Technological University in Moscow region, Moscow State University of Design and Technology, Kharkov State Academy of Design and Arts in 2015-2016.

3. RESULTS

The results of the logic and content analysis were used to organize the elements, rules, principles and techniques of graphic design used in posters creation, graphic design, to reveal the means of graphic design used in the production of posters, to justify the presence of peculiarities of the posters used in education as the sphere of service provision.

3.1. Elements of Graphic Design
The initial phase of the work of a designer is preparing a poster concept. First of all, it is necessary to collect information on the subject and the simultaneous study of the strengths and weaknesses of the analogues. In addition to the aesthetic and artistic qualities of similar works, their advertising efficiency is analyzed. A careful interpretation of the material collected during the preparatory stage inspires the author of the poster for the first ides of the future work. So there appears idea of the poster. In an advertising poster it is the *advertising* idea which is aimed at creating the image of an individual, company, product, organization, etc. In an art poster, it is the *conceptual art idea* that models the personal attitude of the creator to the particular issue, expressed with special artistic images (Shevchenko, 2004).

Modern poster uses a wide range of visual tools and techniques. The mixed technique possibilities and computer graphics make a poster indispensable communication media.

The design as a professional activity for the materialization of the idea requiring critical thinking, elements, rules, principles, techniques used in the creation of posters should be definitely summarized and systematized.

First of all it is the basic *advertising elements* of a poster that should be selected.
A poster advertising elements include *title, text, artistic elements, borders and signature.*
Title is usually printed in large type. Then it may be followed by a subtitle, which is longer than the title and is printed in a smaller type. The title may be the most important advertising element, as it contains the theme.
Rhythm in the advertisement title is more important than *size*. If there is more than one line in the title, it is divided natural pauses being used.
Text is printed in a smaller type. It develops the theme of the title and convinces the reader, prompting to action. The text should be short and very clear. If this is difficult to achieve, the long text should be split into parts, using white space or subtitles to give the reader "breathing space". An indispensable condition for the advertising text is expressiveness.
Boundaries also apply to the elements of an advertising poster design. The advertiser wants to allocate his advertisement, to separate it from the mass of similar posts on the same page. The larger size of advertising messages is and the lower page we have, the less it needs boundaries. Sometimes the designer uses a boundary as a decorative component to give the poster a certain mood. The boundaries are chosen or created by designers in the same way as the types.
Signature. The advertiser is certain to want to declare the name of his company brand or the product. Sometimes this information is on the last line of text, sometimes it is indicated with large capital letters outside the text or at the bottom of advertisement next to the emblem or logo.
Artistic element. This term has a very broad meaning. For this purpose, photography, drawing, painting, pattern, types, and layout, etc. are used. Besides, the artistic elements are *line, shape, size, direction, colour, tone*, combination of colors, tones and white seats, and even *texture*.
The point, line and spot are the basis for expressing the graphic language of the poster. By these means the artist constructs visual image. E. Ruder a well-known design theorist said: "Everything is in motion: the point moves, forming a line, the line shift creates a flatness, flatness combination creates volume" [Shevchenko, 2004, p. 75].
Lines. They can be straight and curved, thick or thin, smooth and rough, continuous and broken, visible and imaginary.
Form. It is formed with volume and using combined, broken or curved lines.
Size. Posters and some of their elements may be of different sizes, but large objects produce a greater impact.
Direction. Lines and shapes formed by them have their focus, they even create the illusion of movement.
Colour*:* It determines the mood of the poster more than other elements. Art tonal monochrome solutions can sometimes be met.
Tone*:* solid black or gray tones often fill the major surface of graphic design.

Texture: It is determined by the material, which a poster is printed on. It can be rough and smooth, rough and uneven, soft and smooth, soft and rough.

3.2 Design rules.
A number of *design rules* simplify the above-mentioned task. Applying them the designer spends less time on the development of the sketch and the poster project.
The following rules are the most *versatile:*
1. The poster design should be balanced.
2. The space inside the poster should be divided *proportionally.*
3. The *direction* of the elements should be *expressed clearly*.
4. The unity of the elements should be strictly *observed*.
5. A *part* or *one element* of the poster should *dominate* in the poster composition (asymmetry).

3.2. Design principles. *Design principles* define the use of certain design elements .These principles are the basis of all types of art: painting, drawing, sculpture, architecture and design of various types: graphic, industrial, environmental, communication and others.

3.3 Design principles
The list of design principles includes balance, proportionality, consistency, unity, focus.

Balance. When the poster composition is "balanced", it is in a state of rest, although some of its elements (image, picture, title and text) can be quite dynamic.

The designer deals with two types of balance: formal (symmetrical) and informal. In the formal balance each element on the one side the composition corresponds to the shape and size of the elements on the other. Items outside imaginative vertical line are placed symmetrically with respect to this axis. At an informal one optical balance is maintained too, but it is achieved by more complex methods.

The top and the bottom of the poster composition should be interconnected. All the elements should form a balanced composition, and the optical center - a point just above and to the left of the geometric center - should be the center of the composition. Big and black elements have more "weight" than the small and gray ones. Unusual shapes also attract more attention in comparison with the usual configuration of elements. The same is with color elements compared with black and white elements. Sometimes the designer intentionally disturbs the balance, to make the ads visible.

Proportionality. For the designer, who is developing a poster, proportions are ratio aspects i.e. width to depth, the width of the element to the depth of the element, the size of the space of one element to the size of the space of the other one, the space between two elements to the space of one of them and the third element.

To achieve adequate proportions advertising designer disposes intervals so that the eye could catch standard mathematical solutions. The designer usually avoids the division of the advertisement into two, three or four equal parts.

There are examples of proportional division of space. The ratio of width to depth approximately is 3: 2, or better 5: 3. Square with similar sides is not the best design element compared with a rectangle with two different dimensions. If the square is used, the designer can "stretch" it horizontally or vertically, putting horizontal or vertical stripes or lines in it. If the designer uses a vertical rectangle, it is divided with horizontal lines into several bands. One line located closer to the top and not coinciding with the mathematical center may be taken as the optical center line. Elements will then be placed on the bands. Some designers like to place the most important elements in such a way that they touch the optical center line or cross it.

The tone of advertisement also affects its proportion. The ideal proportion of light and dark tones is the following: 1/2 of medium gray, 1/4 of light gray and 1/4 of black tone. One tone should prevail in any combination.

Sequence. Advertising poster can fulfill its function even if the reader's eye wanders on it stopping on one, then another element. However, designers prefer to establish a specific order of the elements perception of the composition. For this purpose a number of techniques exists.

Designer can arrange elements on the path of natural eye movements. The eyes move from left to right and top to bottom. Knowing it, the designer can place elements from left to right on the top line, and then again from left to right on the lower line, etc. Other techniques are used as well. It is quite natural for the eye to move from larger to smaller items, from black to a lighter color, from a colorful element to a colorless one, from an unusual form to usual ones. The designer can guide the reader's eye movement to almost any point of advertisement.

Sometimes the designer directs the reader's eye with the help of solid and dotted lines to make way for the eyes. Sometimes the designer can find a more subtle way to control the reader's eye, and he achieves greater efficiency. He can repeat the shapes and sizes. This creates an imaginary way for the eye movement. The designer can create a path through elements in size graduation. In this case the eyes will move from one series to another. The sequence is an optical rhythm, it can develop in other ways including pulses and pauses.

Unity. It is the most important design principle. Unity states that the elements of advertising should be coordinated and complete each other. A designer creates harmony when he picks up the elements and on their compatibility features so that they fit together. Items will better meet unity principle if they are related by shape, size, texture, color and direction.

A designer strengthens unity, if it applies the three point method. This three-element composition is more proportion than two-and four-element.

Contrast. By creating a poster, the designer should decide exactly on what element he is making the focus, emphasis: in the picture whether it is the title or the text. After taking the decision, he looks for ways to focus on. He can highlight the drawing protecting it from the influence of the other elements. He can increase its size, make it prominent and colorful. The emphasis is achieved by the contrast between the primary and secondary things. The emphasis may be achieved by a sharp change in direction, size, shape, texture, color, tone and lines.

3.4 The metaphor and symbol in the poster

Learning the graphic means and methods of object forms processing is a very important key to the development of mastery of the artist or graphic designer. But that is not always enough for creating a vivid poster image. In art, there exists not only object *realistic representation principle*, where the shape of the whole corresponds to the content of the image itself and is characterized by reliability and documentaries. Of no less importance for the poster composition is the *associative principle*. In this case, actual or contingent forms have no literal relationship to the content. This type of allegorical representation of reality, or visual image is called the *metaphor*. The artist depicts a story or an image in a figurative sense. Metaphor **allows the designer** to find a solution by transforming the characteristic features needed to create an effective image on the object, whose image has these very characteristics. Sometimes it is possible to use methods of *allusion, irony* and method of *different contexts* to create unique, vivid pictures.

The signs- symbols are widely used as metaphorical representations. They are associatively and conceptually linked to the object. It often happens so that as a metaphorical image of the sign stands a generalized image of the entire system of concepts (heraldic symbols, specialties, philatelic, publishing symbols, etc.)

The designer uses three or four elements, based on the knowledge of these principles. He shapes form elements and brings them into compliance with well- known principles. He uses various options for element placement.

3.5   Design Techniques used in the poster production

3.5.1 Reception "Linear-spot composition"

When creating a poster the designer uses lines and spots with the advertisement text.

Fig. 1 Advertisements of Absolut Bank.

Fig. 2 Student work (author Katya Frolova)

3.5.2 "Innuendo Type" method
Type takes the commanding position, but has some limitations, innuendo (Fig. 3).
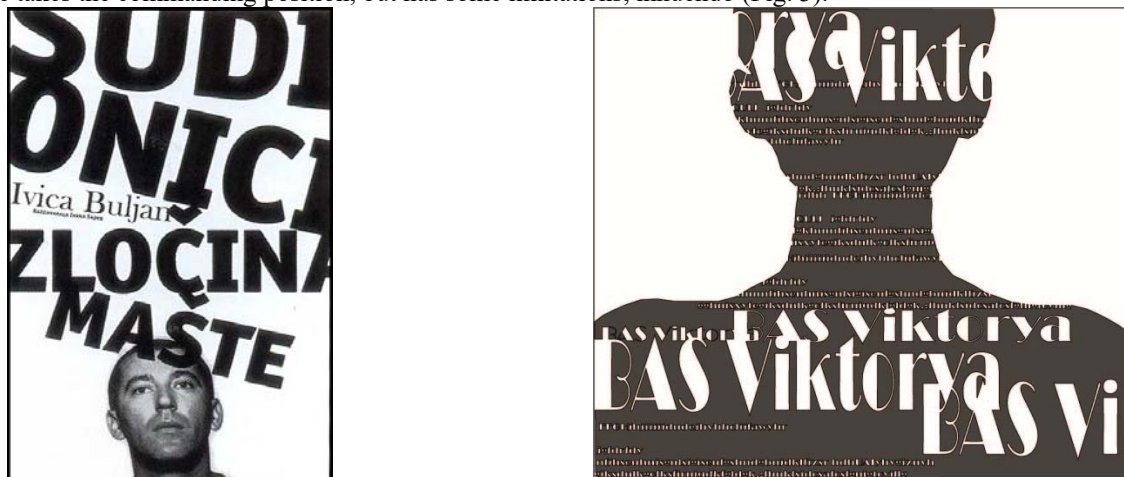
Fig. 3 Student work (author Victoria Bass)

3.5.3 "Letters Confluence" method
In the poster composition types merge, forming an original image (Fig. 4).

