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SCoRE|17

Science Communication for Researchers in Education

Autumn School e-book

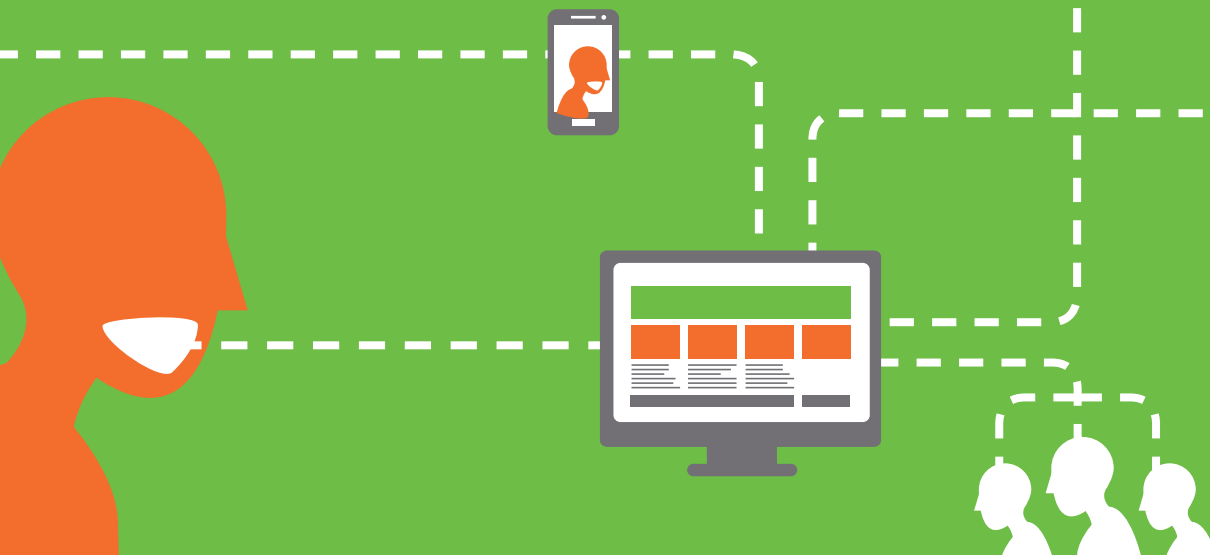
November 5th to 10th, 2017

Research Center on Didactics and Technology in the Education of Trainers

Department of Education and Psychology
University of Aveiro

Fábrica Centro Ciência Viva de Aveiro

autumnschool.web.ua.pt



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Title

SCoRE'17 – Science Communication for Researchers in Education: Autumn School e-book

Coordinators

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Design

Joana Pereira

Editor

UA Editora
Universidade de Aveiro
Serviços de Documentação, Informação Documental e Museologia

1ª edição – outubro 2017

ISBN

978-972-789-526-7

CIDTFF - Research Center on Didactics and Technology in the Education of Trainers
Universidade de Aveiro, 2017

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This work is financially supported by National Funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., under the project UID/CED/00194/2013

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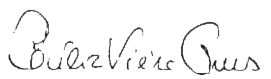
Welcome to SCoRE'17

Welcome from SCoRE'17 Coordinators

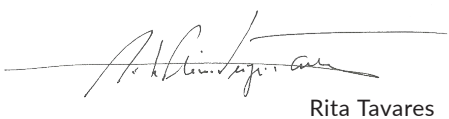
Welcome to the 1st edition of Autumn School CIDTFF entitled "SCoRE'17 – Science Communication for Researchers in Education: how to do it successfully"!

We are happy to receive you in Portugal, particularly in our city and in our University. We hope you will feel at home during the week and that the program (scientific, social and cultural) fits your expectations and is fruitful in the creation or strengthening of bonds and discussions.

SCoRE'17 will be a unique experience for you to learn how to communicate your research in multiple ways and to contribute to public awareness of Research in Education!



Cecília Guerra



Rita Tavares

Helena Araújo e Sá

Welcome from the director of Fábrica Centro Ciência Viva de Aveiro

Fábrica Ciência Viva is a Science Centre at Aveiro that results from a partnership between the University of Aveiro and the Ciência Viva National Agency. Fábrica was accomodated in an old milling plant and has started its activity on the 1st July 2004. This Science Centre is the interface unit of the University of Aveiro that links scientific community with society. Fábrica has twelve science spaces, including exhibitions, labs, makerspace, workshops or thematic rooms. Our Science Centre is part of the National Network of Ciência Viva Science Centres and is part of International Networks, such as ECSITE, ASTC or EUSEA. The main goals of our Science Centre are science dissemination and the promotion of scientific and technological culture, which are achieved through an annual science communication program focused on Science with and for Society. We believe that SCoRE'17 is a great opportunity for those who wish to foster competences in science communication and to learn how to communicate their research in order to contribute to public awareness of science.

All participants are welcome to Fábrica for a scientific week full of communication.

Pedro Pombo

About SCoRE'17

Autumn School theme

Several studies on the relevance of science communication have been carried out with an emphasis on the transfer of research results into action (Bennet, 2007) and on the role of educational research in public policies' decision-making (Nutley, Walter & Davies, 2007). In this context, the concept of "knowledge mobilization" (KM) in education acquires a big importance (Cooper, Levin & Campbell, 2009), directly relating research, policy and practice (Levin, 2011) and putting an emphasis on the adjustment of scientific knowledge to its practical use. Regarding this, Cooper, Levin, & Campbell (2009) underline:

> *"The metaphor used to differentiate broadcast or dissemination and mobilization of knowledge, mobility or another, is that you can assign to the success of the growth of a plant. Not just the mere distribution of seeds on a piece of land. While the diffusion or dissemination compares to the playground seeds, mobility or knowledge mobilization involves other processes related to the preparation of the Earth: your fertilization, irrigation, as well as the commitment that-the end-planting flower". (p. 3)*

Thus, KM involves an intermediate stage between the educational research results obtained and their practical use, which is directly related to and influenced by science communication. To communicate with the scientific community the privileged means is academic writing and scientific publication (e.g., journals, books). However, the public in general (e.g., educators, schools, politicians, society) prefer mediating processes of scientific knowledge dissemination that can include, academic events, broad publications, and mass and trade media (Cooper, Levin, & Campbell, 2009).

Currently, the scientific and technological development as well as the growth of social media have changed the way people access and share information (Kaplan & Haenlein, 2010). The potential of social media for knowledge

exchange has been recognized within the academia (Collins, Shiffman, & Rock, 2016) as it has enabled researchers to communicate their results in a quicker and more efficient way to everyone and everywhere (Van Eperen & Marincola, 2011). Furthermore, social media has created networked communication channels which facilitate interactions as the exchange of knowledge internally, within and among scientific and academic communities, as well as externally, in informal social circumstances, to engage the public (Collins et al., 2016). However, it is important to know which technologies researchers are using to communicate their research and if they are using them effectively (Van Eperen & Marincola, 2011). Autumn School CIDTFF 2017 aims to help participants to reflect how they can communicate effectively their research using digital technologies.

Higher Education Institutions (HEI) increasingly recognize the need to promote public understanding on sciences and use of research findings, especially on "Exact Sciences" and "Engineering". The UA, for instance, invested on different initiatives that, on the one hand, promote the dissemination of research results, such as newsletters (e.g., "Newsletter da UA"; "UA online"), and, on the other hand, bring society closer to research, such as videos (e.g. "UA explains" (originally "A UA explica"); "One minute of Science" (originally "Um minuto de Ciência"). However, these initiatives are still limited as far as Social Sciences are concerned, particularly Education. Consequently, educational researchers should be stimulated to promote the impact and sustainability of their educational results and innovations (Guerra & Costa, 2016). The scientific knowledge produced in the educational research community should be accessible and understandable to diverse publics (educational, academic, political). In fact, the lack of public understanding about scientific topics is enormous (Martins, 2016).

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Nutley, S. M., Walter, I., & Davies, H. T. O. (2007). *Using evidence: How research can inform public services*. Policy press.

Van Eperen, L., & Marincola, F. M. (2011). How scientists use social media to communicate their research. *Journal of Translational Medicine*, 9(1), 199.

Purpose and aims

The main purpose of this programme is to develop the participants' competences in Science Communication aiming at different audiences (e.g., politicians, academics, teachers and students and public in general) by (i) using different approaches (e.g., press releases, infographics), and (ii) adopting diverse media channels (e.g., YouTube, Facebook, newspapers).

It will involve different experts and trainers [keynote speakers, professors/ monitors and post-doctoral researchers] in Science Communication and research in Education that stand out for communicating science in a creative way.

SCoRE'17 aims to:

- increase participants' engagement and expertise in different Science Communication approaches for diverse publics;
- develop participants' transversal competences, such as autonomous learning, reflective competences, digital competences, data management, and public presentation;
- promote an international academic network of "Science Communication on research in Education".

