



Social Semantic Emotion Analysis for Innovative Multilingual Big Data Analytics Markets

D7.14 Training Activities Report

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Executive Summary

Knowledge transmission has been an essential step in the promotion of the MixedEmotions project and its outcomes. Expressing and sharing the benefits of the analysis of emotions through teaching courses, workshops, webinars and tutorials will make people aware of the interest and opportunities that such a growing hot topic offers in current markets. The diversity of media (TV, internet, phone, etc.) and channels (audio, video, text, fusion) that are embraced by the subject gives the ability to address a large audience, with a wide range of backgrounds.

We are reporting here the results of two years of activities for training on emotions, emotion detection and on MixedEmotions project outcomes. This document follows tasks described in the initial D7.11 deliverable, with a few alterations made to adapt to the evolution of the project and to fit the needs and actual timing of training activities.

Introduction

The main goal of the training work package has been to provide potential users, either from academia or industry, the knowledge on the utility of emotion recognition technologies and how to use the concrete outcomes of MixedEmotions' project, ie. a multilingual, multimodal emotion extraction platform. It is important for the project to make our targeted audience aware of what is an emotion, what valuable information it can give to various domains of application, what impact it can make to the current market, as well as to comprehend to what extent it can fit their needs.

The training part of the project is divided into two subtasks: first, identifying the audience potentially interested by such products and types of analysis, and second determining the appropriate way to transfer the knowledge, fitting the needs and backgrounds of each category of users. This means that we had to determine the expectations of each category of users, and display the potential benefits from MixedEmotions for each of them.

Three different user groups with different interests and goals had been determined from our analysis of the market at the beginning of the project :

- **Industrial users:** their goal is to provide big data powered emotion analysis & decision support for consumers, marketers, competitors or managers.
- **Service developers:** they are interested in developing new services using the MixedEmotions platform for multilingual emotion analysis across different media/modalities.
- **Researchers:** they want to learn more about affective computing, semantic technologies and big data.

As for the training itself, activities performed throughout the project have been categorized into two main types:

- **Web based/remote activities:** webinars, a training video, tutorial handouts, documentation, blog and social media activity.
- **Face to face activities:** presentations and booths at industry meetups, summer schools, academic education, ad-hoc talks to relevant companies.

This document will present a detailed view of all training activities performed throughout the project, with the audience targeted, the action performed, and feedback from the attendants, when available.

1. Web-based activities

Web based training activities included interactive activities in the form of webinars and provision of static training resources and training relevant social media activities.

1.1. Webinars

In order to provide a more personalized training, adapted to the backgrounds of the users who might make use of the MixedEmotions platform, we chose to dissociate two types of webinar. One more general, business-oriented, on the project's subject, the three use cases and planned platform capabilities. And the second one, more detailed, on the structure of the platform, how to use it and with some concrete examples of use, more intended for developers and technical staff.

Since the technical details became clear only in the second year of the MixedEmotions project, the business webinars were produced and presented first (from month 14 onwards), while the technical webinars began in month 20.

1.1.1. Business Webinars

The business oriented webinars presented the business context, opportunities and practical use cases of emotion processing through the MixedEmotions platform. It was intended to focus on industrial stakeholders with business oriented profiles.

As potential users interested in the business side of MixedEmotions, 27 companies and organizations names in different sectors were gathered from every partner's contacts, from various countries in the EU, and also the USA. The group is made up of SMEs, multinationals as well as academic organizations, and come from many different industry sectors.

The material used was aimed to be easily followed and understood by non-technical users, with no previous knowledge of emotion analysis or big data.

As for the webinar content, the platform itself was briefly presented from a high level view, with a explanation of what are emotions, how they can be represented and used, along with descriptions of the three project pilots that showcase the potential use of the platform in three very different scenarios: brand reputation, social TV, and call centers. This webinar also aimed at identifying additional business requirements from potentially interested companies.

The business webinar was held twice during the project, on May 26th and June 30th 2016, for a total of 22 attendees, and received in both cases positive feedback from the satisfaction surveys which were given at the end of each presentation.

More details about the material, content, participants and outcomes is available in the deliverable D7.13.

1.1.2. Technical Webinars

This webinar targeted employees with technical profiles within industries that could potentially benefit from the platform. The aim was to provide a training on the technical makeup, capabilities and deployment options of the platform, enabling participants to make an informed decision on deploying the platform for their respective organisations and providing a starting point for actual deployment for interested parties. Four webinar sessions were held from January to April 2017.

The webinars were attended by representatives of 12 companies from across Europe. A total of 18 participants external to the project attended the webinars, with a further 15 registrants who did not participate, but showed their interest.

A brief voluntary survey was performed after each webinar presentation, and was completed by a total of 5 attendees. Respondents found that the MixedEmotions platform toolbox is valuable, 4 agreed they would recommend it (the other was ambivalent) and all agreed that it was a “satisfying experience”.

