NewsReel

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NEW SKILLS FOR THE NEXT GENERATION OF JOURNALISTS

TEACHING GUIDE

DATA JOURNALISM AND DATA VISUALIZATION

Erasmus+

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für internationalen Journalismus
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About the Newsreel Project

Journalists have an essential role in the new media landscape as a pillar of credible and contextualized information. Being in competition with several alternative forms of news, non-professional or even deliberately manipulated news, professional journalism should be empowered by new competencies and skills.

Opportunities enabled by digital technologies, such as processing, analyzing and visualizing large amounts of data, as well as multi-sectoral and digital cross-border co-operations, open new fields of journalistic activities, and new ways to speak about public issues. However, this environment also entails technical and economic risks, and demands expertise in IT security, as well as the development of business models and strategies from journalists and media companies.

Journalists face several ethical challenges that should be handled to meet their social responsibilities. Fake news and hate speech have become major issues in the public sphere, as have whistleblowing and activism.

By improving skills of a new generation of European journalists, NEWSREEL will contribute to the strengthening of the common European democratic public sphere. It will do so by improving collaborative and cross-border journalism that is able to elaborate and make tangible the huge amount of available data, and which is based on a predictable business strategy and a firm ethical foundation.

The main goal of the project is to develop e-learning materials connected to four fields: data journalism, new business models, collaborative journalism and ethical challenges. All educational materials produced by the project are openly and freely accessible through open licenses via the project's website (https://newsreel.pte.hu/).

The project partners are the University of Pécs, in Hungary; the Erich Brost Institute, from the Dortmund Technical University, in Germany; the University Institute of Lisbon (ISCTE-IUL), in Portugal; and the University of Bucharest, in Romania.

Teaching Guide

The main goal of the teaching guides, there is one for each one of the four fields, is to give some hints and help teachers to implement the courses. Here they can see in a glimpse what contents will be found at the eLearning, the main goals of the course, for whom it was thought, bibliographical references, and other contents.

Data Journalism and Data Visualization

Target audience

The course Data journalism and data visualization has as target audience undergraduate and graduate students, enrolled in Journalism or/and Communication and Media Studies programs. This course is aimed at senior year students (advanced) who already have mastered courses such as information gathering techniques, online journalism, web design/multimedia, investigative journalism, data analysis / statistics. It is also recommended that students already have competencies in using Microsoft Excel (intermediate to advanced level).

General objective of the course

The course's objective is to train future journalists to be able to present stories in a visual digital manner, using data, adapted to new media and new technological tools.

The general objective of this guide is to support Academic Teaching Personnel interested in developing courses, seminars, laboratories and other learning materials as an answer to the clear need of the market which requires the development of students' skills and abilities in using data journalism and data visualization in a highly-qualitative, relevant manner.

The course constitutes a potential basis for the exchange of experience between academic teaching personnel, and is meant to provide a potential approach on how data journalism and data visualization abilities can be taught through specific courses/seminars/e-learning materials aiming to support quality journalism and the use of the data in a strategically meaningful and ethical way. From this perspective, the course's general objective focuses on how to find the most relevant teaching tools on data-journalism and data-visualizations tools. We present a limited (but not restrictive) list of potential applications, as online tools for data journalism and data visualization are subject of high dynamics, due to technological development.

Specific objectives of the course

- How to collect data from online public sources, already available online or on request
- How to search, identify and gather relevant data sets
- How to store, clean and organize data using online and offline computer tools
- How to analyze data using basic statistical methods
- How to discover patterns that are indicating trends
- How to extract relevant information from the data sets
- How to visually present data using graphic design and visual online and offline tools
- How to find the best human sources and experts that can comment findings
- How to tell the story to the public in order to be easily read and understood
- How to make a difference between a bad and a good visual work
- How to transform data into visual storytelling
- How to approach critically other available online materials (due to the dynamics of the field)
- How to approach critically and make potentially use of various online or offline tools

Professional competences to be enhanced

At the end of this course students should be able to: collect data from public sources; store and organize data using available digital tools; analyze data using basic statistical methods; extract relevant information from the data set; clean the data set in order to use coherent information; visually present data using graphic design and visual tools.
In the end of the course they will be able to tell a journalistic story with data and various forms of visualization, adapted to the data structure and to their intended public.

Course

Contents

Chapter 1: Working with Data

Course 1: What is Data Journalism. Why Data Journalism is Important. Data, Information, Knowledge, Wisdom Hierarchy. The Process in Data Journalism. The Inverted Pyramid Of Data Journalism. Instruments For Teaching

Course 2: What data are available for journalists. Instruments for finding public data. Why numbers do count. Getting ideas for journalistic stories

Course 3: Avoiding statistical lies. Redesign to make clear storylines: on clutter, hierarchies and grids. Designing to include audience's needs and interests

Course 4: How to tell a story using data. Type of data analysis

Course 5: Cleaning data in spreadsheets

Chapter 2: Visualising Data

Course 6: Definition of data visualization. History of data visualization. Why is data visualization important.Data analysis and storytelling. Infographics. Examples

Course 7: Visual thinking. Samples of visuals. Storyboards. Visual applications

Course 8 – PART ONE: Charts for data storytelling. The five main charts categories. Charts types – first part – comparing categories, presenting hierarchies

Course 8 – PART TWO: Charts for data storytelling. Charts types – relational, temporal, spatial charts. How to build charts

Course 9: About Maps. Maps for Journalists. Telling a Powerful Story. Types of Maps. Tools for Mapping. Types of formats Used In Mapping

Course 10: How to Tell Stories with Networks. Network visualization. Animated Infographics. Introduction to AR and immersion virtual reality

Teaching methods

The teaching methods recommended are the interactive ones that involve participatory learning, and team working in groups of two or more students. The teachers must first present the information and provide practical examples for each topic. Following the presentations, there will be open discussions or workshops and also open scenarios for homework. Students work together to discover and analyze examples of best practices, journalistic ideas, databases, possible storylines. They will also work together to transform a journalistic idea based on data into an actual data visualization piece. The courses focus on techniques for developing critical thinking, such as a critical approach of the examples of bad vs. good works and of the available self-teaching resources. The course also focuses on developing journalistic skills and abilities related to data journalism, data visualization and teamwork.