Committees

SCoRE'17 Coordinators

Cecília Guerra
(Post-Doctoral Research Fellow)

Rita Tavares
(PhD Research Fellow in Multimedia in Education)

Helena Araújo e Sá
(CIDTFF Coordinator & Associate Professor with Aggregation)

Organizing Committee

Ana Oliveira
(PhD Student in Multimedia in Education)

Ana Varela
(Research Fellow)

Ângela Espinha
(PhD Research Fellow in Education)

Carla Ferreira
(PhD Student in Education)

Joana Pereira
(Research Fellow)

Margarida Marques
(PhD in Education, Research Fellow)

Constança Mendonça
(PhD in Education, SCIRP-UA)

Liliana Oliveira
(PhD in Science Communication,SCIRP-UA)

Rosa Paula Varela
(Financial support CIDTFF/DEP/UA)

General information

Scientific Committee

Ana Raquel Simões
(Invited Assistant Professor)

Ana Rodrigues
(Assistant Professor)

Manuela Gonçalves
(Assistant Professor)

Nilza Costa
(Full Professor)

Rui Vieira
(Assistant Professor)

António Pedro Costa
(Post-Doctoral
Research Fellow)

Lúcia Pombo
(Invited Scientist Fellow)

Mónica Lourenço
(Post-Doctoral
Research Fellow)

Vânia Carlos
(Post-Doctoral
Research Fellow)

Xana Pinto
(Post-Doctoral
Research Fellow)

Conference Venue

SCoRE'17 will be supported by the Research Center on Didactics and Technology in the Education of Trainers (CIDTFF) at the Department of Education and Psychology of the University of Aveiro (UA), Portugal.

SCoRE'17 sessions will take place at Fábrica Centro Ciência Viva de Aveiro. The meals will predictably take place at the Snack-Bar/Self-Service.

FÁBRICA
CENTRO CIÊNCIA VIVA
aveiro

1

[1] Images available at http://bit.ly/2yiq6bF and http://bit.ly/2z2rBYk

Aveiro Map

1. Fábrica Centro Ciência Viva de Aveiro | 2. DEP - UA | 3. Snack bar | 4. Abeiro Inn
5. Cais da Tosca | 6. Museum | 7. Train station | 8. Aveiro Hospital | 9. Police

Registration and information

SCoRE'17 will be held in Fábrica Centro Ciência Viva de Aveiro. The secretariat of the conference will be open from 2:00 pm on Sunday. At the reception, you will receive the documentation for the autumn school.

If you need help, you may contact:

CIDTFF: (+351) 234 247 111

Meeting rooms

SCoRE'17 will have meeting rooms available for all participants:

Amphitheater: Where lectures will generally be held.
Math Games room: Where the workshops will generally be held.
Holography room: Room for mentoring sessions

Food and Drink

There will be two coffee breaks each day, one mid-morning and one mid-afternoon. Coffee, tea, water, fruit and snacks will be available.

Lunch will be served in Snack-Bar/Self-Service. It is possible (and pleasant) to walk to the Snack-Bar/Self-Service (10 min.). The Snack-Bar/Self-Service offers four possible dishes everyday: meat, fish, diet and vegetarian. The tickets for lunch will be given in the reception of the conference by the secretariat.

If you would like to have lunch or dinner off campus, see more information here: http://www.aveiro.co.pt/categoria.aspx?categoria=restaurantes

General information

Social Programme

"AveiroTour"

The Autumn School CIDTFF 2017 offers some social activities that will allow the participants to know the city of Aveiro, its history and traditions. These activities will take place in the last day. They are optional and free. The Museum of Aveiro and the Santiago da Fonte Saltplan are iconic for the city and represent its history.

14:15 | The Santiago da Fonte Saltplan

15:15 | Museum of Aveiro

Computer and Internet access

Visitors at the University of Aveiro may connect to Eduroam for wireless networking.

Username: fabricacienciaviva@visit.uaveiro.eu
Password: fabrica
Network access period: 05.11.2017 - 10.11.2017

Information to configure the internet access is available on the following webpage: http://www.ua.pt/stic/pagetext.aspx?id=15224

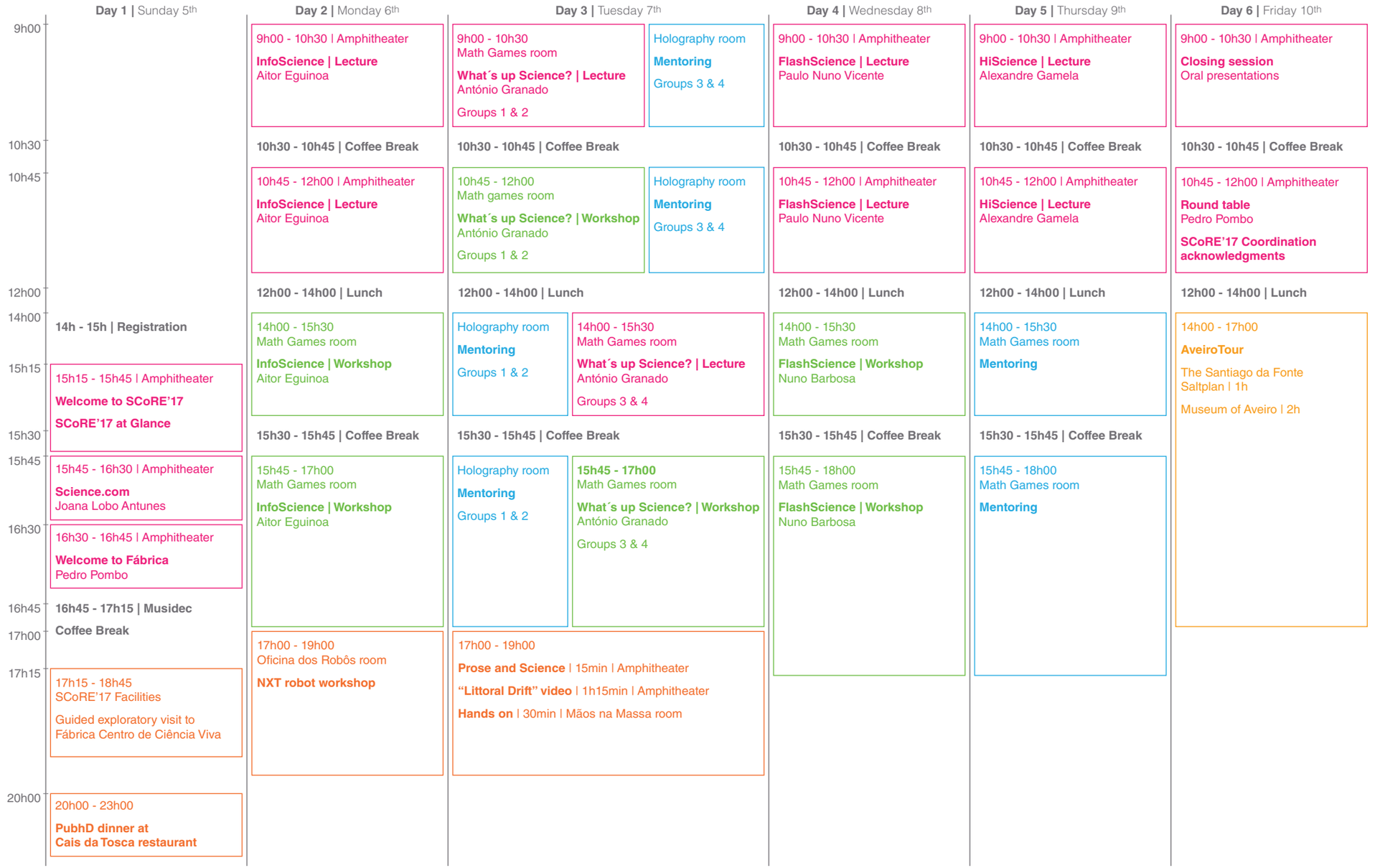
Transport

Information about transports in the Aveiro region can be found at:
AveiroBus: http://www.aveirobus.pt/
Train: CP - Comboios de Portugal - www.cp.pt
Taxi: Aveiro Taxi +351 234 385 799

In case of emergency

In the case of an emergency, please call the following number:
112 – Ambulance

SCoRE'17 at a glance



Detailed Programme and Keynote Speakers

Day 1 (November 5th) | Welcome day - Science.com

14h00 - 15h00 | Registration

15h15 - 15h45 | Amphitheater

Welcome to SCoRE'17

Rector of UA

Director of DEP

Coordinator of CIDTFF

SCoRE'17 coordinators

SCoRe'17 at a glance

Cecília Guerra

Rita Tavares

15h45 - 16h30 | Amphitheater

Science.com

Joana Lobo Antunes

The role of Universities in science communication.

16h30 - 16h45 | Amphitheater

Welcome to Fábrica

Pedro Pombo

16h45 - 17h15 | Musidec
Coffee Break

17h15 - 18h45 | SCoRE'17 facilities

Guided exploratory visit to Fábrica Centro Ciência Viva de Aveiro

20h00 - 23h00 | Cais da Tosca restaurant

PubhD dinner at Cais da Tosca restaurant

The participants will have the opportunity to explain their individual project to other colleagues and mentors in an informal context. The talks must be at a "pub level", i.e., the idea is that you don't have to be an academic to understand the talks.

Day 1 | Welcome day - Science.com

Keynote speaker of the day

Joana Lobo Antunes coordinates the interface of ITQB NOVA (Instituto de Tecnologia Química e Biológica António Xavier of the NOVA University of Lisbon) with the outside world, through institutional communication, science outreach programs, training scientists in communication and acting as media relations. Also committed in doing research in Science Communication.