Fig. 4 Advertising Arts Festival.

3.5.4 Method of using photos, textures and types

In the composition of the poster a photo is placed on one layer, different filters being applied to it. On the top layer there is the inserted text part (Fig. 5).

Fig. 5 The theater advertising

3.5.5 "Type diversity" method

Words and numbers overlap each other (Fig. 6).
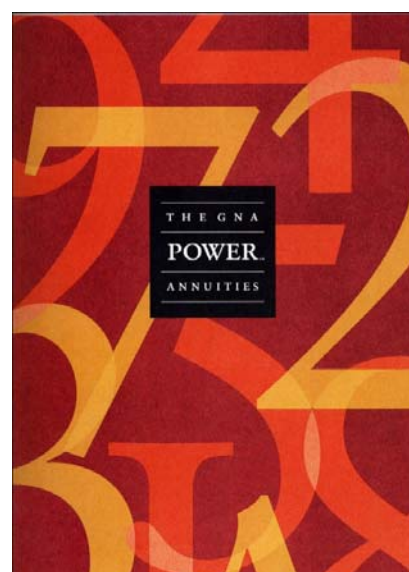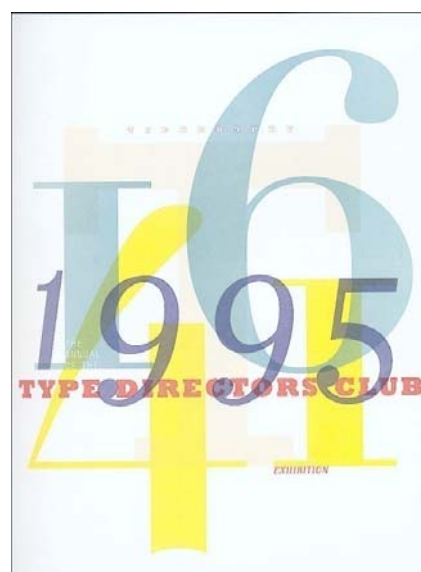
Fig. 6 Advertisements clubs

3.5.6 "Different type sizes" method
Different type sizes are used (Fig. 7).

Fig. 7 Military-insurance company advertisement

3.5.7 "The text wraps around the photo or illustration" method
 Location of the text flows around the photo or illustration (Fig. 8).
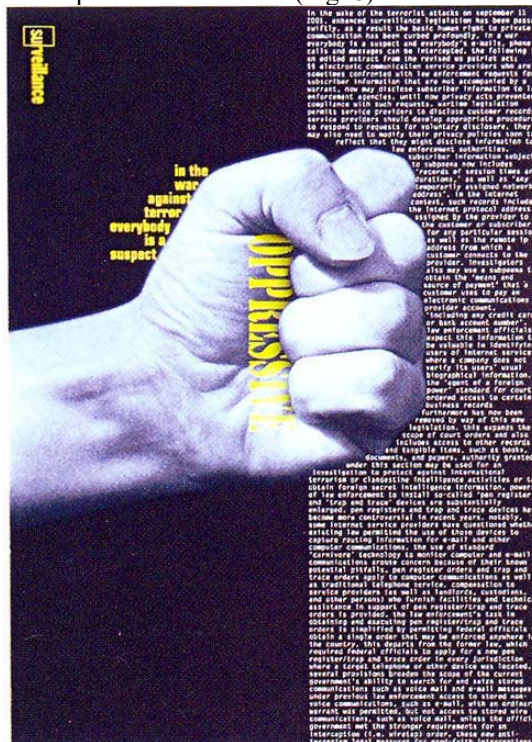
Fig. 8 A social advertisements

3.5.8 "Using object of animate or inanimate nature" method
The objects of animate or inanimate nature are used form the shape (Fig. 9) or the type (Fig. 10) of their silhouettes.

Fig. 9 Coffee advertisement

Fig. 10 A student work (author Lyudmila Mashkina)

3.5.9 "The effect of hand-made type effect" method
Types look as if they have been written out by hand (Fig. 11).

Fig. 11 A student work (author Lyudmila Mashkina)

Creativeness of artists and poster   is not limited to the above mentioned methods. There are a lot of   methods and advertising ideas. The above graphic means, the laws of composition and composition forms are just the bricks with which a poster is created.

3.6   Psychological and marketing aspects

Besides art and advertising techniques, there are also psychological and marketing aspects. Their application increases the effectiveness of an advertising poster. They include the peculiarities of communication means depending on the industry or field of activity. A significant number of research works and publications disclose the particular communication complex in education (Khristoforov, Khristoforova, 2011; Khristoforov, Khristoforova, Suglobov, Semenov, Bank, Orlova, Podrezov, Muslaev, Makeeva, Bank, 2017; Khristoforova, 2012). The study took into account the parameters of branded and stable characteristics of the university, for which the poster was designed, in particular, the existing logo (Figure 12).

Fig. 12 University of Technology's logo

As noted in the description of the methodology of the study, the analyzed selection includes 57 posters used in the educational environment, divided into two main groups: the socialist period of development and modern posters.

Posters in the formation of the socialist period of development of our country are characterized by ideological and educational orientation.

The first ideological group includes posters comparing the education system under socialism and capitalism (Figure 13) Educational tasks are presented on the posters focusing popularization of knowledge in general and internationalism (equality of opportunity for the representatives of different nationalities and races), promotion of various sports and the arts. Examples of patriotic posters focused on training young people, fostering respect for the work of various professions, such as teachers' work are shown in Figure 14.

Subject analysis in the direction of posters in the formation of modern Russia **allowed researches to identify** the following classification groups:
1.   Information on the procedures of the Unified State Exam (Fig. 15).
2.   Educational and methodical nature, which can be related to visual aids for some courses.
3.   Popularizing education in specific areas, such as scientific and technical creativity.
4.   Commercial posters that attract attention of entrants and their parents in the activities of the university, such as posters of holding Open Days, calling for the admission to a certain university or informing about it (Fig. 16).
5.   Various activities organized at the university (Open Days, conferences, contests and competitions).
6.   Social nature aimed at promoting specific ideas, such as healthy lifestyles, the dangers of bad habits, on accessibility and inclusive education, revealing the importance of modern computer education, etc.

Fig. 13 A comparison of education systems in   Fig. 14 Mentoring youth
the USA and the USSR

Fig. 15 Information on the procedures of the Unified State Exam
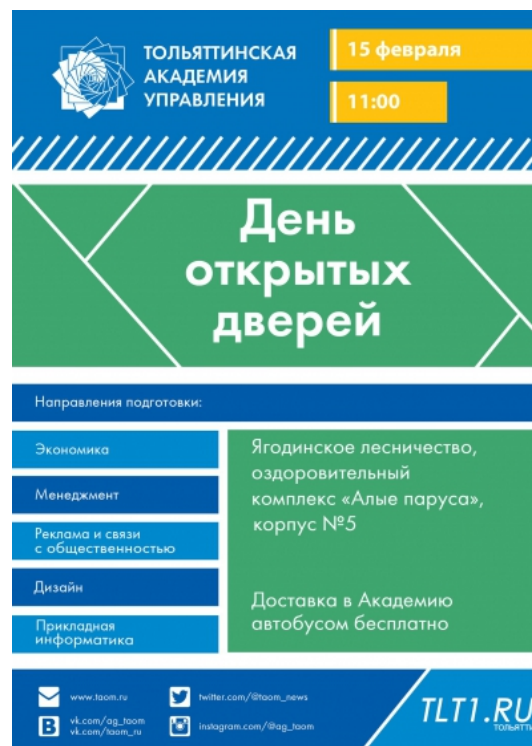
Fig.16 Informing about holding an Open Day

Universities posters analysis made for Open Days, **allows the scientists to identify** the main elements of the composition and the frequency of their use:

- the logo and the name of the university (100%)
- the availability of information about the event, date and time of the meeting - Open Day (100%)
- contact details: phone number, website (90%)
- e-mail (95%)
- some posters also place contacts in social networks, directions, areas of training and education programs at the university, the program of the Open Day, etc.

Analysis of the design techniques used in the creation of posters in education revealed the ones using the following methods: "The text wraps around the image" (Fig. 17), "the use of animate and inanimate nature objects "(Fig. 18), "innuendo type" (Fig. 19).

Fig. 17 Advertisement of the design faculty

Fig. 18 Open Day poster

Research in the field of marketing tools designed for a specific target audience which takes into account the characteristics of the advertised product, in this case, the services, **allowed the researches to formulate** the following conclusions.

Specific features in the consumption of goods and services directly influence the strategic directions in the field of quality and marketing communications. In addition, we can distinguish the types of communication that are more effective when implementing the promotion of goods or services.
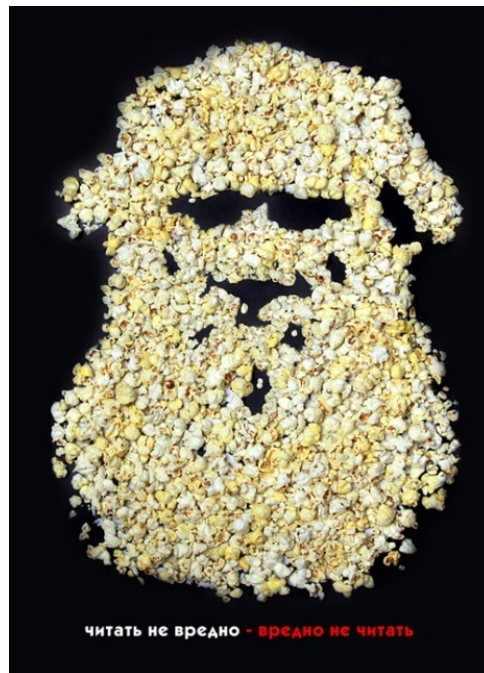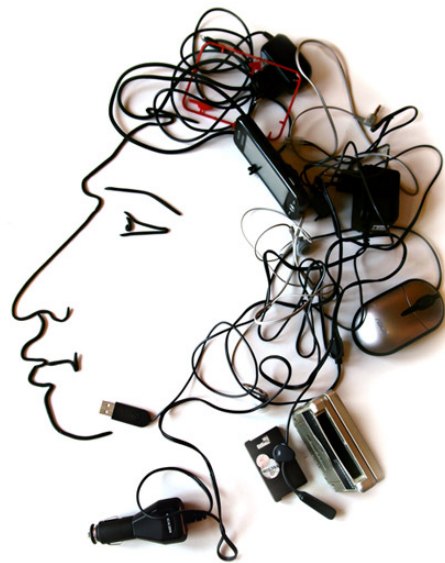
читать не вредно - вредно не читать

Fig. 19 A series of M. Knyazev's posters, the winner of the social poster competition promoting reading in the category of "the best photo"

K. Lawley says that the development of communication strategies with consumers in the sale of services is very different from the promotion of material goods (Lovelock and Wirtz, 2011). He identifies various aspects to prove that.