Evaluation

Students will go through a continuous assessment during the course and will be awarded bonuses. They will work in teams of two or more, depending on the number of those enrolled. For the final evaluation each team will have to build a journalistic story on a topic of their choice, thus proving they understood the techniques of telling news stories based on data and visual design. The topics will be discussed in advance with the teacher and their colleagues. Homework will be uploaded on a blog with private access. For the seminars, the grade will be 50% for data journalism and 50% data visualization, and the evaluation criteria depend on the newsworthiness and the publication related quality of the work produced by the students.

Short Bibliography

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Notes to the teachers

Data visualization is about facilitating understanding, through art or an artistic approach to data. To understand data we need to represent it in a visual form and to make a text that interprets the data, without overpowering the visual representations.

Data visualization is an important tool for journalists nowadays because it is an excellent manner to transform raw data into visual stories. In a world where people are overwhelmed with information from all sides, organizing data into a visual can be a great way to attract an bored and/ or overwhelmed audience towards public interest stories.

The course is structured into two sections – Working with data and Visualizing data. For each course, the instructors have to prepare examples and/ or mockup data sets, to demonstrate how data can be handled and visualized with the different tools. For example, the cleaning Data section is a more applied course which teaches students how to inspect and clean various types of data. It is very helpful to prepare in advance some mockup data sets which are to be processed first in Microsoft Excel and later in OpenRefine program, to show them the useful functions of both programs in cleaning and organizing data. In another section, students are encouraged to talk about good and bad visualization, so they can understand, through examples, what can go wrong and how a good story can be created and promoted for the intended audience.

As the course has a strong practical aspect, the students are supposed to present at least one publishable material, which is developed, step by step, during the whole semester, and is discussed and improved as the course progresses.

General observations

A course about data inevitably seems about statistics, graphics, digging in the endless financial reports, filling in a series of excel files, all converted to the end to show only the top of the iceberg, which finally goes public. Indeed, data journalism combines a various complexity of data which needs to be organized, sorted, categorized, summarized (so that most of the information is discarded in the trash), to extract the essence, the most relevant accurate pieces of information for the end-user. What the reader/the viewer will see will be a beautiful, powerful story, intelligently packed into a beautifully simple design, meant to rise at the surface due to the accuracy, the relevance and the power of information, revealed through

specific visualization storytelling techniques. Journalists do information gathering and hierarchization, dig into the data and let the pieces of public interest information shine by themselves into an apparently simply designed journalistic piece.

In this form, the data-journalism is an essential tool to revive the essence of quality journalism itself, from its roots - accuracy, relevance - this time packed in an innovative shape, which informs but also touches the receiver. A simple design will potentially serve better accuracy and relevance goals, as compared with a very complicated one, which might risk putting key information in a shadow. Accomplishing the basic journalism mission, data-driven stories packed through visualization techniques will consist in a powerful tool to combat the phenomenon of disinformation.

The team

Antonia Matei, PhD, is a lecturer at the Faculty of Journalism and Communication Sciences (University of Bucharest). For more than 10 years she has been a reporter and editor at the Romanian Broadcasting Corporation. At Radio România Actualităţi she hosted shows like *Objective, Romania* and *Europe, closer to us* and *Our World*. She was also an editor for European Journalism Observatory (Romanian edition). She has a PhD in Communication Sciences and she is passionate about journalism research, new technologies and social media.

Marian Popovici is a PhD student and teaching assistant at the Faculty of Journalism and the Communications Sciences within the University of Bucharest. He is an alumnus of the Faculty of Journalism and Communications Sciences, University of Bucharest, and of the Faculty of Finance, Banks and Accounting at Dimitrie Cantemir University. He holds two master's degrees in Journalism and Financial Banking Management. He is also a sports reporter.

Manuela Preoteasa, PhD, is lecturer at the Journalism Department of the Faculty of Journalism and Communication Studies, University of Bucharest, Romania. She holds a BA in Journalism (1999), a MA in Media Management, and a PhD in Communication Studies (2011). Her professional interests focus on media freedom and independence, media policies, media ownership, evolutions of the media in the post-communist societies of the Eastern and Central Europe, anti-disinformation policies, data journalism and storytelling as forms to preserve quality journalism, and on the impact of European policies on media and communications. She is an interviewed expert for the *Media Pluralism Monitor*, a scientific tool for the use of the European Commission to identify potential risks to media pluralism.

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publications. His interests are in new technologies in media, graphic design and desktop publishing, data journalism, media and religion.

Emilia Șercan, PhD, is lecturer at the Journalism Department within the Faculty of Journalism and Communication Studies, University of Bucharest, Romania. She is, as well, an investigative reporter with 23 years of experience. She has a BA in Journalism (2003), a MA in Sociology (2010) and a PhD in Communication Studies (2013). Her teaching and research interests cover investigative journalism, reporting and writing, academic integrity and censorship in communist media.