Dialogue and reflection about what is the role of Universities in science communication

Knowledge is created at Universities and research institutes, and it is the place where researchers and students of all ages discuss latest science advancements. In the last couple of decades, Universities and research institutes have become acutely aware of the need to better communicate with different parts of society and to open the doors and translate their knowledge to the untrained eyes and ears. Open days, science fairs, science talks, connection with museums and science centers have been some of the strategies adopted. Nevertheless, there seems to be difficulties to reach large audiences. Why is that and what can we, as researchers, contribute to the change we want to see in the world? And also, what is the role of Science Communicators in that endeavor?

Day 2 (November 6th) - InfoScience

9h00 - 10h30 | Amphitheater

InfoScience | Lecture

Aitor Eguinoa

Discussion about: what are infographics? What are they for?
How can they help us in research and dissemination?

10h30 - 10h45 | Coffee Break

10h45 - 12h00 | Amphitheater

InfoScience | Lecture

Aitor Eguinoa

Presentation and discussion about online tools to develop infographics.

12h00 - 14h00 | Lunch

14h00 - 15h30 | Math games room

InfoScience | Workshop

Aitor Eguinoa

To develop infographics based on academic projects (e.g., abstract, data)

The students will need PC, pencils and paper.

Software:

- Excel (if possible)
- "Tableau Public" (free) available at https://public.tableau.com/en-us/s/

Day 2 | InfoScience

15h30 - 15h45 | Coffee Break

15h45 - 17h00 | Math games room

Continuation

17h00 - 19h00 | SCoRE'17 facilities

NXT robot workshop | *Oficina dos Robôs*

Keynote speaker of the day

Aitor Eguinoa studied Sciences of Communication at the University of País Vasco (UPV-EHU). He has worked in the infographics department in many media channels, such as El Correo (Bilbao), La Nación (Argentina) and El País (Madrid). Since 2005 he is founder partner of Estudio 90 grados, which is an enterprise specialized in bringing graphic communication closer to areas not related to traditional media. Throughout these years he has received several international awards including one gold medal and two silver medals in the Malofiej Awards of infography. Since 2012 he teaches online infography in the Faculty of Communication of the University of Navarra.

Infographics: a tool to visualize your knowledge

What are infographics? What are them for? How can they help us in research and dissemination?

The infography is a tool based on the way our brain understands and processes data, which can help us to organize and hierarchize our ideas and to communicate our research projects and conclusions in a simple, attractive, easy to understand and to memorize way.

Before using this tool we must know the rules it is based on and which graphic codes should we use to respond graphically to the most common questions (What, Who, Where, When, How much, How and Why).

Different types of graphic visualizations will be presented, as well as examples and possible applications to scientific topics. We will first analyze the different steps to shape a specific content graphically. Besides that, we will see how

to select the most relevant data and ideas, how to arrange those ideas in a paper and how to give them a graphic hierarchy.

We will also comment on some free online tools that we can use to create our visualizations (Tableau, Inkscape, Carto DB…).

Day 3 (November 7th) - What's up Science?

9h00 - 10h30 | Math games room	Holography room
What´s up Science? | Lecture António Granado Discussion about differences between scientists and journalists and how science communication can be enhanced; constraints and how science institutions can help to bring better science to the general public (Groups 1 and 2)	**Mentoring** Individual work in the facilities with Mentors' support (Groups 3 and 4) The students will need PC, pencils and paper

10h30 - 10h45 | Coffee Break

10h45- 12h00 | Math games room	Holography room
What´s up Science? | Workshop António Granado To write a press release based on academic projects (e.g., abstract) (Groups 1 and 2) The students will need PC, pencils and paper	**Mentoring** Individual work in the facilities with Mentors' support (Groups 3 and 4) The students will need PC, pencils and paper

12h00 - 14h00 | Lunch

Day 3 | What's up Science?

Holography room	14h00 - 15h30 | Math games room
Mentoring Individual work in the facilities with Mentors' support (Groups 1 and 2) The students will need PC, pencils and paper	**What´s up Science? | Lecture** António Granado Discussion about differences between scientists and journalists and how science communication can be enhanced; constraints and how science institutions can help to bring better science to the general public (Groups 3 and 4)

15h30 - 15h45 | Coffee Break

Holography room	15h45 - 17h00 | Math games room
Mentoring Individual work in the facilities with Mentors' support (Groups 1 and 2) The students will need PC, pencils and paper	**What´s up Science? | Workshop** António Granado To write a press release based on academic projects (e.g., abstract) (Groups 3 and 4) The students will need PC, pencils and paper

17h00 - 19h00 | SCoRE'17 facilities

Prose and Science | 15min | Amphitheater

"Littoral Drift" video | 1h15min | Amphitheater

Hands on | 30min | *Mãos na Massa*

Keynote speaker of the day

António Granado is assistant professor of Journalism at Universidade Nova de Lisboa, where he coordinates the master's programs in Science Communication and in Journalism. From 1989 to 2010, he worked as a science journalist for Público, one of Portugal's main daily quality newspapers, where he also was science editor, sub-editor-in-chief, managing editor and online editor. From 2010 to 2014, he worked as the online editor for RTP, the Portuguese public broadcaster. He holds a MSc on Science Journalism from Boston University, in the US, and PhD on Communication Sciences from the University of Leeds, in the UK.

What's up Science?

The relationship between scientists and journalists has been improving in the last few years, mainly because both professional groups are starting to recognize and respect their different cultures. To understand how journalists work and what their expectations are when contacting sources is crucial to improve the connection of these different worlds and, ultimately, serve the people who want to know more about what happens in laboratories all over the world. In this short talk, I will be speaking about the differences between scientists and journalists and how science communication can be enhanced. From a newsroom perspective, I will also talk about the constraints science journalists face on a daily basis and how science institutions can help to bring better science to the general public.

Day 4 (November 8th) - FlashScience

9h00 - 10h30 | Amphitheater

FlashScience | Lecture

Malcolm Love

Discussion about filmmaking skills and how to apply them to tell the stories of science; about some of the hidden artfulness of successful filmmaking; and about some simple ideas that make a large difference when communicating science

Paulo Nuno Vicente

From the “abstract” to the “storyboard”

The students will need PC, pencils and paper

10h30 - 10h45 | Coffee Break

10h45 - 12h00 | Amphitheater

FlashScience | Lecture

Paulo Nuno Vicente

Rec/Stop: Video sequence exercise

The students must bring some recording device with HD quality (e.g.,smartphone, a still camera, or a video camera)

The students will need PC, pencils and paper

12h00 - 14h00 | Lunch

14h00 - 15h30 | Math games room

FlashScience | Workshop

Nuno Barbosa

Basic notions of film editing and animation. The students will film and edit their own short video.

The students must bring:

- some recording device with HD quality (e.g.,smartphone, a still camera, or a video camera);
- photos, videos, graphics, and/or animations that illustrate or are related to the project

Software:

- "Open Shot" (free) available at http://openshot.org/

15h30 - 15h45 | Coffee Break

15h45 - 18h00 | Math games room

Continuation

Keynote speakers of the day

Malcolm Love worked for the BBC as a programme maker (and occasional presenter) in London, Cardiff and Bristol where he became a senior producer for features and documentaries. He now works in three areas: as an independent producer; he teaches science communication at the University of West of England in Bristol; and he coaches people and groups to communicate on radio, TV and to speak in public. Malcolm is the British Council's lead trainer for the science communication competition 'Famelab International' which, each year runs masterclasses in communications in 33 countries and organisations around the world. Malcolm also presents 'Love and Science' a weekly radio show about science in the news and behind the news. He began 3 years ago to teach himself 'live DJ style presenting' and says he has nearly figured it out!

Science and the Art of Film

The democratization of filmmaking has been one of the most exciting and liberating developments in media of the last two decades. Now most people have the technical means (or knows someone who has the technical means), not only to make a film, but to broadcast it via the internet. This revolution has opened up so many more possibilities for science communicators. Now, almost anyone can make a film – but not everyone can make a compelling film, or a memorable film or one that makes an impact on viewers. Why is that? Because, after we have taken care of the technology, what we are left with is pure film making: choosing (or rather recognizing) a subject, framing shots, directing presenters, conducting interviews, recording clear sound, selecting and editing shots, creating a story, deciding how to transition

between one shot and another. This session explores these core filmmaking skills and applies them particularly to telling the stories of science. We reveal some of the hidden artfulness of successful filmmaking and look at the often simple ideas that make a large difference.

Paulo Nuno Vicente works as an Assistant Professor at Universidade Nova de Lisboa, where he coordinates iNOVA Media Lab, a research and development laboratory dedicated to immersive and interactive narrative, digital journalism, science communication, digital methods and information visualization. He started his career as a non-fiction multimedia storyteller. As a journalist and as a documentary filmmaker he has worked extensively across Sub-Saharan Africa, the Middle East and Latin America. In 2013, he founded Bagabaga Studios, an interdisciplinary co-op dedicated to digital media production and training. He holds a PhD on Digital Media (UT Austin Portugal) and he was a 2016 Fellow of the German Marshall Fund of the United States.

Science in Motion

It is simple to define climate change as an abstract process: human-produced carbon emissions are changing the composition of our atmosphere and warming the planet. It is less easy to make climate change comprehensible as a concrete personal and community experience for distinct stakeholders like policy makers, news media professionals and citizens. Why is that? That's because as humans we are hardwired for stories. We need a storyline. But what makes a story? And how can we merge narrative and visual elements in order to translate complex concepts? That's the story of this workshop. To be continued.