More details about the material, content, participants and outcomes is available in the deliverable D7.13.

1.2. Online Handouts, Video & Documentation

A number of training materials have been produced during the project and are available online. MixedEmotions social media output has also included instructive articles on emotions and emotion recognition and links to useful related resources.

1.2.1. Webinar and tutorial handouts

Materials for the SEMANTICS 2016 tutorial (see Section [2.2.](#)) were made available online (see the platform website tutorials page link below). These included tutorial instructions, data, configuration files, etc.

The technical webinars were accompanied by three handouts: the webinar slides, the tutorial handout (which includes links to tutorial resources) and a document with useful links and contact information. Links to these handouts can be found on the platform website:

- Platform website tutorials page (<http://mixedemotions.insight-centre.org/videos>)

1.2.2. Technical webinar and promotional videos

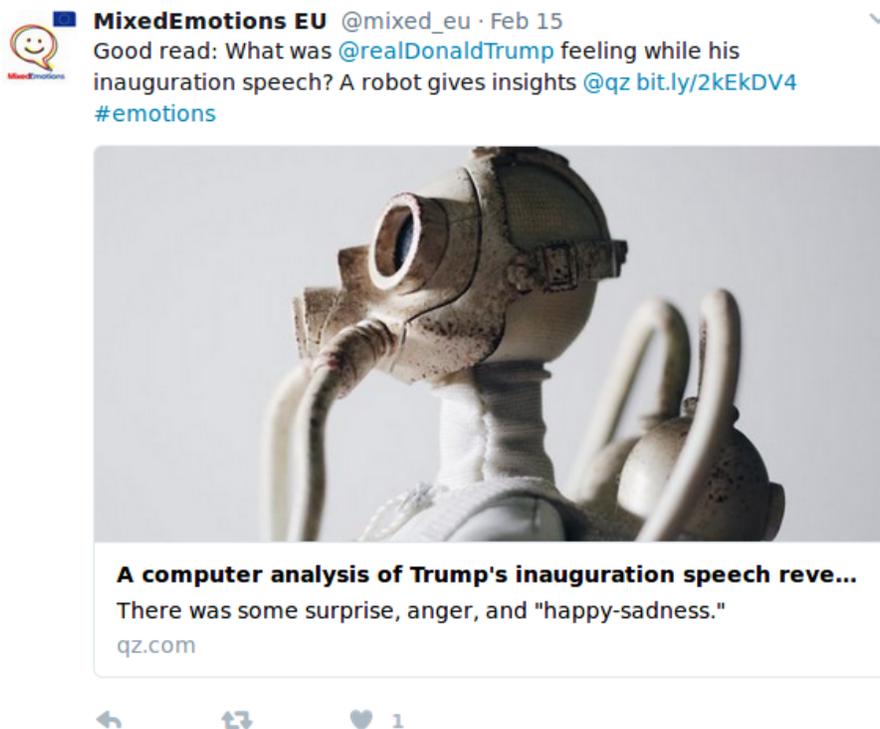
Two videos relating to the project are available online: a recording of one of the technical webinar presentations and a promotional video for the project that provides background information on emotion analysis in the big data age.

- The technical webinar (<https://www.youtube.com/watch?v=49vk9k6Ym-o>)
- The promotional video (<https://www.youtube.com/watch?v=3gVEY3zowqs>)

1.2.3. Project blog and social media activities

The project maintained a blog which presented many informational and educational posts relating to emotion analysis, big data and usage and applications of the MixedEmotions platform. Similarly, the project was active on Twitter with many tweets linking to events and resources related to emotion analysis in the big data age.

- MixedEmotions blog (<https://mixedemotions-project.eu/blog/>)
- Twitter account (https://twitter.com/mixed_eu)



**Retweet of a study on Donald Trump's feelings
Based on twitter during the inauguration speech**



**Retweet of an article studying relationships
between emotional humans and emotional technologies.**

1.2.4. Platform documentation

The documentation for the MixedEmotions platform consists of information and instructions for the use of each component of the platform (stored in the GitHub and DockerHub repositories for the respective component) and an additional GitHub repository providing an overview of the platform components and general instructions. These repositories are grouped together in the MixedEmotions GitHub organisation:

- MixedEmotions overview (<https://github.com/MixedEmotions/MixedEmotions>)
- GitHub organisation (<https://github.com/MixedEmotions>)

- DockerHub organisation (<https://hub.docker.com/r/mixedemotions/>)

2. Face to Face Activities

Face to face training activities included professional training activities such as tutorials, workshops and presentations at industry events or to individual industry representatives, and academic training activities such as formal academic courses and summer schools.

These covered a wide range of topics including general aspects of emotion recognition and its applications, technical details of platform architecture and usage and in-depth education in state of the art emotion recognition techniques.