1.   *Intangible nature of the service process* requires a search for ways to more specific and clearer visual representation of service possibilities. Many service companies use various animals as visual symbols of the services: Qantas - kangaroos, US Postal service - eagle, Lloyd's Bank - the horse. It is important that the idea the company or the organization wants to convey to the client, were displayed as clearly as possible in the visual image presented in the logo and various promotional materials. The use of *the symbols of material nature* **allows the specialist to make** promises of intangible benefits more specific. The logos of universities often use material symbols such as academic buildings (Moscow State University, University of Technology in Moscow region), the Earth (Korolev Institute of management and sociology), wood (Russian State Humanitarian University), a wreath and a column (Russian Economy University), an open book and the planet (Russian State University of Tourism and Service) (Fig. 20).

2.   *The participation of consumers in providing services* makes it necessary to depict consumers themselves in communication elements: travel agencies advertisements - tourists, retail - customers, universities - students (Fig. 21).

3.   In the service sector it is of great importance for staff to be in direct contact with consumers. The presence of the staff makes services more tangible, personalized.

4.   Advertisement which shows the company employees at work, helps potential clients understand the service process nature. It involves a promise of special attention to each of them. Of this kind is the advertisement showing a uniformed employee of the hotel in the TV commercial accompanying the client at all stages of registration, or a teacher with students (Fig. 22).

Foreign experts say that in marketing communications used in the service sector, especially in ads letters, contains more emotional appeals than in advertising products. For example, studies Cutler Javalgi Andes (1993) demonstrate that the formation of strategies for the promotion and positioning in the services sector requires a large share of advertising using emotions to increase tangibility services (Cutler, B.D., Javalgy, 1993).

Fig. 20 The materialization of services in the design of Russian State University of Tourism and Service's poster

Figure 21 Students as a composition element in the design of the poster of the Russian Academy of National Economy and Public Administration

Fig. 22 Students with a teacher as a composition element in the design of a high school poster

Characteristics of the target audience
The target audiences of the poster are the entrants and their parents. The former relate to one age group (pupils of 9 classes are potential entrants of the College of Technology and Design and Space Engineering College, pupils of 11 classes are potential entrants of Baccalaureate). The latter differ in status, level of education, social status, place of residence, etc.

The wide coverage of the target audience by their characteristics is a feature of the development of the poster project design. It must be equally well accepted by different layers and groups, united by one desire to find a high level education university that trains needed in the labor market specialties.

3.8. Poster`s concept
Poster for the Open Day at the University of Technology as a communication tool that implements the advertising function should fulfil a number of tasks:
•   to create a vivid and distinctive image of the educational institution;
•   to inform of the date of the Open Day;
•   to inform the viewer of a number of other important characteristics of the University (directions of training, transport, telephones, etc.);

-     to create emotional;
-     to show competitive advantages of the University.

To solve these problems, it is necessary to formulate the main idea of the poster design, in which all the above mentioned tasks could be fulfilled. This idea should be the main competitive advantages, expressed in a vivid visual form. The formulation of the basic visualization parameters of the main idea of the poster that best meets the requirements is the very concept of the poster.

To address the objectives it is necessary to show strong measures and soundness of preparation at higher school, combined with interest and emotionally positive attitude that distinguishes the learning process there.

This combination of as if opposite parameters should be the basis for the design, being a fusion of unique and trivial things, freedom of communication and observation of rules, i.e. representing all the variety of vital activity united by one aim – effective comprehension of knowledge.

3.9. Development of poster`s design in sketches and its realization in Adobe Photoshop and CorelDraw
In developing the design of the poster has been using the following artistic techniques (Fig. 23).

Fig. 23 Poster for the Open Day at the University of Technology

Asymmetry. Composition`s asymmetry is a substantial violation of the proportions of the left and right sides. The left side is composed of type and the right one holds the iconic part of the poster. Such deliberate violation of symmetry is caused by the necessity of dividing the entire field into different functional areas.

The left side is "loaded" with verbal information reporting on the training directions, name of the event, the University name and the address.

The right part draws the viewer's attention to the date, and, which is the most important, affects his subconscious with striking visual image of the rainbow associating intuitively with positive experience of everything which is new, unusual, fresh and is combined with the silhouette of the open door. Due to this reconciliation, the poster creates a metaphorical image of the university- open doors in the new world filled with colors and sunlight.

Composition. In the center of the composition there a bright spot of color doorway with the date of the Open Day that immediately attracts the viewer's attention organizing the picture and movement of the eyes in it.

Simple, clear compositional scheme, compiled of the combination of the field lines - horizontal, along which type material is placed and vertical doorway. The Center of the composition, organizing the viewer's perception and directing the movements of his eyes is the bright spot of light and a large figure"7"that indicates the date of the event.

Another supporting point, subordinate to main center of the composition is the big text "Open Day". The combination of these two major leitmotifs "holds" all the elements of composition.

The contrast of colors and shapes.
The contrast of colors is provided by discreet pearl background and a bright saturated color of the door opening, as well as the color squares next to the training directions. The contrast is achieved by horizontal lines, along which the type material is placed and the vertical doorway.

The rhythm and meter. The type group is rhythmically organized along the repeated horizontal lines. This metric organization of the text preserves its readability and ease of acceptance. Large text blocks (left and right) in the same repeated image of a simple rhythm.

Larger blocks of text (left and right) are also repeated, forming a simple rhythm.

Poster Graphics (man-made illustrations, lettering, collage) is processed in modern **graphic editors** or completely created on the computer using the appropriate Adobe programs.

4. DISCUSSIONS

Solving the problem required a multi-disciplinary research related to the study of literature on art, design, advertising, marketing, pedagogy. As is well-known the poster is the most important area of artistic creation, specific form of printed products and, at the same time, represents the oldest form of advertising. The poster can be attributed to graphic design in relation to the process of creation, to the media in connection with the design feature of the impact on the consumer and to the element of environmental design in relation to the role in shaping the design of the space surrounding the person.

Works of numerous authors (A.V. Demenkova, 2014; N.B. Egorov,A.B. Demenkova 2011;V. Kovalev, 2010; V.V. Krishtopaytis, 2008; V.V. Krishtopaytis, 2012; V.V. Krishtopaytis, 2014;V.A. Pobedin, 2001; S. Serov, 2014) are devoted to the problems of development of graphic design technology.

The works of specialists in different fields(poster artists, educators, marketers, advertisers, psychologists and sociologists) deal with the history of art of poster creation, peculiarities of creative execution, consumer perception and effective promotion of goods and services.

Revealing the history of the art of poster creation K. Beauvais and H. Ahrens point out that the first poster was created by Batdolde, a bookseller in 1482, when the advertisement for Euclid's Geometry was needed. The founder of poster's production is considered to be Jules Cheret, the lithography creator. In 1866 in Paris he printed more than 1000 different posters for advertising some enterprises and events (Beauvais and Arens, 1995).

Problems of the perception psychology and art of poster creation are raised in the of works P.A. Kudin, B.F. Lomov, A.A. Mitkin, (1987).

Describing the features of the poster as a means of communication, A.N. Lavrentiev notes that it differs in large format being accompanied by an illustration or photograph a brief text or motto. It is used in advertising, promoting, informing and training (Lavrentiev, 2008).

S.I. Serov emphasizes that the poster is «the most widespread form of visual art, performing a certain utilitarian function, aimed at solving specific social problems», provided by features of the execution of this kind of visual communication as «clearly and lucidly presented idea disclosed by using a limited amount of express information » (Serov, 2014). The author claims that the poster is designed in most cases for a limited period of performance and the impact on viewer. It is this efficiency that creates special demands for the graphic structure of the poster and the whole style of his creations.

V.V. Voronov notes that it is the art of photography and poster - poster graphics, that laid the foundations of the domestic graphic design (Voronov, 2003).

A valuable source in the context of the theme of the poster is a monograph by a graphic artist V.J. Shevchenko (Shevchenko, 2004), in which the researcher presented his vision of poster art, revealing the following issues: the role of the poster and place in the system of visual communication; Graphic Arts poster composition; method of preparation of experts-poster artists.

However, in all the above mentioned works poster has not been considered as a means of communication in the field of education.

Thus the research has made it possible to solve the methodological problems - to systematize the elements, rules, principles and techniques of graphic design used in the creation of posters in education and to solve a number of applications - to develop a poster project for the Open Day and lay the foundations of teaching methodology based on a perception peculiarities of posters in education.

In addition, the results of the study have **allowing the researchers to consider** the technological and pedagogical aspects, identifying features, which need to be addressed in the training of design students. In particular, the practical implementation of the project has shown the importance of the use of specialized computer programs (A.B. Demenkova, 2014; N.B. Egorov, A.B. Demenkova 2011; A.P. Panfilova, 2009). The Adobe Photoshop is a popular professional editor pixel graphics, which offers virtually all the features of the processing of the scanned graphics and the creation of complex visual montages. Adobe Illustrator is a vector graphics editor for creating images that are used in the printing industry, electronic presentations and web-design. Adobe InDesign is a modern professional layout program with diverse characteristics of typography and advanced prepress system.

One of the ways to learn the computer programs by students- designers is to get the knowledge of theory and consolidate it in practice in the course of carrying out specific projects.

5. CONCLUSION
The application of described results of the research and poster creation techniques is expedient for the activation of professional skills of students of creative specialties (artists, designers, advertisers, marketers). Students practice using the results of research and consolidate the theoretical material in carrying out practical work on the course.

6. RECOMMENDATIONS
The results of the study by the authors identified the basis for the development of the poster Open doors Day.
It is planned to continue research and use its results and methodological aspects at developing educational courses for students of "design"training.

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PRACTICAL SUGGESTIONS FOR ACADEMIC COLLABORATION BETWEEN DISCIPLINES IN THE FACULTIES OF COMMUNICATION

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ABSTRACT

Communication Faculties of Turkey, there are various departments which focus on different disciplines of communication. Some of these are Public Relations, Radio, TV and Cinema, Journalism, Visual Communication Design and Communication Design. These departments only educate students to be competent in the related discipline. However, through interdisciplinary approaches and collaboration between departments, they may receive more fruitful and effective educational achievements which will enable them to develop their academic, personal and professional competencies. In this study some practical suggestions will be put forward and discussed with special references to educational contexts in different universities in Turkey.
Key words: Communications Sciences, Interdisciplinary Collaboration/Partnerships, Faculty of Communication

INTRODUCTION

It is a fact universally acknowledged that 2000s have been and will be the years of intense technological, economical and political transformation in which people seek new ways and models for the field of education. As it is known, education has the meaning of coaching and shaping the human being, which further means a society's attempt to raise individuals of knwoledge and competence as well as critical thinking and ideology for the society itself, because education is always a part of societal and political dynamics. From this point of view, communication education, more precisely, the education undergoing in Faculties of Communication has come out to be the most complex and problematic areas of higher education in Turkey.