Nuno Barbosa is an Invited Assistant Professor at the Department of Communication and Art of the University of Aveiro. He has a Degree in Communication Design by the University of Aveiro and a Master's Degree in Multimedia Communication & Digital Audiovisuals, also by the University of Aveiro. He is also a producer / director and won some international awards: RØDE International Film Competition, Creative Macau – Sound and Image, Magnolius Music Video Competition.

Lights, camera, action!… and post-production

In this workshop, we will produce a short presentation video of the participants, using a lighting setup, a camera and video editing software. Some basic animation technics will also be introduced.

Before the workshop, the installation of a video editing software in the laptop computers of the participants is required: "Open Shot" (free) available at http://openshot.org/

Day 5 (November 9th) - HiScience

9h00 - 10h30 | Amphitheater

HiScience | Lecture

Alexandre Gamela

Discussion about how to use the best platforms to share our knowledge, and how to create narratives that are both compelling and effective? And how to use social media in our content production strategy?

The students will need PC, pencils and paper

10h30 - 10h45 | Coffee Break

10h45 - 12h00 | Amphitheater

HiScience | Lecture

Alexandre Gamela

Presentation and discussion about social networks and their potential to communicate science, according to different objectives and targets

The students will need PC, pencils and paper

12h00 - 14h00 | Lunch

Day 5 | HiScience

14h00 - 15h30 | Math games room

Mentoring

Individual work in the facilities with Mentors' support

Preparation of the oral presentations for the closing session.

The students will need PC, pencils and paper

15h30 - 15h45 | Coffee Break

15h45 - 18h00 | Math games room

Continuation

Keynote speaker of the day

Alexandre Gamela is a digital media producer with a Master Degree in Online Journalism, by the Birmingham City University. He has been a columnist in several online and traditional periodicals, such as PCGuia and Revista Gerador, and also as an Instructor at the University of Porto and FLAG, the latter in Digital Marketing. Currently he is a Digital Media Producer and Researcher in Science Communication. He has experience as a Content Producer in Plantas Invasoras in Portugal (http://invasoras.pt/en/) and in the Botanic Garden of the University of Coimbra.

How to get the best out of social media to communicate science

Social media have become the internet. Users share, comment, engage with content spread across multiple platforms, from Facebook to Twitter, in different formats, from gifs to videos. Researchers can be an authoritative voice amidst the chaos of misinformation and excessive information and directly interact with their audience. But how to use the best platforms to share our knowledge, and how to create narratives that are both compelling and effective? And how to use social media in our content production strategy? Identifying potential audiences, creating calls to action, analyzing engagement and using each social network characteristics are some of the steps needed for researchers to reach both wider and specific groups, either peers, communities involved in our projects or people in general.Social media for researchers is not about going viral, but rather to raise awareness, reach society in well known and widespread environments, and to get closer to other researchers and institutions working in our field of expertise.

Day 6 (November 10th) - Closing session

9h00 - 10h30 | Amphitheater

Closing session

Oral presentation (maximum 5 minutes) of the individual projects.
The talk should be aimed at public in general, in order to contribute to public awareness about research in Education.

Oral presentations should preferably be accompanied by one of the products developed during the week.

The students will need a pc, projector and internet access.

10h30 - 10h45 | Coffee Break

10h45 - 12h00 | Amphitheater

Round table

Pedro Pombo
In this Round table there will be a reflection about the work developed during the training week. One of the ultimate goals is to promote the development of an international academic network of "Science Communication on research in Education".

SCoRE'17 Coordination acknowledgments

12h00 - 14h00 | Lunch

14h00 - 17h00

"AveiroTour"

The Autumn School CIDTFF 2017 offers some social activities that will allow the participants to know the city of Aveiro, its history and traditions. These activities will take place in the last day. They are optional and free. The Museum of Aveiro and The Santiago da Fonte Saltplan are iconic for the city and represent its history.

14:15 | The Santiago da Fonte Saltplan

15:15 | Museum of Aveiro

Day 6 | Closing session

Pedro Pombo is the Director of Fábrica Ciência Viva Science Centre and he teaches at Physics Department of University of Aveiro. He is an expert on Holography and Science Communication. In the field of laser optics he develops research on holographic techniques, and educational holography. In the field of science communication he develops exhibitions, science centres and research on public engagement into science and technology and on impact of STEAM education into science education. He has been the coordinator of three international projects, nine exhibitions and twenty nine national projects dedicated to Science with and for Society. He is author of one chapter book, fifty scientific publications, three school text books and recipient of nine European prizes on Science Communication.

SCoRE'17 teaching, learning, and assessment approaches

I. Learning objectives
(expected competences to be developed by the students)

SCoRE'17 aims at developing the students' Science Communication competences, namely:

1. to use different approaches for the scientific dissemination of individual projects (e.g., press release);
2. to develop different typologies of products to communicate Science, supported by various technological tools (e.g., video editors);
3. to select appropriate means of communication for the dissemination of the different products developed (e.g., social networks) taking into account diversified audiences (e.g., policy makers);
4. to present the developed products and the added value of the approaches/strategies developed during the training week in present and/or future research work.

II. Contents/Themes

- Higher Education and scientific dissemination: scientific knowledge mobilization taking into account diverse contexts and a diverse audience;
- Central research themes in Education, namely "Didactics" and "Educational Technology";
- Technological tools and approaches to represent, present, disseminate and discuss scientific information;
- Innovative and creative approaches to communicate Science for diverse audiences in Research in Education.

III. Teaching and learning approaches

The training week follows a Project-Based Learning (PBL) approach (e.g., Bell, 2010), aimed at fostering the academic success of trainees.

In addition to the members of the scientific committee of SCoRE'17 (Mentors), national and international experts in science communication (Keynote Speakers) will be invited to give lectures and conduct workshops aimed at developing the Science communication skills of the trainees.

The PBL approach thus allows trainees to design their own learning paths in an autonomous and collaborative way, taking into account the learning objectives and the selected syllabus.

The trainees will have two types of sessions at their disposal: lectures and workshops, with a view to developing products of scientific dissemination (e.g., a press release about the individual research projects).

Regarding the expected learning outcomes, students are expected to individually:

(a) make an oral presentation (5 minutes) in the Closing session - Roundtable: Reflection and discussion on the work developed during the training week, 10th November, 2017 (2-hour session);

(b) submit until the 24th November 2017 one of the following learning products: infographic, press release, short video, or a product crossing two or more of the above typologies. These products should be in line with the following guiding questions (Table 1).

Table 1 - Science Communication guiding questions

Leading questions	Indicators
What?	What is the research purpose / issue / objective?
Who?	Who are the research participants?
Where?	Where did the research take place?
When?	When was the research conducted?
How?	How was the research implemented?
Why?	Why is the research relevant according to the expected/obtained results?

IV. Mentors' role

a) During the training week

- Help and support students while performing the proposed tasks;
- Promote students' interest in the training topics/themes;
- Identify students' strengths/weaknesses and help them to achieve the proposed learning objectives (e.g., helping them to define the type of learning product to be developed);
- Support and encourage students to overcome (possible) difficulties/ obstacles;
- Enhance interpersonal and group relationships;
- Inform the SCoRE'17 Committees about the students' progress and/or difficulties/obstacles;
- Ask for students' feedback on the training week (e.g., perceptions about the sessions).

b) After the training week

- Contribute to the evaluation of the learning products in articulation with the defined Scientific Committee (SC) elements (Table 2).

V. Work groups (workshop sessions)

Although the work developed during the training week will be individual, students will be organized into groups in order to facilitate their follow-up.

In this regard, a Mentor will be assigned to each group of students throughout the training week to help and support them.

In addition to the exposed, each Mentor will also be responsible for students' assessment (see **VI**).

For each group of students, other elements of the Organizing Committee (OC) and the Scientific Committee (SC) will also be assigned (Table 2).

Table 2 – Work groups

Group	Students	Full-time group follow-up Mentors
1	1. Mónica Seabra (Portugal, PhD Research Fellow in Education at Universidade de Aveiro) 2. Lara Sardinha (Portugal, PhD Research Fellow in Multimedia in Education at Universidade de Aveiro) 3. Mariana Clemente (Portugal, PhD in Education, Research Fellow at Universidade de Aveiro) 4. Daniela Figueiredo (Portugal, Postdoctoral Research Fellow in Biology at Universidade de Aveiro)	Vânia Carlos
2	1. Susana Pinto (Portugal, Postdoctoral Research Fellow in Education at Universidade de Aveiro) 2. Tiago Carvalho (Portugal, PhD Research Fellow in Multimedia in Education at Universidade de Aveiro) 3. Ana Cristina Tavares (Portugal, PhD in Biology, Curator at Science Museum of the Universidade de Coimbra) 4. Monica Ribau (Portugal, Master in Management and Environmental Policies, Research Fellow at Universidade Nova de Lisboa)	Constança Mendonça
3	1. Catarina Moreira (Portugal, PhD Research Fellow in Multimedia in Education at Universidade de Aveiro) 2. Paxe Amazonas (Portugal, PhD Research Fellow in Education at Universidade de Aveiro) 3. Ana Gorgulho (Portugal, PhD Research Fellow in Education at Universidade de Aveiro) 4. Otieno Herine Adhiambo (England, PhD Research Fellow in Education at Sheffield Hallam University) 5. Alexandra Monteiro (Portugal, Assistant Researcher in Environment and Planning at Universidade de Aveiro)	Mónica Lourenço

4	1. Carolina Almeida (Portugal, PhD Research Fellow in Multimedia in Education at Universidade de Aveiro) 2. Valentina Piacentini (Portugal, PhD Research Fellow in Education at Universidade de Aveiro) 3. Mari-Liis Tikerperi (Estonia, PhD Student in Sociology at University of Tartu) 4. Leonor da Costa (Portugal, PhD Student in Sociology at ISCTE - Instituto Universitário de Lisboa)	Liliana Oliveira

VI. Students' assessment (applicable to students seeking accreditation in the course)

Approval in the training week is certified by the grant of a Certificate of Attendance or Accreditation by the University of Aveiro, depending on whether the student prefers to undergo evaluation or not. To obtain the Certificate of Accreditation the student must attend 80% of the course sessions and obtain a minimum grade of 10 points in the discrete evaluation.