2.1. Professional Training Activities

The MixedEmotions project partners were active in communicating the value of emotion recognition technologies and presenting the emotion recognition and other capabilities generated by the project. This included both formal settings, such as presentations at industry events, and informal communication with individual industry representatives.

2.1.1. SEMANTICS Tutorial

A tutorial session on the MixedEmotions platform was carried out at the SEMANTICS conference on Sep 12, 2016. The aim of the session was not only to raise awareness on the activities within the project, but to showcase the MixedEmotions toolbox and the modules developed thus far. During the tutorial, all attendees were guided through the process of downloading and using the open source tools that are a result of the project, using their own laptops and computers.

2.1.2. EUROLAN 2015

Several researchers from the Insight Centre for Data Analytics at National University of Ireland, Galway (NUIG) ran a course 'Linguistic Linked data for Emotion and Sentiment Analysis' as part of the EUROLAN 2015 summer school in Sibiu, Romania - see also <http://eurolan.info.uaic.ro/2015/program/>

2.1.4. Other Talks and Presentations

MixedEmotions has presented and exhibited on emotion recognition technologies and project outcomes at several industry meetups as well as in informal meetings with representatives of interested companies. These activities have served to increase awareness of the utility of emotion recognition technologies in a modern context as well as the capabilities and requirements of concrete services developed by the project.

Professional and industry focused events included:

- Excel@FIT 2017, Brno – student conference of innovations, technologies and science (Phonexia member as a speaker)
- SpeechTEK 2017, Washington - smart customer interaction event -> Phonexia referred about a commercial exploitation of Speech technologies (Phonexia as an exhibitor)
- CCW Berlin 2017 – the European leading event about the future of customer services, call center technologies and the near future (Phonexia as an exhibitor)

- MetaForum 2016, Lisbon¹ – an international conference on powerful and innovative language technologies for the multilingual information society, the data value chain and the information marketplace (NUIG as speaker).
- Augmented Human Demonstrator Event, Dublin 2017 – an event hosted by Ireland's Insight Centre for Data Analytics and attended by over a hundred industry representatives (NUIG as exhibitor).

In addition, focussed presentations covering aspects of emotion recognition technologies and MixedEmotions platform capabilities were made by NUIG to representatives of Fuji-Xerox, Joulica, IBM and CISCO who had expressed an interest in project outcomes.

2.2. Academic Courses

Over the course of the project, all academic partners provided academic courses that covered aspects of emotion analysis across media and the products of the project. Natural language processing was a prominent theme among these courses, as well as emotion representation and audio processing.

2.2.1. From BUT

Brno University of Technology (BUT) ran the course ZPJe or “Zpracovani prirodneho jazyka (prednaseno v anglictine)” - “Natural Language Processing (taught in English)” for Erasmus students in winter term 2016. This course was intended for Master students. In this course various techniques were presented for emotion recognition and sentiment analysis from text that are used within the MixedEmotions project. Also, some techniques for emotion recognition and sentiment analysis from multimedia were discussed.

2.2.2. From NUIG

As part of the MSc in Data Analytics, MixedEmotions researchers from the Insight Centre for Data Analytics at the National University of Ireland in Galway (NUIG) ran a course on natural language processing in 2016 and 2017 that covered several aspects of the MixedEmotions research as performed in the context of WP4.

2.2.3. From UP

In the “Intelligent Audio Analysis Course” offered in the University of Passau (UP) in March-June 2016, the MixedEmotions project was introduced to the students and some demonstrations were performed on audio analysis using the MixedEmotions toolbox.

2.2.4. From UPM

Universidad Politécnica De Madrid (UPM) carried out two training activities during the second half of the project. The first activity was a special session on emotion analysis in May 2016. This class was mostly aimed at students enrolled in “Sistemas de información y tecnologías del conocimiento”, who already have basic knowledge of NLP and machine learning. The course covered the basics of sentiment and emotion analysis, the differences between types of affect, and the challenges they pose. The remainder of the

¹ http://www.meta-net.eu/events/meta-forum-2016/index_html

session was a hands-on introduction to sentiment analysis, using MixedEmotions tools, to create applications such as a “map of emotions in Twitter”.

The second activity was a master class in March 2017, "Senpy and MixedEmotions: development and deployment of analysis plugins". The class was split in two parts. The first one focused on developing new text analysis services using the senpy framework, and exploiting the common schema and APIs to integrate any of these services in different applications. The slides to this part are public². The second part focused on the role of these services in the MixedEmotions ecosystem.

3. Summary and conclusions

The MixedEmotions project has engaged in a variety of training related activities over the course of the project. These activities have variously targeted all the identified user groups (industrial users, service developers and researchers) and included technical and business oriented webinars, presentations and demonstrations at industrial meetups, public release of training materials, summer schools, formal academic courses and several other activities. These have been both face to face and online. Feedback has been positive overall, with good event attendance, positive informal feedback and very positive survey responses.

² <https://lab.cluster.gsi.dit.upm.es/senpy/senpy-tutorial>