One can claim that communication goes back as far as the human cultural history. Communication, both as a concept and a field of science is considered to be the most comprehensive of all social sciences. Communication theorist Wilbur L. Schramm thinks that "any field concerned with humans and their behaviours must be in contact with communication"(Schramm, 1964), since it encompasses everything from visual arts to writing. Therefore, it is an acceptable condition that communication is an interdisciplinary and collaborative field of science compared to other fields.

The aim of this study is to discuss the communication education in Turkey and determine the necessities to revolutinize the conditions present today. In accordance with this purpose, it is going to be questioned why institutions of communication fails to incorporate it's conceptual interdisciplinary and collaborative meaning to communication education. It is also believed that a review of today's models of education would offer an insight for next generations.

Concept of Communication

Communication, as a word or a concept, is used to describe direct or indirect ways of information exchange. Ünsal Oskay (2001:1) considers it as a product of mankind's struggle for existence, continuously changing in response to course of events. A research on printed materials revealed that the word "communication" has 4560 different uses (Zıllıoğlu, 1993:4). It is one of the most important elements of human life as it is used to satisfy physical and social needs. It can be any of the following: spreading information, expressing opinions, gestures and facial expressions, talking face-to-face, media, culture, sharing ideas, way of dressing, externalizing personal traits and feelings. In a brief sense, it is the life itself. Communication is a form of art, science and a natural process with a purpose.[1]

Obviously, communication embraces every aspect of human life. 126 different definitions have been made to describe it. This number can easily be increased, thanks to the interdisciplinary nature of communication. For the purpose of fully understanding and teaching communication, all disciplines should join forces. In this regard, Ertuğrul Özkök (1985: 17-18), signifies the importance of the interdiscplinary nature and states: "If we are sure

that anthropologist Levi Strauus, sociologist H. Marcuase and linguist F. Saussure contributed greatly to the understanding of communication, then we must admit the multi-disciplinary characteristic of it."

COMMUNICATION SCIENCE

From a scientific point of view, communication sicence has been formed through the influences of sciences such as sociology, political science, history, philosophy, social psychology, psychology, linguistics, economy, anthropology, ethnology and epistemology. Biology, electronics, engineering and physics have also contributed much to models, theories and approaches on communication (Güngör, 2013: 33). Just like other scientific fields, it grew out of needs to explain certain phenomena, especially the effects of mass communication devices on the society. The first attempts to understand and define the field of communication through theory and methods commenced in 1920, by pioneering American academicians and experts focusing on mass media such as cinema, radio and newspapers.

Whether it be in Turkey or another country, communication education is a form of social sciences education and it is not a rare instance to see the multifaceted content of communication education, rendering academicians confused about the fields they are working on and the boundaries of their interests, since the graduates of communication are employed as journalists, radio-TV hosts, film producers, directors and scenarists, advertisers and PR specialists and at the same time they try to be communication scientists. Given the problematical conditions in institutions of communication, the departments still manage to attract an increasing number of new students and the multifaceted content enriches communication with added popularity and dynamism.

COMMUNICATION EDUCATION IN TURKEY

The first students of communication in Turkey enrolled in classes in 1950, however, it was not until 1980 that reforms were made in the education. These reforms include legislative regulations, technology adoption and work statements.

Istanbul University Institute of Journalism, founded in 1947, was the first establishment to offer an education programme related to communication. Accepting first students in 1950 and later evolving into Faculty of Communication, Institute of Journalism was materialized by members from Istanbul Society of Journalists. In 1964, Academy of Press and Information came out to be the second attempt to offer a similar programme within Ankara University Faculty of Political Sciences.(Abadan-Unat 1972: 67) Unfortunately, these establishments suffered heavily from lack of expertise and infrastructure, and even worse, failure to project any employment opportunities resulted in poor career prospects for the graduated students. The only chances were employment in Turkish Radio and Television Corporation (TRT, the only state-owned institution for Radio and TV at that time) and some advertising companies or staying in faculty. Huge numbers of students pursued careers in fields that had no relation to communication.

The reasons for early inconveniences in faculties of communication include failure to underline the importance of communication education, lack of necessary know-how, expertise and information on foreign practices, lack of crucial technical equipment and infrastructure and no long-term planning. Furthermore, the founders didn't manage to recognize the importance of a dedicated syllabus and they let people from various fields like journalism, advertising, public relations, sociology, psychology, anthropology, linguistics, law, management, economics, pedagogics and even statistics make the four year curriculum decisions, resulting in students with little to no mastery and application in communication science. Those students, in Cyrano Bergerac's opinion; "End up being nothing after pursuing everything"(Onaran, 1988: 8).

Today, Turkey has fifty two faculties offering programmes on communication. Forty two of these are based in state-owned universities and ten are in private or foundation universities (İLAD- İletişim Araştırmaları Derneği, 2017). Despite minor differences, all of these faculties have similar structuring. State-owned universities have three departments: 1.Journalism, 2.Public Relations and Advertising, and 3.Radio-Television and Cinema. Some private or foundation universities have an additional department called "Visual Communications Design".

Contemporary education in faculties of communication doesn't seem to have changed much since the beginning. Students attend courses from different faculties (management, economics, law, public administration, anthropology), but the content of these courses have little, if not anything, to do with communication science. Especially in private and foundation universities, the applied classes are lectured by film makers, journalists, speakers, writers, advertisers and visual designers from industry and nobody questions their scientific capabilities. Unfortunately, students find themselves in an environment with no scientific discipline and they get in an effortless hurry to finish their classes from various faculties just to obtain an university diploma. Another major problem is that the applied classs usually take just a single year to complete, which is obviously not a

sufficient applied course load for students of a four year programme. Consequently, students lose the possiblity of a lifelong, satisfactory professional experience.

The structural problems just cover one side of the coin, on the other side, the student selection and placement system poses a major problem. At the early years of communication institutions, students, who had failed to be placed in a department through regular entrance exams, could prefer aptitude tests to enter communication departments. Today, students of TS (Turkish and Social Sciences branch in high school) branch, who score very low in entrance exams consider communication departments as a last chance to get a university diploma.

Even more, there is an odd practice unique to Turkey. Students who are placed in programmes related to cinema enters regular university entrance examinations. The fact that cinema being a form of art is neglected, nobody examines the artistic capabilities of those students. This is not to say that entrance exams are unnecessary, but these departments need a special method to select students. The academic success and future prospects for these students are open to question.

The problems of communication education are not limited to previously mentioned points. Students of Radio-Television and Cinema are subject to conventional evaluation methods and expected to pass exams and courses. Instead, they should undergo an education that would lay a foundation of arts, aesthetics and visual communication. First starting with basic academic courses, students should then move on to applied courses in which they can make use of department archives, film making workshops and equipment while working on their projects. Projects that will bridge the academic and professional life together.

Determining appropriate educational methods, stating purposes for both academic and applied courses and quality course material and staff are just a set of important factors for a healthy education. Educators need to employ several rather than a single way of teaching and evaluation methods. There is supposed to be questions like how the educational practice should be in Radio-TV and Cinema department which embraces both artistic and scientific elements? How the balance between academic and applied courses should be set? Or should it be a blend of those two? What teaching methods to convey the course material? Does a particular subject needs a plain presentation or application? Only after these questions the educators can turn sample cases into audiovisual material to be used in courses and students will find the chance to experience learning in a medium of production.

Unfortunately, there is not a universal standard in universities of Turkey. Each faculty determines it's own content for courses according to it's physical conditions and staff capacity. Even more, doctoral students open courses covering their own thesis subject. It is really hard to talk about a standard curriculum in faculties of communication.

Joint projects, researches, seminars, applied studies, symposiums and festivals among Turkish universities and even foreign institutions are crucial organizations that are effective in motivating students towards their career path, enabling them use both theoric and applied knowledge in learning. Foreign language is another fundamental requirement for students of communication. Students need to undergo an education for foreign languages.

Along wtih course-based learning, students should accomplish internships in industry with in four years of education. Newspapers and Television establishments, Advertment and Public Relations Companies and organizations like Society of Journalists, Public Relations Association and Radio and Television Supreme Council are suitable places to have an internship. These companies and establishments should perefer students from faculties of communication at first place when they have open positions available.

Together with educational suggestions, there is a last important point to be mentioned. Faculties of communication are not vocational schools and it is not their obligation to educate students to be employed in communication industry. The primary objective is to ensure that students go through an academic and artistic education prior to any professional training. Last but not least, the industry should learn to be cooperative with universities since they supply a huge number of employees working in communication sector.

Within EU Adjustment Processes, all Turkish universities adopted "Bologna process" into their curriculums. However, a retroactive education programme is not available yet. Short term solutions do not seem to work out for such fundamental problems.

All the suggestions come to the point that the communication education should aim atcombining theory, intellectual competency and application, and keeping good relations with the industry. Three concerns of the education should be: first, a multifaceted behaviourial science knowledge to build a strong theory basis and an interdisciplinary approach for education. Second, improved workshop opportunities for applied learning in which students can get a glimpse of real world production. Third, the awareness that communication education can not be limited to classrooms and campuses.

CONCLUSION

The drawbacks mentioned so far shows that the collaborative and interdisciplinary nature of communication is not applicable when it comes to education of communication. Instead of asking why other disciplines have involved too much in communications education, the question should be whether they managed to bring an awareness for communication science. In order to do that, educators from various disciplines should search out ways to enhance the course content which would appeal to students from faculties of communication. Academic and applied courses should go hand in hand, blending both theory and real world practice together in a disciplined, artistic and professional fashion. Cooperation between different faculties would ensure that the interdisciplinary nature of communication is in use for education. Therefore, students who acquired diplomas from faculties of communication would be professionals and intellectuals who are capable of research, reasoning and ciritical thinking. An important point to be remembered is that communication education is a part of socialisation.

The fundamental problem of faculties of communication is pointed out by Gökdağ (2009:156): "Do faculties of communications let students notice what is ethical and what is not? Only way to change human attitude and behaviour is through education. It is a moral necessity for faculties of communication to equip students with ethical reasoning. Deans Council for Faculties of Communication shall lead the way to better conditions for education."

It is the primary purpose of this study to present significant troubles faced in education of communication. It is obvious that evading the real issue would not bring better tomorrows.

The education should embrace communication's interdisciplinary and collaborative meaning and it should be the misson of faculties of communication to put forth solutions that have scientific reasoning and explanations. One more thing, societies can prosper in arts and sicences only if they live in a economically and socially stable country.