In line with the current regulations of the University of Aveiro, SCoRE' students will be evaluated according to "discrete evaluation" typology, in the two following moments:

- **initial assessment (10%)**: evaluation of the application
  a) research project abstract (5%);
  b) motivation letter to participate in SCoRE'17 (5%).
- **final assessment (90%)**: students' learning outcomes
  a) Oral presentation (maximum 5 minutes) of the individual projects (30%) (Table 3).
  The talk should be aimed at the public in general, in order to contribute to public awareness of research in Education. Oral presentations should preferably be accompanied by one of the products developed during the week.

b) developed learning products (60%) (Table 4).
One of the following learning products - infographic, press release, short video, or a product crossing two or more of the above typologies – should be submitted to de-score2017@ua.pt by the 24th November 2017.

Table 3 – Oral presentation assessment

Criteria	Indicators	Grade *[1 to 5]
Presentation relevance	Presentation reflects: - central aspects of the research, i.e. the research problem / objectives / issues / objectives, the methodological approach, the obtained or expected results.	
	Presentation reflects: - the added value of the worked approaches/strategies during the training week for present and/or future research work.	
Presentation clarity	Presentation is well structured and uses clear, correct and appropriate language.	
Time fulfillment	Presentation does not exceed the foreseen time (5 minutes).	
Arguing adequacy	The student discusses different aspects accordingly, presenting grounded arguments to the posed questions.	

*** [5] Excellent; [4] Very good; [3] Good; [2] Sufficient; [1] Insufficient**

Table 4 – Learning product assessment

Criteria	Indicators	Grade *[1 to 5]
Knowledge mobilization	The product demonstrates the use of one (or more) approaches and one (or more) technological tools explored during the training week, taking into account diversified audiences (e.g., policy makers).	

Internal coherence	The product is logical and understandable, and presents a suitable structure according to Science Communication guiding questions: • What is the research purpose / issue / objective? • Who are the research participants? • Where did the research take place? • When was the research conducted? • How was the research implemented? • Why is the research relevant according to the expected / obtained results?	
Clarity and correction	The product presents the information in a clear and correct way (e.g., no spelling mistakes).	
Innovation and creativity	The product communicates the research in a creative and/or innovative way (e.g., different approaches to communicate data).	

*** [5] Excellent; [4] Very good; [3] Good; [2] Sufficient; [1] Insufficient**

VII. SCoRE'17 evaluation

SCoRE'17 evaluation will use a survey technique - a questionnaire to all participants (trainees, keynotes, OC and SC members).

Regarding students, they must complete the questionnaire in order to receive the certificates of attendance or accreditation of the training week.

The questionnaire (http://questionarios.ua.pt/index.php/124664/lang-en) is anonymous and **should be submitted until the 19th November.**

The Organizing Committee counts on your collaboration! This is essential for us in order to improve future activities.

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THE AIRSHIP PROJECT: IMPACT OF MARITIME AND PORT EMISSIONS IN THE AIR QUALITY OF PORTUGAL. HOW TO COMMUNICATE IT?

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Keywords:

Air quality; modelling; shipping emissions; dissemination; communication

Abstract:

Due to its dependence on fossil fuel combustion and the fact that it is one of the least regulated anthropogenic emission sources, emissions from the marine transport sector can contribute significantly to air pollution and climate change. The AIRSHIP project (PTDC/AAG-MAA/1581/2014; POCI-01-0145-FEDER-016708), recently funded by the Foundation for Science and Technology (FCT) and ongoing since 2016, aims to evaluate the impact of maritime transport emissions on the air quality in Portugal and, with greater detail, in the Porto urban area, for present and future climate scenarios (http://airship.web.ua.pt/).

In order to achieve this, high resolution and precision detailed emissions scenarios are required, together with the physical-chemical modelling of atmospheric processes, thus enabling a thorough understanding of the contribution of the aforementioned emissions to air quality. The impact of these on Portuguese air quality will be investigated, with particular emphasis on the Porto urban area including a local scale case study of the Port of Leixões.

Taking into account the obtained modelling results, at regional and local (case study) scales, strategies for the efficient mitigation of maritime transport

pollution in the studied area will be investigated and oriented guidelines for their implementation will be elaborated.

To this purpose, the project is structured in 4 tasks:

1. Development and assessment of present and projected future maritime transport emissions scenarios for the Portugal and the detailed Porto urban area domains;
2. Evaluation of the impact of the emissions scenarios on air quality using numerical modelling;
3. Case study: Port of Leixões;
4. Development of measures/strategies to mitigate adverse effects on the air quality in Portugal and, particularly, in the Porto urban area.

Emissions estimates for the Porto urban area will be carried out at high spatial (1x1 km2) and temporal resolutions using a top-down approach for the disaggregation of national data and a bottom-up methodology when updated emission factors and activity data will be available. The emissions estimates for future scenarios (2020-2030) will be based on European projections and updated taking into account expected national policies and strategies.

The numerical modelling - study tool supported by the European Air Quality Directive (2008/50/EC) - will be performed with the WRF-CHIMERE modelling system, amply tested and validated for the Portugal domain. Primarily, the model will be applied at the regional scale (Portugal), followed by the downscaling to the Porto urban area, using nesting techniques, at a high spatial resolution (1x1 km2). The results obtained from the climate modelling for Portugal (using the WRF model) of the CLICURB project (EXCL/AAG-MAA/0383/2012) will be employed as air quality inputs for future scenarios, this with the aim of integrating climatic conditions (as well as the aforementioned emissions projections) in the assessment of future air quality.

The Port of Leixões case study will complement the evaluation of the impact of maritime emissions by including emissions associated to the port activities

and the local scale numerical simulations, employing the OpenFOAM computational fluid dynamics (CFD) model, as well as the physical simulations in the wind tunnel, enabling comparisons and model validation.

Therefore, the AIRSHIP project will produce important scientific results to aid the management and political actions in the maritime transport sector and its environmental impacts, in particular for the Port of Leixões case study. The main expected outcomes are:

- Increased insight in the level of maritime transport emissions (present and future scenarios) for Portugal and the Porto urban area;
- Evaluation of the impact of maritime emissions on regional (Portugal) and urban (Porto) air quality;
- Thorough understanding of emissions that result from port activities (Port of Leixões case study) and related impacts on local air quality;
- Development of air pollution mitigation strategies for the maritime transport and port sectors.

Besides this structured scientific plan and an adequate management, under my coordination, the dissemination activities are one of the priorities for AIRSHIP and an FCT request. In this sense, several activities were planned and are already on-going, which includes the development of a website; periodic newsletter; facebook page; and also a calendar with planned conferences and meetings participation.

NATURAL SCIENCES WITH THE IBSE METHODOLOGY: CASE STUDIES OUTSIDE CLASSROOM

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Keywords:

Active learning; natural sciences; spaces outside the classroom; IBSE; curricular innovation; experimental methodologies.

Abstract:

The research purpose

To understand the impact of the Inquiry-based Science Education (IBSE) methodology in the cognitive learning of Natural Sciences, and in the attitudes, opinions and educative products of students with 10 to 12 years, using non-formal educative scenarios.

Under the same context and objective, a story on science with museum objects is another educative project for science communication.

Conceptual framework

Being an active and experimental and student-centered educative methodology, IBSE imitates the scientific research and it is characterized as a multifaceted activity. Students use the same skills as the scientists, like questioning, data collection, reasoning, proof review in the light of what is already known, drawing conclusions and discussing of the results (Artigue et al., 2012).

IBSE means that students progressively develop key scientific ideas by learning how to investigate and build their knowledge and the understanding of the

world around. Put a question find an answer, go further, and grow. If you ask, you want to know. The more I know, the more there is to learn: this is the attitude of a scientist (Tavares et al., 2015).

Also, in non-formal education environments, as gardens or museums, typically outside classroom, the educative processes, being or not guided by a formal curricula, are flexible and adapt to the needs and interests of the students (Ainsworth & Eaton, 2010), playing essential role in Science Education, for the construction of knowledge, enhanced when using these educative settings (ASE OSWG, 2011). It is known that these outdoor experiences are positively reflected on the academic performance of each student, increasing awareness to new options, in a transversal way: as an apprentice, for professional career, as political and socially active citizen (Beatty & Schweingruber, 2017; Matteman & Damsa 2017).

Going to Nature as a starting point, and using it as a practice of daily life, combines with the main characteristics of the IBSE methodology, which values pre-existing knowledge and a new perspective of open and team-social teaching, where the individualities of students and teachers must be taken into account, respecting each singularity (Malm, 2009; Pessoa, 2013).

The two components - an environment outside classroom and a student-centered methodology - facilitate and improve the educative process (Tavares et al., 2015), where storytelling is an important tool to consider (Bedford, 2001; Tavares, 2017).