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TEACHING DATA DRIVEN JOURNALISM: HOW TO INTEGRATE DATA SCIENCE INTO EXISTING CURRICULA SHOWN IN THE EXAMPLE OF A JOURNALISM PROGRAM AT THE BACHELOR'S DEGREE LEVEL

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ABSTRACT
Developing an integrative curriculum has become a globally discussed issue and challenging for all institutions of higher education. Curriculum development is a multi-step process which is undertaken after every specified period defined by an educational institution. Though it may vary from university to university, generally it is a four to five years period with ongoing updates and revisions. Data journalism is thriving worldwide, but what is missing from data journalism education? This question is addressed in this study by applying the Stanford University Berret-Phillips approach for modeling curricula in teaching data and computational journalism for a 6-semester journalism program at the Bachelor's Degree Level in am European University. After a qualitative state of the art analysis of the program, the journalism program's curriculum was enriched with the dimension 'data science', (1) by implementing data science as a core course and (2) by integrating data science into existing courses and concentrations. The results of the study revealed that offering a three-dimensional data science education with (1) integration of data science components in traditional journalism courses, (2) offering fundamental courses in data-driven journalism as well as (3) offering a specialization in data journalism for students interested in advanced skills, is essential for a journalism programs in Higher Education to equip students with data skills for a data journalist.

INTRODUCTION
Journalism education has tended to respond slowly to developments in digital journalism, such as data journalism, although journalism in the 21st century involves finding, collecting, analyzing and visualizing data for stories. Journalism educators worldwide tend to train their students in similar ways focusing on some universal needs, regardless of cultural, environmental or technological differences and scholars focus on developing global approaches for journalism education concepts. Data journalism is an umbrella term that summarizes a set of tools, techniques, and approaches to storytelling. It can include everything from traditional computer-assisted reporting to data visualization and news applications. Data journalism can help a journalist tell a complex story through engaging infographics. Data can be the source of data journalism, or it can be the tool with which the story is told, or it can be both. Data journalism contains the following steps: finding data, interrogating data, visualizing data, and mashing data. Data journalism is Journalism that uses technology to access, analyze and find stories in data and then tell the stories of the people the data represents. Data-driven journalism is an emerging discipline that brings together knowledge from several disciplines, such as news and journalism, information and data Sciences, data analytics, information design, and storytelling.

LITERATURE REVIEW
Curriculum models help designers to systematically and transparently map out the rationale for the use of particular teaching, learning and assessment approaches. One categorization of curriculum models is to distinguish between product models and process ones.According to Neary (2003), the product model emphasizes plans and intentions, while the process model emphasizes activities and effects. The product model can be traced to the work of the writings of Tyler (1949) who greatly influenced curriculum development. Product models focus on the instructor as an 'expert, with guiding students towards the achievement of an "end state", which is often defined by

external (assessment agencies). Learning outcomes are clearly defined and emphasis lies on assessment. Advantages of this model are that (1) learning outcomes can be defined precisely, (2) the model enables that content can be selected and structured, (3) learning levels are clearly defined. Disadvantages might be that (1) at higher levels behavioral objectives might be difficult to define, (2) creativity might be discouraged, the (3) attitude of 'teaching for the exam'.Process models focus on the instructor as 'facilitator', focusing on engaging students in the learning process and developing their capacities for learning by encouraging learners autonomy. The advantages of these models are an emphasis on (1) engagement and interaction and (2) learning skills. On the other hand, these models might not be easily applied in some areas and have a lack of emphasizing on appropriate content (O'Neill 2010, Neary 2002, Stenhouse 1975, Tyler 1949). Ornstein and Hunkins (2004) classified curriculum models into technical and non-technical approaches; which is similar to the product/process breakdown. The technical approach uses the curriculum development as a blueprint for structuring the learning environment; the non-technical approach, in contrast, focuses on the learner (similar to the process model previously introduced). Examples for technical curriculum models: 1. Tyler (1949) Four Basic Principles: Tyler's work equates with the product model and is the foundation of the current Learning Outcomes Curriculum. 2. Wiggins & McTighe (2010) Backward Design Model: it is a variation of Tyler's model and links with the idea of graduate attributes and competencies. Examples for non-technical curriculum models: Ornstein and Hunkins (2004) The Deliberative Model: This model addresses the gap between the complete freedom for students to choose what they would like to learn and the prescription of learning. A process is proposed where educators share their ideas with students, and together they develop an educational plan, with feedback loops and adjustment options. Ornstein and Hunkins (2004) Post-Positivism Models: these models focus on less intervention of the educators. In this approach 'students are not presented with ideas or information with which they will agree, but with encounters with content arranged as such that students will see that they have to seek more to find frameworks and generate fresh understandings' (Ornstein and Hunkins, 2004, p213). The aim of these models is to allow unexpected and creative learning as well. Toohey (2000) focused on how curriculum models view knowledge, assess learning, define goals and defines which resources are needed. She defined experiential models and social critical ones. Experiential models (1) believe in the importance of personal relevance and learning from experience, (2) the curriculum is organized around life situations, (3) adults learn to be able to solve problems, (4) these models focus on authentic assessments. Social critical models (1) seek to develop a critical consciousness in students so that they become aware ill of society and are motivated to alleviate them, (2) content is drawn from significant social problems of the day, (3) these models focus on collaborative group work and projects. Ornstein and Hunkins (2004) classified curriculum models in subject-centered designs and learner-centered ones. Subject-centered designs are centered on the conceptual structures of the discipline and inform the work of people in the discipline. These models merge several disciplines into an interdisciplinary subject are, focus on conceptual clusters and are theme based. Learner-centered designs emphasize on the process of learning, e.g. critical thinking, and less on content. Assessment should reflect the process. These designs are used where educators feel the students may be able to make more informed decisions, such as Masters programs, or in adult education. Table 1 shows how the different curriculum classification categories and how they are related.

Table 1: Categorization of curriculum models

Product/Process	Sub-categories		
Product models	Technical (Ornstein, Hunkins)	Four Basic Principles (Tyler)	Subject-centered designs (Ornstein & Hunkins)
		Backward design (Wiggins & McTighe)	
Process Models	Non-technical (Ornstein, Hunkins)	The Deliberation Model (Ornstein & Hunkins)	Learner-centered designs (Ornstein & Hunkins)

It is essential to understand global journalism education needs, to be able to predict and guide educators in how to structure education for future journalists. Journalism education worldwide is becoming increasingly professionalized, formalized, and standardized, and, as a result, increasingly homogeneous (Goodman and Steyn 2017, Gray et al. 2012, Bromley et al. 2001). The World Journalism Education Council actively promotes universal standards for journalism education, and adopted the Declaration of Principles, identifying 11 principles to serve as a standard for journalism education. These principles are summarized in Table 2.

Table 2: Principles of Journalism Education (World Journalism Education Council, Goodman and Steyn 2017)

Principle	Explanation
1	journalism education is a balance of conceptual, philosophical and skills-based content
2	Journalism is a field appropriate for university students from undergraduate to postgraduate levels
3	Journalism educators should be a blend of academics and practitioners
4	Journalism curriculum includes a variety of skills courses and the study of journalism ethics, history, media structures/institutions at the national and international level, critical analysis of media content and journalism as a profession. It includes coursework on the social, political and cultural role of media in society and sometimes includes coursework dealing with media management and economics. In some countries, journalism education includes allied fields like public relations, advertising, and broadcast production.
5	Journalism educators have an important outreach mission to promote media literacy among the public generally and within their academic institutions specifically
6	Journalism program graduates should be prepared to work as highly informed, strongly committed practitioners who have high ethical principles and are able to fulfill the public interest obligations that are central to their work
7	Most undergraduate and many masters programs in journalism have a strong vocational orientation
8	Journalism educators should maintain strong links to media industries
9	Journalism is a technologically intensive field. Practitioners will need to master a variety of computer-based tools. Where practical, journalism education provides an orientation to these tools
10	Journalism is a global endeavor; journalism students should learn that despite political and cultural differences, they share important values and professional goals with peers in other nation
11	Journalism educators have an obligation to collaborate with colleagues worldwide to provide assistance and support so that journalism education can gain strength as an academic discipline and play a more effective role in helping journalism to reach its full potential.

Curriculum development should be the central focus of the strategic planning activity of an institution. Khan and Law (2015) defined an integrative approach to curriculum development.

Step 1: Environmental Scanning: both internal and external environment should be studied in order to have a comprehensive knowledge and understanding of what is happening in and around the educational institutions
Step 2: Graduate competencies: specific competencies to be developed in students are identified and analyzed
Step 3: Curriculum development: the actual curriculum is designed and developed keeping in mind the knowledge of previous two stages
Step 4: Pedagogical strategies: specific pedagogical strategies, which are most relevant and effective in imparting the knowledge intended in the curriculum are identified and proposed.
Step 5: Implementation, Evaluation, Feedback: carry out regular evaluation of the learning outcomes, provide necessary and on time feedback to interested parties in education.

THE STUDY: INTEGRATING DATA SCIENCE INTO A JOURNALISM PROGRAM'S CURRICULUM

The **objectives** guiding this study were for: (1) applying the Stanford University Berret-Phillips approach for modeling curricula in teaching data and computational journalism for a journalism program at the Bachelor's Degree Level and (2) designing and implementing a 'data science' dimension to the program's curriculum. The

target group for the data-driven journalism analysis conducted in this study is students of a journalism and public relations program at the bachelor's level at a higher education institution in Europe. **Target program**: Mode of Study: 6 semester, full time, 180 ECTS; Academic Degree: Bachelor of Arts in Social Sciences. Table 3 shows research design, methodology and methods applied.

Table 3: Research design

Research approach	research design (purpose)	research methodology	Research methods
deductive	descriptive study	qualitative	Literature analysis, Document Analysis, Case Study

After a literature analysis on curriculum development methodologies and approaches, a document analysis was done on journalism programs in different European countries and the United States. The aim of this analysis was to filter out programs similar to the one considered in the case study analysis. These programs were analyzed in terms of if and how data science is currently included in these programs. On a whole 7 journalism programs (5 from the United States, 2 from the United Kingdom) were selected for a detailed analysis. Based on these, a case study was conducted in a European university, was in an existing journalism program at Bachelor's level was implemented a data science specialization and selected courses enriched with a data dimension.

LITERATURE ANALYSIS
The literature analysis conducted in this study is summarized in section 'literature review'.
Essential findings of this study are summarized below:
- ✓ Curriculum models can be product or process related, technical or non-technical
- ✓ Some models are educator focused, some learner-centered
- ✓ A curriculum development process should contain the following steps: environmental scanning, graduate competencies, curriculum development, pedagogical strategies, implementation, evaluation, and feedback.

DOCUMENT ANALYSIS
Journalism and Media programs at the Bachelor's Level, listed on bachelor's portal.eu * *Sub-disciplines, which are not listed below are media studies & mass studies and translation & interpreting,* are summarized in Table 4.

Table 4: Journalism and media programs

Programs listed by disciplines (total)*	Discipline: Journalism & Media: 984 (total) Sub-discipline journalism: 369 (total) Sub-discipline public relations: 137 (total) Sub-discipline media management: 82 (total) **total for countries listed below*
Programs listed by country	
(1) Austria	Discipline: Journalism & Media: 3 Sub-discipline: Journalism: 0 Sub-discipline: Public relations: 0 Sub-discipline: Media management: 1
(2) France	Discipline: Journalism & Media: 2 Sub-discipline: Journalism: 1 Sub-discipline: Public relations: 0 Sub-discipline: Media management: 0
(3) Germany	Discipline: Journalism & Media: 4 Sub-discipline: Journalism: 0 Sub-discipline: Public relations: 0 Sub-discipline: Media management: 4
(4) Netherlands	Discipline: Journalism & Media: 11 Sub-discipline: Journalism: 0 Sub-discipline: Public relations: 0 Sub-discipline: Media management: 5

(5) Spain	Discipline: Journalism & Media: 12 Sub-discipline: Journalism: 4 Sub-discipline: Public relations: 4 Sub-discipline: Media management: 1
(6) Sweden	Discipline: Journalism & Media: 1 Sub-discipline: Journalism: 0 Sub-discipline: Public relations: 0 Sub-discipline: Media management: 0
(7) Switzerland	Discipline: Journalism & Media: 4 Sub-discipline: Journalism: 0 Sub-discipline: Public relations: 1 Sub-discipline: Media management: 0
(8) Turkey	Discipline: Journalism & Media: 12 Sub-discipline: Journalism: 2 Sub-discipline: Public relations: 6 Sub-discipline: Media management: 0
(9) United Kingdom	Discipline: Journalism & Media: 411 Sub-discipline: Journalism: 135 Sub-discipline: Public relations: 27 Sub-discipline: Media management: 37
(10) United States	Discipline: Journalism & Media: 525 Sub-discipline: Journalism: 227 Sub-discipline: Public relations: 100 Sub-discipline: Media management: 32

Since the program considered in the case study focuses on the disciplines journalism and public relations only programs of these sub-disciplines are considered in the further analysis (Table 5). From these 137 programs, the course curricula were analyzed in terms of similarity to the journalism program considered in the case study; and 20 similar programs identified. From these 20 programs only 11 had a comparable structure to the case study one; out of these 11 programs, 7 had data science somehow considered in the course curriculum (Table 6).

Table 5: Journalism and media programs

Programs listed by sub-disciplines	Sub-discipline: Journalism France: 1 Spain: 4 Turkey: 2 United Kingdom: 135 United States: 227
Sub-discipline: Public Relations	Spain: 4 Switzerland: 1 Turkey: 6 United Kingdom: 27 United States: 100 *TOTAL: 137*
Programs listed by sub-discipline journalism (combined with public relations)*	Turkey: 1 United Kingdom: 5 United States: 14 *TOTAL 20* **taken from program title*

Table 6: Programs considered for the study

Programs considered for case study analysis	United Kingdom: 2 United States: 5 TOTAL 7
How was data science considered in these 7 programs?	
(1) COURSES	
United Kingdom	Investigative Strategies for Journalists Public relations research Public relations campaigns Data-driven marketing
United States	Data journalism Coding and data skills Coding for reporting Public relations research Strategic communication Data analysis and interpretation
(2) SPECIALIZATION	
United Kingdom	Digital media
United States	Data journalism Digital media

Findings from document analysis

Journalism programs are mainly offered in one category with media programs. The 'Journalism and Media' discipline might be divided into the following sub-dimensions: journalism, public relations, media management, as well as mass media and media science. From a total of 984 programs in 10 countries 369 belong to the category 'journalism', 137 to 'public relations' and 82 to media management. Countries with most programs in 'journalism' are the United Kingdom with 135 (out of 411) programs, and the United States with 227ones (out of 525). The following countries are offering journalism programs which are combined with public relations: Turkey (1), United Kingdom (5) and the United States (14). Out of these 20 programs, 11 had a comparable structure to the program addressed in the case study analysis. Again, out of these 11 programs, only 7 (from the UK and the US) had 'data science' as a discipline somehow considered in their curricula. 'Data science' was considered in journalism programs as (1) an integrated part of courses and/or (2) as independent specializations. Data science integration could be found in courses such as data-driven marketing, public relations investigative strategies for journalists (all of them in the UK); and data journalism, coding and data analysis and interpretation (in the US). Generally, it could be seen that in the United States data science tends to be an integrated part in courses and a computing & IT focus could be recognized. In UK 'data science' plays a minor role in journalism curricula. Specializations related to data science are digital media (The UK and the US) and data journalism (US).

CURRICULUM DEVELOPMENT

The digital revolution lets to changes in how information is structured, shared and used. Journalism has to focus on trend topics, such as on adaptation to social media or adoption of new visualization technologies. That is why the journalist has to be taught how to use data. Data journalism curricula respond to objective change in the amount of information stored digitally. *Berret and Phillips (*2016) did an analysis on about 100 journalism programs in the US on if and how data science and computation are integrated into current journalism programs and found out that many journalism programs offer few or no courses on data journalism, and there is a lack of skill in data journalism. They recommended that journalism schools should cooperate across the university to meet their need for instruction in data science and computation and should focus on alternative ways of teaching to fill the gap in their own faculty, such as individual tutorial packs or online courses. Berrez and Phillips (2016) defined the key areas of data journalism as (1) data reporting: obtaining, cleaning and analyzing data for use in telling journalistic stories, (2) data visualization: using code for digital publishing, (3) emerging journalistic technologies: new developments using data and technology, and (4) computational journalism: the use of algorithms, machine learning and other new methods to accomplish journalistic goals. They defined five different models for integrating data science and computation in journalism programs, summarized in Table 7.

Table 8 shows the curriculum of the journalism program to be enriched with a data science dimension.

Table 7: Curriculum models for journalism programs (Berret and Phillips, 2016)

Model	Title	Content
1	Integrating data as a core class	Title: Foundations of data journalism The course is an introduction to the collection, analysis, presentation, and critique of structured information by journalists
2	Integrating data and computation in existing courses and concentrations	- integration in introductory and required journalism classes - integration in advanced classes and electives
3	Concentration in data and computation	A data journalism concentration should begin with several core courses, required classes before moving into a track of electives offering data journalism analysis, visualization, and online research/backgrounding.
4	Advanced graduate degree I	Title: expertise-driven reporting on data & computation
5	Advanced graduate degree II	Emerging journalistic techniques and technologies

Table 8: Curriculum

Semester	Course	ECTS
1	Communications in Theory and Practice (L)	4
	Media Evolution (L)	4
	Fundamentals of Public Relations (L)	4
	Journalism Basics (L)	3
	Journalistic Writing (iL)	3
	News Writing (Se)	2
	Web Technology Fundamentals (iL)	2
	Communication on the Social Web (iL)	2
2	PR Concept (L)	4
	Journalism in Practice (Se)	6
	Research-Based Writing (Se)	2
	Introduction to Scientific Methods (L)	3
	Content Management (iL)	3
	Web Publishing (Se)	3
	Pictorial Editing (IL)	3
	Project Management (Se)	2
3	Applied Social Research (iL)	5
	Video Production (iL)	5
	Reportage Writing (Se)	4
	Media Theory and Analysis (L)	4
	Strategic PR (Se)	4
	Strategic Corporate Communication (L)	3
	Bachelor Paper 1 (BA)	8
4	International Media (Se)	2
	Scripting and Coding (iL)	4
	PR Lab (L)	2
	Online Magazine Journalism (Se)	5
	Content Strategy (Se)	6
	Project (Se)	8

5	Integrated Communication (iL)	6
	Media Trends (iL)	7
	Opinion Mining (iL)	4
	Mobile Reporting (Se)	4
	Corporate Publishing (Se)	6
	Work placement 1 (PR)	9
6	Seminar (Se)	2
	Bachelor Paper (BA)	10
	Work placement 2 (PR)	9
	Project (Se)	9
TOTAL		**180**

L ... lecture, Se... seminar, iL.. integrated lecture   BA... Bachelor work
PR.... internship

Based on the literature review in general, the study of Berret and Philipps (2016), the document analysis done within this study, and the state of the art analysis on the program, it was decided to (1) implement data science as a core course and (2) integrate data science into existing courses and concentrations, as illustrated in figure 1. In a first step, it was, together with the instructors from 1-year courses, analyzed for which courses it would be possible to add a data science dimension: course objectives, learning outcomes, course content and instruction methods were reviewed. Four lectures of the first two semesters, which are Journalism Basics (1. semester, lecture, 4 ECTS), Web Technology Fundamentals (1. semester, integrated lecture, 4 ECTS), Communication on the Social Web (1.semester, integrated lecture, 4 ECTS) and Introduction to Scientific Methods (2.semester, lecture, 4 ECTS), were enriched with a data science dimension. For at least 3 lessons data science was included in each course syllabus as a mandatory dimension. On a whole 12 lessons from 4 courses focus within the new curriculum on data science from different perspectives.

In the following step, a new two-dimensional course on 'data science' was implemented for the 3.semester, with (a) the lecture section focusing on data science from a social science perspective and (b) a training section offering students the opportunity to apply theoretical concepts in small tailored projects. The course 'Data Science' was designed in two part: Data Science 1 (lecture, 2 ECTS) and Data Science 2 (integrated course, 2 ECTS). To integrate these two courses and hold the 180 ECTS max rule, the ECTS for the following courses were reduced: Introduction to Scientific Methods (2. semester, ECTS reduced from 4 to 3), Video Production (3. semester, ECTS reduced from 6 to 5), Online Magazine Journalism (4.semester, ECTS reduced from 6 to 5) and Mobile Reporting (5.semester, ECTS reduced from 5 to 4). In the lecture, the instructor focuses on the following topics: statistical inference, exploratory data analysis, data science process, extracting meaning from data, data visualization and ethical issues. The training section focuses on deploying a structured lifecycle approach to data analytics problems, applying appropriate analytic techniques and tools to analyze big data and on how to tell a compelling story with the data to drive business action.
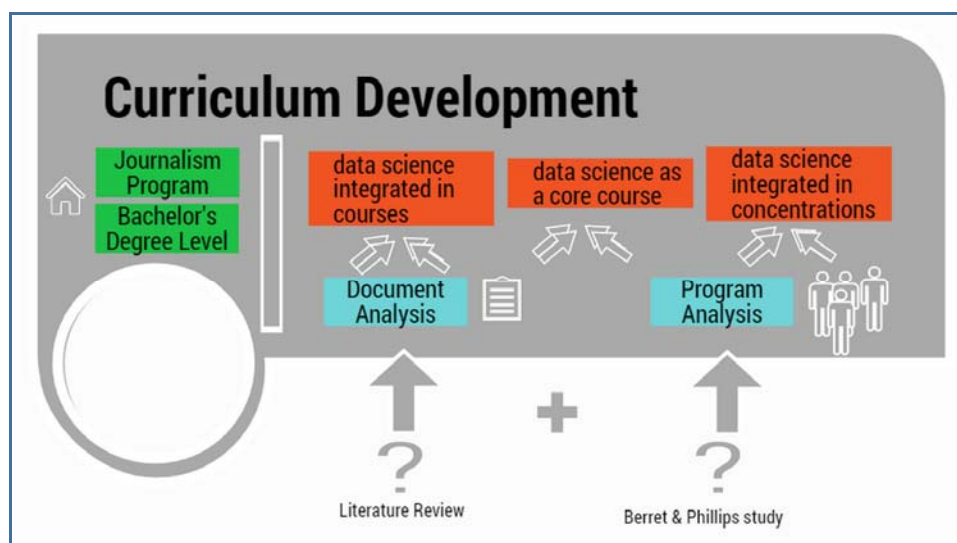

Figure 1: Curriculum development roadmap

Additionally, a specialization on 'digital journalism' was implemented.According to the newly developed curriculum, from the 4. to the 5. semester students are able to choose between an 'Online Communication' specialization and a 'Digital Journalism' one. The following courses of the previous curriculum were added to the Online Communication field: content strategy (6 ECTS), Integrated Communication (6 ECTS), corporate publishing (6 ECTS), media trends (7 ECTS), PR Lab (2 ETCS), in sum 27 ECTS. The second field, the newly defined Digital Journalism specialization contains the following courses: data journalism (4 ECTS), data-driven analysis methods (6 ECTS), online magazine journalism (5 ECTS), mobile reporting (4 ECTS) and a newsroom project (8 ECTS), in sum 27 ECTS as well. The structure of the revised curriculum is shown in Table 9, where the courses from the 1. to the 3. semester are unchanged, but the content of selected courses enriched with a data science dimension.