Methodology

In partnership with a School and a Science Teacher of the 5th year level (first year of the second cycle of basic education) and trained in IBSE, seven thematic classes on biodiversity and sustainability were taken from the Educational Program developed in a Botanical Garden (Tavares, 2015). Fulfilling the curricular demands these lesson plans were integrated in the classes and adopted and adjusted to the school conditions and resources.

Accompanying the course of the classes with IBSE outdoor, the performance of the students mainly concerning the cognitive learning in the Natural

Sciences discipline and their opinions were regularly monitored, validated and statistically evaluated by (pre and post) questionnaires and also analyzed in a semi structured interview with the teacher.

Outcomes

Seventy-two pair of pre and post-questionnaires showed that students have achieved a good level of knowledge in all curricular topics evaluated. In most cases, the results reflect a change from 0% of correct answers in the pre-questionnaire to 70-90% in the post-questionnaire and also point to the possibility of including new simple concepts on plant differentiation and evolution in the botanical curricular unit.

After completing the innovative approach in class, the motivation involved 92% of the students, with evidences of responses in 99% of them and new learning felt by all; 89% of the students showed satisfaction in the activities experienced and in the documents produced.

Both the teacher's and the students' opinions point to the continuation of this learning format in Science Education at School, favoring questioning, as a creative, complete and alternative way for teaching the Natural Sciences curriculum (Tavares, 2017).

Timetable and Conclusions

The educative project was developed during three phases:

1st: partnerships and arrangements of themes in school (April and May, previous to the project implementation at school).

2nd: application, monitoring, collection of results, and evaluation (September to July –one complete scholar calendar).

3rd: organizing and work delivery (June and July).

The project results evidence a cognitive improvement of the students and a positive feedback from students and teacher confirming that science education

based in the IBSE outside the classroom provides professional satisfaction and a broader academic and civic preparation for students. Moreover, lesson plans, resources, like stories on science, and the work produced are replicable and can be important tools to divulge, share and be used by other educational communities and diverse stakeholders.

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THE EVALUATION OF PORTUGUESE LANGUAGE LEARNING - FOR AN INTERNATIONAL COOPERATION FOR DEVELOPMENT IN TEACHER EDUCATION

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Keywords

Students' written production evaluation; Professional teacher knowledge; Portuguese Language Subject; Basic Education in São Tomé and Príncipe; In-service training

Abstract:

Research purpose

The study object of this research is the professional knowledge construction about evaluation in the in-service training of Basic Education (BE) Portuguese Language (PL) teachers, of São Tomé and Príncipe (STP). The main research objective is to understand how the continuous training contributes to the BE PL teachers of STP professional knowledge development about writing evaluation.

Conceptual framework

There is a close connection between the teaching function and the kind of knowledge that is recognized as necessary to fulfil this function. Knowing that teacher's function is "to make someone learn something" [9], the professional knowledge has a central role in defining teacher professionalism. The teachers' knowledge construction begins in school, becomes enriched during the initial pedagogical formation and is more clearly constructed in the contexts of

teaching and learning, being an active subject in the construction of their own knowledge [12].

The educational process is so complex that requires knowledge of multiple domains of teaching and learning. According to several authors [5;7;9;11], professional teacher knowledge involves multiples dimensions: the content knowledge, the general pedagogical knowledge, the pedagogical content knowledge, the curriculum knowledge, the knowledge of learners and how they learn, the contexts knowledge, the knowledge of educational goals and values, the self-knowledge, the strategic knowledge, the reflexive knowledge, and the regulatory knowledge.

Continuing training is the excellence space to the professional development [6]. It refers to the concept of lifelong learning, so the teacher needs to be continuously formed, to respond to the teaching practice challenges. In-service training refers to training practices that occur simultaneously with teaching practice, with the aim of achieving better results in teaching processes and adopting a critical-reflective culture within the profession [2]. Teachers should have an active role in their training path construction, promoting articulation between theory and practice.

The PL is spoken by around 250 million people all over the world and is the most widely spoken language in São Tomé e Príncipe (STP) [1], as well as the most used by the young population in school age. Although it is not the native language, PL is often considered like that by the population, because it is the working and schooling language, and the one used in the official documents. Thus, it is fundamental to create a favourable context for school success, since the language proficiency is decisive for individual development, access to knowledge, academic and professional success and a full exercise of citizenship.

Given the importance of language learning, evaluation is a privileged regulation and improvement practice of the educational process [8;10]. It is recognized that the way teacher teaches influences student outcomes, so the regulation and feedback are extremely necessary. It is important to deconstruct the

most current evaluative practices that dissociate evaluation from the teaching process and that give it a classificatory dimension.

Methodology

This is a predominantly qualitative nature study [4], which will be conducted in contact with a real situation, in a specific context – STP –, with a determined group of participants – teachers of PL of BE –, aiming to collect data from the teachers' perceptions, about their professional knowledge construction.

It is characterized as a case study [13] with characteristics of action research (AR), being "the case" the process of professional knowledge construction about evaluation of a group of PL teachers, in a training workshop. It assumes characteristics of AR once the focus of research is the professional knowledge construction, in in-service training, therefore, presupposes change [3].

Expected outcomes

It is expected this study to contribute to research in language teaching, in educational evaluation and to the development of other studies about STP. It is also expected to contribute to the professional development of the teachers involved.

Timetable

This project has been in development since October 2016. It is expected to be completed by September 2020.

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PRODUCTION AND PUBLICATION GUIDELINES TO EDUCATIONAL NATURAL SCIENCES' CONTENTS

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Keywords

Online Video; New Media; Natural Sciences; Teenagers

Abstract:

The presented research project is guided by the following research question:

Which are the production and dissemination strategies of educational online videos designed more suitable to change viewing motivation of this type of content in informal contexts?

In line with the question, there are four research objectives:

1. Identify multimedia educational consume preferences of teenagers in the new media in some dimensions: presenter, edition, scenario, soundtrack, time length, type of language, speech style (e.g. comic style), rhythm of edition, animations, infographics, audiovisual structure, and level of depth of contents.
2. Design educational multimedia contents about natural sciences to publish in new media platforms.
3. Evaluate the potential of the newly designed contents and divulgation strategies to change the motivation of the teenagers to informal and autonomous learning.

4. Create guidelines to produce and share multimedia educational contents about natural sciences.

These objectives can translate the steps of the research and were constructed based on the conceptual framework presented on the following paragraphs.

Video can be explored in education in several different ways. Video can be a support of content transmission, in behaviouristic approaches to learning, and can also be explored as a discussion starter in socio-constructivist approaches (Cachapuz, Praia, & Jorge, 2004).

Mobile devices that allow the access of online videos are becoming mainstream. (Multisilta, 2014).

Multimedia contents with strong messages can promote deeper learning, in a more significant way than formal approaches, when a person can process and connect visual and verbal information, integrating them in a coherent way so that the new information is transferred to the long-term memory (Mayer 2003).

Several studies analyse population online video consumes, the majority analyse adults, but there is one analysing teenagers older than 14 years old. According to Deloitte Development (2015) these teenagers watch 60% of the total daily time watching video in desktops and mobile devices (laptops, tablets and smartphones).

Educational videos are not the top choices, entertainment videos like musical videos, comedy videos and movies or animations related videos are the favourites (Statista, 2015a, 2015b). Focusing the analisis only on educational listed contents, the early childhood videos are the most watched, TEDx and Khan Academy videos are respectively the 10th and the 11th most viewed (VidStatsX 2016).

The research follows a design based research planning (Van den Akker, 1999). This planning is developed in four phases: the first one consists on the elaboration the research problem; the second phase explores collaborative development, between researcher and participants, of solutions to the problem, in one or more cycles; the third phase consists on cycles of testing, evaluation

and redefinition of the solution to the problem; finally in the fourth phase, a reflexive work takes place, the process and the products are critically analysed in order to synthetize a set of guidelines of practical implementation on the field of the developed solution to the problem (Reeves, 2006).

In the presented research, the first phase (July 2016 until the first half of September) consists in an analysis of the already existent video platforms and finished with a selection of videos with different characteristics (as enounced on the first objective) to be used in the second phase. This second collaborative phase (October 2016 to December 2016), integrates two work sessions with focus group. Each session consists in two parts, a first one in witch participants watch some video clips and answer a questionnaire about them and a second part witch consists in a focus group about the movie clips watched and the possibility of integrating educational videos in their entertainment routines. Two sessions, one with 12 and other with 4 participants took place at an informal context (a living room with a flat screen TV).

The third phase (January 2017 until October 2017) aggregates the production of new contents, the publication of the contents and the redefinition of some contents according to the opinions of the participants when the videos are published. Data from the platforms, intentional publication and a second focus group will be used to elaborate conclusions. The fourth (November 2017 to March 2018) consists in the elaboration of guidelines that aggregates to be used by any person, teacher or not, that would like to implement a strategy of learning that uses informal scenarios. Phase 2 made possible to understand teenagers' preferences and consume routines. These participants watch an average of 2,6 hours of online video daily. Entertainment videos are the most watched, educational ones were not even referred as a viewing option. They prefer participant hosts, fast edition rhythm, short videos (2 to 3 minutes), plain language and general approach to the subjects, and a key aspect, a comic or relaxed style. As the research is in fully development these are important to the next stages but are not final results.