Table 9: Curriculum 'Digital Journalism'

Semester	Course	ECTS
1	Communications in Theory and Practice (L)	4
	Media Evolution (L)	4
	Fundamentals of Public Relations (L)	4
	Journalism Basics (L)	4
	Journalistic Writing (iL)	3
	News Writing (Se)	2
	Web Technology Fundamentals (iL)	4
	Communication on the Social Web (iL)	4
2	PR Concept (L)	4
	Journalism in Practice (Se)	6
	Research-Based Writing (Se)	2
	Introduction to Scientific Methods (L)	3
	Content Management (iL)	3
	Web Publishing (Se)	3
	Pictorial Editing (IL)	3
	Project Management (Se)	2
3	Applied Social Research (iL)	5
	Video Production (iL)	5
	Reportage Writing (Se)	4
	Media Theory and Analysis (L)	4
	Strategic PR (Se)	4
	Strategic Corporate Communication (L)	3
	Bachelor Paper 1 (BA)	10
4	International Media (Se)	4
	Scripting and Coding (iL)	4
	Project (Se)	9
5	Opinion Mining (iL)	5
	Work placement 1 (PR)	10
6	Seminar (Se)	3
	Bachelor Paper (BA)	10
	Work placement 2 (PR)	9
	Project (Se)	9
TOTAL (main courses)		150
Field Online Communication		
4	Content Strategy	6
4	Integrated Communication	6
5	Corporate Publishing	6
5	Media Trends	7
5	PR Lab	2
TOTAL (field)		27
Field Digital Journalism		
	Data Journalism	4
	Data-Driven Analysis Methods	6
	Online Magazine Journalism	5

	Mobile Reporting	4
	Newsroom Project	8
TOTAL (field)		27
TOTAL (ECTS)		180

CONCLUSIONS AND RECOMMENDATIONS

Curriculum development is risky as a strategy, costs money, is time consuming but a competitive factor for higher education institutions. For institutions, it might be simple to add some courses or changing a few topics in an existing curriculum, but curriculum development should be linked with an institution's vision and mission. It should be a democratic and participative process within an organization and should offer short run and long run benefits. For creating an integrative curriculum development, the following parameters should be considered: Lack of strategic planning, a culture of curriculum development, lack of leadership skills and limitation of resources. Challenges are (1) the rapid need for curriculum changes triggered through the institution's environment, (2) the culture of the institution, and (3) the differences in the learning styles of individuals. The results of the study revealed that offering a three-dimensional data science education with (1) integration of data science components in traditional journalism courses, (2) offering fundamental courses in data-driven journalism as well as (3) offering a specialization in data journalism for students interested in advanced skills, is essential for a journalism programs in Higher Education to equip students students with data skills for a data journalist.

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USEFULNESS OF MODELLING MEDIA AS PERCEIVED BY FINE AND APPLIED ARTS STUDENTS OF AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA

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ABSRACT
Modelling is a functional 3 dimensional arts, a fascinating creation of objects, easy to manipulate and meeting higher technical requirements. Empirical verifications confirm students are scared of modelling because of the media employed, scarcity of the media and seeming tediousness in modelling activities employing such media. With this background, this   study was carried out to investigate usefulness of modelling media as perceived by fine and applied arts students of Ahmadu Bello University, Zaria, Nigeria. Survey research design was employed, with purposive sampling, constituting 114 students: 40 females, 74 males; of 200 to 400 levels. Questionnaire was employed as research instrument, subjected to content and face validation by experts. Two hypotheses were tested at 0.05 level of significance using ANOVA and T-TEST. The outcome revealed that there was significant difference in usefulness of modelling media as perceived by fine and applied arts students of Ahmadu Bello University, Zaria, Nigeria; and gender was a factor. Recommendation was made that students be exposed to different modelling media right from 200 level to improve and encourage modelling skill.

Key words: Gender, Modelling, Modelling media

INTRODUCTION
There is an instinct in the creative mind that wants to employ the brain, hands and mind in the making of objects. The curiosity of individual to embark on creativity gives modelling media opportunity to be employed by man. Modelling provides the forum for such engagements. Modelling is a creative activity in the creative and visual arts, science and technology. Modelling depends on the perceived usefulness of the media that may be available for the user. Davis (1993) and Olasedidun (2014) believe that the controlling and utilising of a new tool by individuals which will invariably increase, improve and finally boost the productivity of activity is defined as the perceived usefulness. Mathwick, Malhotra and Rigdon (2001) explain that perceived usefulness is the scope to which a person believes a skill improves the job presentations. In essence, Chen and Barnes (2007) also submitted that this has pressure and significant influence on people's goal to accept a new skill. Perceived usefulness is most known and a very crucial variable in the study of individual's intention to embarking on a skill, tool and system and also as an important forerunner of user of Technology Acceptance Model (TAM), which was first expressed by Davis in 1989. Sharma and Chandel (2013) further credited the forecast that behavioural habit is determined by the intention to manipulate a skill; therefore, the perceived usefulness was the sturdy and most significant determinant of students' attitude toward embarking on technology, tool, and material and system usage in learning.

Researchers have provided and confirmed the evidence of the perceived usefulness and its impact on the learners' choice of technologies, tools, materials and system in learning (Rasimah, Ahmad, & Zaman, 2011). Also, Wong and Teo (2009) opined that perceived usefulness had a direct influence on intention to use, therefore, was ascribed as a major determinant of system supervision and that perceived usefulness has been confirmed to be the stronger of the variables in Technology Acceptance Model. Mechanical Engineering invented the technique of designing and produced a very strong and useful learning tool, from metal through modelling (Abdullah, Muda & Samad, 2008). Biological Sciences utilising modelling as a means of creating made some habitat collection in mainland especially Neotropical lizards which serves as a prey (Steffen, 2009). Researcher in Ecology engaging modelling in clay produced improvised snakes, reptile, and amphibian for educational study of the habitat (Harper and Pfennig, 2007), salamanders (Kuchta, 2005), and frogs (Saporito, 2007; Noonan and Comeault, 2009). Pre primary educators judiciously manipulate modelling media to form basic shapes, sight words, alphabets, and punctuation marks in language and numerical in arithmetic for the beginners, which are utilized along other instructional materials, which in turn renders it permanent in the learners brain (Marshall, 2005).

Modelling media are materials that are mostly utilized for the purpose of casting, building, constructing and making of objects of arts in both two and three dimensional craft forms (Usman, Odewumi, Obotuke, Apolola &

Ogunyinka, 2014). The modelling media are characterised by very malleable and of plastics components (Ajala, 2009; Ibrahim-Banjoko, 2009). The modelling media include Clay, Plaster of Paris, Plastercine, Sawdust, Cement, Fibre glass, Paper Mache, Metal dust and Marble dust. Giving further explanations to these, Cement is a powdered material of different colours that needs to be mixed with sand and water before it can be used. It is extremely strong when set and can be used for hollow cast sculpture suitable for indoors and outdoors but mostly used for direct and casting modelling. Also, Papier Mâché is prepared by using pieces of pounded paper and adhesives. It takes a very long time to set when used in the execution of modelling works directly and in casting (Dianne & Williams, 1992).

Paper Sculpture can directly be explored by using gum or glue and laminated paper. When it is dried, it is extremely hard and water resistant and can be sanded and smoothened mostly for construction of a strong armature made from paper and cardboard (Odewumi, Okeke, Abdulhammed, Uzoma, & Okuche, 2015). Plaster of Paris (P.O.P) is a powerful medium in the process of mould making, direct, carving and casting. It is also used in clinical modelling of fractures. The lowest grade is suitable for making the mould while the higher grade will produce high quality plaster casts and sculptures where structural strength is required. It is normally stored in a dry place to prevent it not to absorb moisture from the atmosphere in order not to retard the rate at which it sets and affects its final strength (Usman, Odewumi, Obotuke, Apolola, & Ogunyinka, 2014).

Plasticine is a soft modelling medium of different colour, characterised as very flexible and adhesive in nature, which makes it easy to disconnect pieces and fix them together without any special jointing methods needed for other materials. It is widely used for modelling, very easily found, non-toxic when compared with other materials (Kothar and Luckham 2014). Clay has a long history of modelling. It is the most common modelling medium from the earth; a very rich medium of modelling in art, flexible, malleable, easy to use and fragile in the dry state. Clay has the second value of the opportunity to be recycled after drying, which makes it useful than other modelling media, and especially the ease of its availability in most settings (Mathieu, 2003). Clay with grog is most suitable for modelling and casting of domestic utensils. Researchers have confirmed the durability of modelling of sculptures from clay throughout the ages and its worldwide usage (Mathide, 2014).

Review of empirical studies on perceived usefulness of modelling media in teaching and learning reveal among others that the use of modelling media is prominent for both the children and the adult in learning some concepts associated with alphabets and letters (Marshall, 2003). Modelling media can also be a motivating factor in the creation objects with different modelling media; however, the success in producing the products elicits permanent joy in the students (Warwick, 2005). The special students are not left out in modelling, they love and manipulate modelling media to form different objects regardless of their impairment during learning (Chandrakant & John, 2014).

On gender, research reveal that perceived usefulness of modelling media allows both men and women to be equally and deeply involved in clay modelling making crafts and associated materials. Women, it is revealed, outnumber men in modelling of cooking utensils employed for domestic purposes (Sacca, 1996). It was also discovered by Dorn (2001) that boys prefer usefulness of clay to other modelling media, assisting them to embark solely on producing flower vase of different patterns as relief on the product, than girls. In another finding of cultural and gender studies it was suggested that women were the first pot makers and that women prefer usefulness of clay medium to any modelling media (Burgess, 2000). Although men perceive usefulness of clay for buildings and structures, women utilise perceived usefulness of clay to produce domestic wares and also, men's perceived usefulness of modelling media especially cement for modelling of outdoor figures, structural designs, and inner poles (Opoku-Asare, 2008). The ceilings and walls structures of buildings were product of perceived usefulness of Plaster of Paris (Ajala, 2009).