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CONTRIBUTIONS OF A TRAINING COURSE FOR THE TECHNOLOGICAL INTEGRATION IN THE TEACHERS' PEDAGOGICAL PRACTICES OF AN EDULAB

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Keywords

EduLab; Training course; Technological integration; Teachers' pedagogical practices

Abstract:

The integration of ICT in education can change pedagogical practices promoting more enriched and diversified learning (Joint Information Systems Committee, 2007; Scott, 2015; UNESCO, 2011). The EduLab project emerged in 2014/15 school year, integrated by 10 Portuguese school groupings, 20 schools and approximately a 1000 students (Pombo, Carlos, & Loureiro, 2016). The term 'EduLab' arises from the combination of "education" and "lab", and is based on the principle that ICT promotes innovative teaching and learning strategies. This model promotes the access to digital educational resources and various technological equipment (one teacher laptop, tablets for students, internet access points, e-learning platforms and digital educational resources). The main goals of EduLab are: (1) to improve the teaching and learning process through ICT integration; (2) to increase the academic success of students; and (3) to prepare students for the labour market (Carlos, Pombo, & Loureiro, 2014; Pombo et al., 2016). This model does not focus uniquely on technology incorporation in education, but also in teaching approaches, which result in innovative pedagogical practices, enhancing the increased quality of the teaching and learning process (Oliveira & Pombo,

2015). To this goal, continuous training actions were promoted to encourage the adoption of appropriate pedagogical approaches with the use of digital tools, resulting in innovative teaching practices and digital literacy (Carlos et al., 2014; Pombo et al., 2016).

In one of the EduLabs created, during the second year of this project, opinions about the EduLab's teachers and about their training needs were identified. Based on those needs, a 25 hours Training Course (TC) was designed and implemented in EduLab's third year, with themes to promote technological integration. This TC includes three main themes: (1) outdoor learning (explored under the ENAbLE project); (2) collaborative learning; and (3) learning assessment with technologies.

The goal of this PhD study is to develop and implement the last two TC's themes. Afterwards, to evaluate the above-mentioned accredited TC to answer the identified teachers' needs and enhance the Teacher Professional Development (TPD), aiming to improve and innovate teachers' pedagogical practices.

The research question is "What is the impact of the "Training to Innovate" TC for the technological integration in the teachers'/ trainees' pedagogical practices of an EduLab in the centre of Portugal?". To answer the research question the following aims were outlined: (1) identify the teachers' perceptions about their teaching practices with technology; (2) monitor the implementation of the two last TC's themes; and (3) assess the impact of the TC's contribution in the TPD and teachers' pedagogical practices.

This investigation assumes an interpretative paradigm, a qualitative nature and it is an interpretative case study. Several data collection techniques and instruments are being used, such as: (1) classroom observations; (2) documentary collection; (3) questionnaires to collect the teachers' perceptions about the technological integration in their practices; (4) focus group to collect the students' perceptions about the impact of the TC on teachers' practices; and (5) interview to collect the teachers' perceptions about the impact of the TC on the teachers' practices (after the TC and 6 months later).

Participants

The participants on this investigation are 16 teachers of Basic Education, more specifically of the 2nd cycle (10-11 years old) and of 3rd cycle (11-15 years old). They are integrated into one of the EduLabs and they are teachers of various subjects (Visual and technological education, Sciences, Mathematics, Visual education, Biology and geology, French, History, Geography, Physics and chemistry, Portuguese history and geography, and English).

As outlined on the chronogram (http://bit.ly/2sYBymg), this study will last two years (September 2016 to August 2018) with three phases: (1) analysis of teachers' perceptions needs and design of the last two TC's themes (September 2016 to December 2016); (2) implementation and monitoring of the last two TC's themes (January 2017 to June 2017); and (3) TC's impact evaluation (July 2017 to January 2018).

Regarding investigation results, attending the outlined purposes and objectives to answer the research question, the following results and impact are expected: (1) reduction of the gap between education research and classroom practices; (2) promotion of the importance of self-investment in professional development; (3) development of key competences in the involved teachers, meeting the needs of 21st century education (didactic, pedagogical and technological needs); and (4) promotion of the successful integration of digital technologies to induce change in pedagogical practices and, ultimately, improve the students' learning. The researchers hope that the TC may contribute positively to teachers' professional development, promoting the access to new opportunities of knowledge, pedagogical and digital skills, which can enhance the innovation on teaching practices and ultimately improve the students' learning.

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UNRAVELING THE INVISIBLE WATER WORLD...

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Keywords

Ocean Literacy; Water Microbiology; Cyanobacteria and Microalgae; Science & Arts; Non-formal Education; School children

Abstract:

The MIA (Mundo Invisível da Água – unraveling the Invisible Water World) project aims to increase the Ocean Literacy by using artistic ways to explore the topics of plankton ecology and its vulnerability in the marine and coastal systems, particularly under a climate change scenario. The phytoplankton organisms, in particular, in spite of their microscopic dimensions, they play an extremely important role as the basis of the aquatic trophic chain. This is a major topic discussed in the MIA project sessions as well as the impacts of phytoplankton massive growth (blooms) over the ecosystems and organisms, including humans (de Figueiredo et al., 2004; Moreira et al., 2013). However, the biotechnology and astrobiology applications are not also forgotten (Cwikla et al., 2014; Micallef et al., 2015). Although across Europe the interest and concern for the vulnerability of marine ecosystems is generally increasing (Gelcich et al., 2014), there are still considerable cultural gaps among populations that may still overlap this trend. This requires actions taken at the local and regional levels.

The MIA project integrates science with arts (music, plastic arts, animation, dance, theater) in science communication / environmental education sessions in order to stimulate emotional intelligence as a way for a more

effective awareness. It is known that narrative / storytelling can be a powerful tool for science communication (Dahlstrom, 2014; Lanza et al., 2013) and arts may play an essential role for translating a "boring" scientific message through an easier, emotional and thus more interesting interface, in spite of all the controversial ethical discussion this approach may generate (Dahlstrom and Ho, 2012).

The main target public includes children from all school levels (using a non-formal education approach) although several actions are also performed for the general public, encouraging lifelong learning. This required different strategies for the different ages of the targeted public. The project gathered a multidisciplinary team (including scientists, teachers, musicians, actors, animation making) and several schools/institutions across de the national territory.

The expected outcomes included an increase of ocean literacy and environmental awareness among Youth, by involvement in the project and in its contests. From all the subjects discussed in MIA sessions, the morphological diversity of cyanobacteria and microalgae, shown through Scanning Electron Microscopy (SEM) images, has been always considered the most captivating issue, for both younger and older participants, showing a crossing-age topic of interest, which may also be discussed by a whole family at home. The artistic exploration (through music, drawings, puppet shows or animation making) of the scientific themes showed to largely increase the interest of the targeted public sectors. Nonetheless, the age-specific strategies planning showed to be essential for the project successful outputs. (The presented work was co-financed by funds from EEAgrants (PT02 – Integrated Marine and Coastal Management). The author's research is supported by FCT (Fundação para a Ciência e a Tecnologia) in the form of a post-doc fellowship (SFRH/BPD/74184/2010).)

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FACEBOOK IN TEACHING ENGLISH AS A FOREIGN LANGUAGE

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Keywords

Facebook; Teaching English as a Foreign Language; Qualitative Case Study

Abstract:

Social networking activities such as commenting others' photos, sharing online content, or using Instagram Stories have become the daily routine of a significant part of the worldwide population. The dominant position in the territory of social networks is held by Facebook. As of the first quarter of 2017, this platform had 1.94 billion monthly active users (statista [online], 2017). Although its original intention was entertainment, Facebook has also spread into other spheres of our lives such as commerce, marketing, and of course education. Relevant research (e.g. Heiberger and Harper, 2008; Brady et al. 2010; Anwaruddin, 2012; Hsu, 2013; Aydin, 2014; Bani-Hani et al., 2014; Wu, 2016) shows that it is more or less successfully used in higher education.

The proposed research project is connected with potentials of using Facebook in foreign language education at tertiary level of formal education; more specifically, it deals with university students' subjective theories (i.e. perceptions, views, opinions, and attitudes) related to six different aspects of the English for Academic Purposes 1 (EAP 1) Facebook study group created by the researcher. The studied aspects include: 1.) nature of the Facebook learning environment, 2.) impact on performance in English, 3.) teacher-student and

student-student communication, 4.) social dimension, 5.) potential for self-directed English learning, and 6.) assignments in the Facebook study group. These areas of interest were elicited from the literature review and our pilot research. The aim of the project is to investigate how the mentioned aspects of the Facebook study group function within the limits of our case study.

The research is designed as a qualitative case study that involves data from three different sources - semi-structured interviews (with university students about their views of the EAP 1 Facebook study group), student diaries (reporting on students' "activity" or educational pursuits in the EAP 1 Facebook study group), and the EAP 1 Facebook study group (that serves as the objective complement to the subjective data obtained from the interviews and diaries).

The selected approach allows us to develop rich qualitative data within a single, real-life setting. The processing of the three types of data requires qualitative content analysis. The research sample includes thirty-four teacher trainees from the Faculty of Education at Constantine the Philosopher University in Nitra, Slovakia. During the academic year 2016/2017, these students were enrolled in the EAP 1 course taught by the author of the research project.