Many models have been proposed overtime in the integration of technology in instruction. One of the most notable among them is the Technology Acceptance Model (TAM), which was from the Theory of Reasoned Action (TRA) to the field of Instructional System Design (Olasedidun, 2014). The Instructional System Design Model (ISD) is the systematic approach to the development of instructional specifications, employing learning, instructional theories and, models to ensure the quality of instructions. There has been a widespread research on these variables that has evolved out of the Theory of Reasoned Action. Furthermore, Davis, (1989) explained how individuals make a decision to accept and use a particular technology. It is also used to predict user acceptance based on perceived usefulness and ease of use. Venkatesh and Morris (2000) suggested that TAM's perceived usefulness will be influenced by perceived ease of use, because the easier a technology is to use, the more useful it can be. Also, TAM considers that an individual's intention to use a system will be verified by perceived usefulness of that system. The model implies that when a new package is given to the users, perceived usefulness will impact their urge about how and when they will use the package. Since the perceived

usefulness is said to determine the students utilisation of modelling media, there is need to ascertain whether the present research could agree or not. For the purpose of this study, the conceptual framework in fig 1 is generated to guide the study.
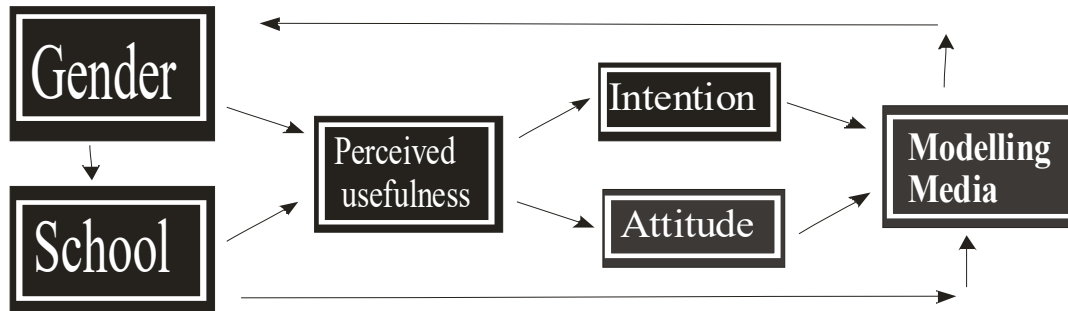
Research Questions

These research questions would be answered in this study

1. Which of the following modelling media do you use?
2. What is the perceived usefulness of modelling media among the 200, 300, 400 and 500 level Fine and Applied arts students of Ahmadu Bello University Zaria, Nigeria?
3. What is the perceived usefulness of modelling media among Fine and Applied Arts' male and female students of Ahmadu Bello University Zaria, Nigeria?

Research Hypotheses

1. There is no significant difference between the Fine and Applied arts 200, 300, 400 and 500 level students of Ahmadu Bello University Zaria, on the perceived usefulness of modelling media
2. There is no significant difference between the Fine and Applied arts male and female students of Ahmadu Bello University Zaria, Nigeria on the perceived usefulness of modelling media.

METHODOLOGY

Research Design

The study was a descriptive research survey type.

Sample and Sampling Technique

The sample for the study was drawn employing purposeful sampling of students of 100, 200,300 and 400 levels of the Department of Fine and Applied Arts of Amadu Bello University Zaria. A total of 114 students constituting 40 males and 70 females were employed for the research.

Research instrument

The instrument for this study was a questionnaire, named Perceived Usefulness of Modelling Media (PUMD). The questionnaire consists of two sections A, and B. Section A sought to find out the modelling media the students frequently use, while section B dealt with student's perception on perceived usefulness of modelling media. This section is divided into 10 items numbered 1 - 10 and were patterned after the five point-Likert rating scale format of Strongly Agree (SA) - 5 points, Agree (A) - 4 points, Disagree (D) - 3 points Strongly Disagree (SD) - 2 points and Undecided (UD) -1 point.

Validation of Research Instrument

The research instrument was tested and found to satisfy face, content and construction validity. It was given to two lecturers in the Department of Educational Technology, University of Ilorin, Nigeria, and a Lecturer in the Department of Fine and Applied arts Obafemi Awolowo University Ile Ife, Osun State, Nigeria, with background knowledge in fine and applied arts. The instrument was further subjected to pilot study and reliability test before using the research instrument. The reliability of the instrument was administered on undergraduate students of Department of Educational Technology and Fine and Applied arts of Obafemi Awolowo University, Ile Ife. OsunState. Nigeria. The Cronbach's alpha value obtained for the reliability was 0. 82. The level of significance adopted for the analysis was $P \leq 0.05$. This level of significance formed the basis for accepting or rejecting the hypotheses.

RESULT

Research question 1: Which of the following modelling media do you use?

This Bar and Pie chart provides answer for research question 1.
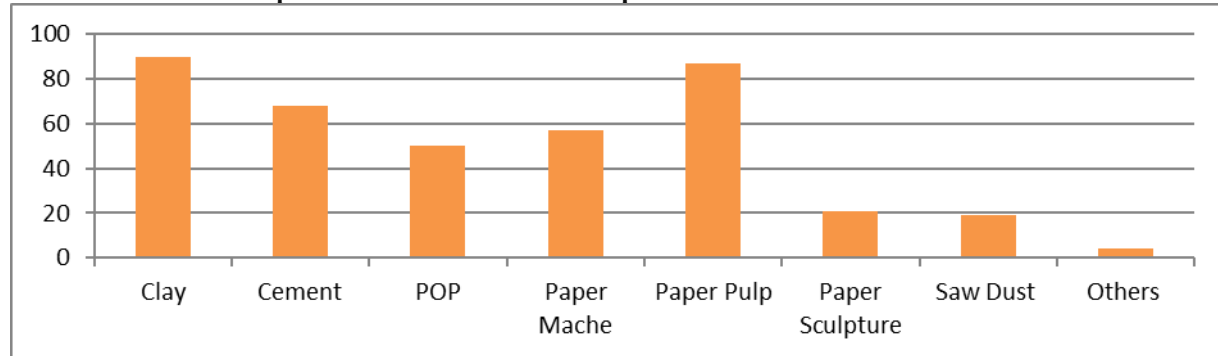
Bar chart on the modelling media used.

Hypothesis 1: There is no significant difference between the Fine and Applied arts 200, 300, 400 and 500 level students of Ahmadu Bello University Zaria, on the perceived usefulness of modelling media

This hypothesis was tested using the ANOVA statistic methods to compare the perceived usefulness of 200, 300, 400 and 500 level students of Fine and Applied Arts Department of Ahmadu Bello University Zaria, Nigeria on modelling media.

TABLE 1: ANOVA statistics on the perceived usefulness of 200, 300, 400 and 500 level students of fine and applied arts department of Ahmadu Bello University Zaria, on modelling media:

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	311.780	4	77.945	1.057	.381
Intercept	21375.951	1	21375.951	289.865	.000
FACTOR	311.780	4	77.945	1.057	.381
Error	8038.158	109	73.745		
Total	121971.000	114			
Corrected total	8349.939	113			

Table 1 indicates that the calculated F value of 1.057 is significant because the significant value of .381 is greater than 0.05 alpha level. The result implies that there is no significant difference in the perceived usefulness of modelling media among 200, 300, 400 and 500 level fine and applied arts students of Ahmadu Bello University Zaria. Therefore, the null hypothesis is accepted. The result implies that students in 200, 300, 400 and 500 levels do not differ in their perceived usefulness of modelling media.

Hypothesis 2: There is no significant difference between Fine and Applied arts male and female students of the department of fine and applied arts of Amadu Bello University Zaria on perceived usefulness of modelling media.

This hypothesis was tested employing the t-test statistic to compare the male and female students means of Fine and Applied arts on the perceived usefulness of Amadu Bello University Zaria on modelling media.**TABLE 2: t-test on the perceived usefulness of modelling media of male and female students of fine and applied arts department, of Amadu Bello UniversityZaria:**

Gender		No	X	SD	df	F	Sig.
Male	40	29.9500	8.578	112	-1.487	.948	
Female	74	32.4459	8.535				

Table 2 indicates that the calculated t(114) = -1.487, p=.948. The result implies that there is no significant difference in the perceived usefulness of modelling media of male and female fine and applied arts students of Amadu Bello University Zaria. Therefore, the null hypothesis is accepted. That implies that the male and

female fine and applied arts students of Ahmadu Bello University, Zaria, do not differ in their perceived usefulness of modelling media.

DISCUSSION OF FINDINGS

The result of ANOVA shows that there is no significant difference in scores of the students on the perceived usefulness of modelling media. This study revealed that there is influence on the students on the perceive usefulness of modelling media. This finding was in congruence with the conclusion of Mahesh Ganesapillai, Arunagiriand Iyyasami Regupathi (2009), Sorby (2010), Ambose and Cheong(2011) based on their review on the importance of clay modelling on educational programme. The t-test analysis shows that gender differences for perceived usefulness of modelling media are not different. This finding agrees with the conclusion of Chen (2010), Taibah (2012) and Al-Suqri (2014) based on their reviewed on TAM model on teaching and learning in educational setting.

It can be concluded that modelling media can be equated with the technological devices such as computer assisted instructional packages, video packages and photo series packages that bring about improvement in students' achievement, speeds up learning rate, enhances better retention, and encourages the development of better attitude in learners. The perceived usefulness of modelling media among the Ahmadu Bello university Zaria, fine and applied arts students should be developed so that students will be skilful and enjoy using the modelling media frequently and benefit from it. Educators should be encouraged to provide modelling media to the fine and applied arts students, monitor the modelling media, encourage the uses and vary the modelling media right from the 200 level assignments. This will expose and widen their scope of modelling skills, foster mastery and competence of the students to enable them specialise in modelling aspect of arts.

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APPENDIX I

QUESTIONNAIRE ON PERCEIVED USEFULNESS OF MODELLING MEDIA.

Which of the following modelling media are you using? Tick as many as may be applicable to you.

Clay ( )	Cement ( )	Plastics of Paris ( )
Paper Mach ( )	Paper pulp ( )	Paper sculpture ( )
Fiber glass ( )	Wax ( )	Marble dust ( )
Soap ( )	Saw dust ( )	Metal dust ( )
Specify others		

SECTION C

Instruction: Kindly respond to all the items in section by putting a tick ( ) in the column that best represents your view on each of the item using the format below as guide. SA (Strongly Agree). A (Agree), UD (Undecided), D (Disagree), SD (Strongly Disagree).

S/N	STATEMENT	SA	A	D	SD	UD
1	Modeling media usage will reduce stress and tension.					
2 .	Modeling media usage will give control over my modelling					
3 .	Modeling media will support the critical part of my modeling task.					
4 .	Modeling media usage will reduce boredom.					
5 .	The use of modeling media will make my skill more diverse					
6 .	The use of modeling media will be earn more productive					
7 .	Modeling media will enhance my effectiveness in art					
8 .	Modeling media usage will increase my daily productivity in art.					
9 .	Modeling media will make me finish the content of my modeling task quickly					
1 0	The modeling will be much more easy with the use of modeling media					