From the available sample, seventeen students were randomly selected for

- in-depth pre-/post-interviews. All research participants (N=34) kept semi-structured diaries. The student diaries track an eight-week-long period of the EAP 1 course. The material for analysis includes 606 diary entries. All participants also joined the EAP 1 Facebook study group. Students' activities

- in the Facebook group were captured as screenshots, and they present the last source of research material. It is expected that the research analyses reveal the educational potential of Facebook in the aforementioned six aspects, while we attempt to identify both the benefits and drawbacks of this tool from the students' perspective. The results and conclusions will serve as a basis for formulating further implications for pedagogical practice. We also plan to use the outcomes of the project to enrich the didactic training of future English teachers at the Faculty of Education at the Constantine the Philosopher University in Nitra and to update pedagogical practice of in-service EFL

teachers by means of disseminating the results at national and international scientific conferences and workshops. The project is supported by two grants - KEGA 006UKF-4/2017 and UGA V/1/2017 and is organized in five phases:

1.) literature review and pilot research (January 2016 – May 2016), 2.) data collection (September 2016 – December 2016), 3.) data analysis (February 2017 – May 2017), 4.) writing the final research report (June 2017 – September 2017), and 5.) active dissemination and popularization of the outcomes (from October 2017).

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THE NEW MEDIA AND THE SPACE RECONFIGURATION FOR AN INCLUSIVE CLASSROOM: THE NEET/REFUGEES CASE

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Keywords

Classroom Physical Space; Space Multidimensionality; Space Multidisciplinarity; Inclusion; New Media

Abstract:

The inadequacy of the current Classroom Physical Space (CPhS) to emerging pedagogical approaches that use the New Media (NM) and the increase of the heterogeneity of the student community invite for a reflexive exercise on the CPhS. Through the multidisciplinarity and multidimensionality of the space, we intend to investigate the role of the CPhS in the inclusion of the populations of youngsters which are Not in Education, Employment or Training (NEET) and Refugees through an innovative interior design strategy. The present research aims to answer the question "Which is the role of New Media and of the classroom space reconfiguration in the promotion of the inclusion of the NEET/Refugee population?"

In our perspective, the study of the CPhS should be done according to a multidisciplinary and multidimensional approach, as the CPhS, besides its architectural dimension, also includes a social [1], [2], cultural and digital dimensions, among others [2]. Taking into account the NEET/Refugee population of our research, it is important to develop a more inclusive CPhS, which through the space different dimensions enable us to create new contexts

and smart spaces. Thus, the current research aims to create bridges between different approaches:

- Classroom Orchestration (Dillenbourg's [3] perspective), should be valued to improve and support students' acquisition of knowledge in a technologically supported educational environment in which the role of the teacher is fundamental for the coordination of the different activities, in the search to provide a better learning ecosystem to the students (physical, technological, social, personal, emotional);
- the Enabling Spaces approach on the processes of knowledge creation and innovation developed by Peschl and Fundneider [2], which when applied in the educational context [4], associates to the space multidimensionality the didactic environment, the pedagogical choices and the personality of the teacher (way of thinking and beliefs) [4];
- spatial semiotics and spatial pedagogy [5], with the aim of studying the space fluidity and dynamics. Spatial semiotics refers to the different interactions between teacher/space, teacher/students, students/students and students/space and the significance of how they move through space and resulting paths. Spatial pedagogy, on the other hand, reflects the patterns that emerge from teacher and student movements alongside with gestuality, vocal intensity and language, among others;
- Human-Building Interaction [1] in which Human-Computer Interaction's association with physical and social space is proposed to present a new approach through the creation of conscious interactions between human being and space through technology;
- Clever Classrooms [6], which focus is on the impact that physical space, individualization and stimulation have in learning.

The ongoing research is based on the socio-constructivist paradigm with a mixed method approach and based on strategies as the grounded-theory [7], [8], development research [9] and participatory design [10].

The research design is divided in three phases (total of 28 months) plus 6 months for the thesis writing.

Participants

Phase 1) literature review (28 months) to take place throughout the research.

Phase 2) diagnostic study (13 months) comprising an European web survey (already applied) and an exploratory study.

A self-administered web survey, was sent to the 26 members of the Future Classroom Learning Lab (FCLL) network; 107 complete answers were obtained. From the results, despite positive in general, it can be inferred that the physical space of FCLLs still needs to be deepen in what concerns the different space dimensions, in order to respond to research aim.

The exploratory study will include: a) collection and analysis of blueprints, layouts, furniture and equipment from the Portuguese FCLLs; b) in-depth interviews to people that are/were involved in the Portuguese FCLLs.

Phase 3) phase of proposal development (15 months) comprising Workshops/ Focus Groups (W/FG) and the development of the CPhS design proposal.

The W/FG will have as participants NEETs and Refugees (2/3 NEETs and 2/3 Refugees groups with 4/5 participants each). These W/FGs will be divided in a workshop where through participatory design and cocreation, participants will be asked to create a CPhS, followed by a focus group, in which the workshop proposals will be discussed.

After the data analysis, the design of the interior design proposal of an inclusive CPhS will be developed. We will create an innovative interior design strategy for a CPhS which will result in the creation of a 3D virtual reality model of it. This latter will be validated by the interviews and W/FG participants.

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TO BE OR NOT TO BE POOR: DEVELOPMENT OF SOCIAL-CLASS SELF-CATEGORIZATION DURING CHILDHOOD

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Keywords

Social-class; self-categorization; child poverty; intergroup social exclusion

Abstract:

Besides the increasing efforts of the countries to overcome the issue, child poverty rates are growing: around 14% of all children across OECD are poor (OECD, 2017). Extending material deprivation, poverty also impacts children's social relations: poor children are victims of bullying because of their economic condition, predominantly in affluent areas, where the heterogeneity of the school population is higher-there (Crowley & Vulliamy, 2007; Hooper et al, 2007).

Studies about poverty in childhood, using adults as target groups, show that children between 3 and 5 years-old are able to distinguish between rich and poor people based on observable and symbolic characteristics (e.g. clothes, material goods; Leahy, 1981; Ramsey, 1991). With age, children emphasize individual personality traits to explain those differences. There's evidence that unfavorable attitudes towards poor people appear after age 6 and that negative stereotypes begin to emerge around 10-11 years-old (Woods et al, 2005; Sigelman, 2013).

Nevertheless, despite its social relevance, social-exclusion in childhood based on social-class membership remains understudied. This project aims to shed

light on this issue, adopting a socio-developmental intergroup perspective (Nesdale, 2004; Killen & Rutland, 2011). The process of social and self-categorization is crucial to understand intergroup relations and social exclusion. People perceive themselves and others in terms of certain social categories and this organization of the social world into groups can guide people's conduct, ultimately, to prejudiced behavior (Tajfel et al, 1971; Park & Judd, 2005). Therefore, our investigation directly investigates the specific process of children's social-class self-categorization and its relations to behaviors towards poor children, taking into account the moderating role of children's age and economic status.

The project comprehends four studies with children from 6 to 12 years-old, from different economic status, held in public schools with a heterogeneous population regarding social-economic status (SES).

A first mixed-methods study focused on the development of children's awareness and knowledge about social-class categories (N=108). Results showed that regardless their age and SES, children relate poor children with extreme poverty (e.g. torn clothes, homeless, alone, no food or money). Positive attitudes towards poor children increase during childhood. Half of the participants perceive other's (peers) behaviors towards poor children as negative ones (e.g. make fun, exclude, disregard), a perception that increases with age.

The second study (N=532) addressed the question about how children implicitly and explicitly self-categorized regarding social-class, and how it connects to behaviors towards poor children. Implicit social-class self-categorization was measured through a Child-Implicit Association Test (Cvencek et al, 2011) and to measure explicit social-class self-categorization children were asked to what extent they belonged to the 'poor' vs 'non-poor' category. Results were consistent with the hypothesis that lower SES children are motivated to manage a social identity threat posed by a stigmatized social-class membership, as they explicitly did not self-categorized as poor. The same happened at the implicit level, although a weaker self-categorization

as non-poor at this level emerged. Intended behavior towards poor children was less favorable in younger lower SES children.

The research project proposes two additional studies, to be developed in the next year (under planning), aiming to deepen the knowledge about the causes (e.g. associated stigma, risk of discrimination, fuzziness of the category) and consequences (e.g. well-being, self-esteem) of self-categorization as poor children and further implications on the behavior towards this group of children. The limited literature shows that in fact, the awareness of one's family's financial privations impacts children's academic competencies, psychological well-being, and future career choices among adolescents (Mistry, Benner, Tan, & Kim, 2009).

With this project, we aim to contribute to a better understanding of how social-class self-categorization in childhood unfold in intergroup contexts where group membership is fuzzy and group boundaries are perceived as permeable. Furthermore, and considering the high prevalence of child poverty in contemporary societies, its results are of particular importance for schools, teachers and education professionals in general. With informative outcomes to educational policymakers, we aim to challenge the soaring effects of poverty in poor children's lives.

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URBAN LINGUISTIC LANDSCAPE AND EDUCATION: COMMUNICATING SCIENCE FOR NON-ACADEMIC AUDIENCES

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Keywords

Linguistic landscape; education; city; communication

Abstract:

We present the results of a doctoral research study conducted between 2011 and 2017. This study has focused on the linguistic landscape of Aveiro and its educational relevance in the first school years of primary education.

The linguistic landscape is a growing field in sociolinguistics, applied linguistics, semiotics and urban studies interested in the study of verbal and non-verbal language present in public spaces. The study of the linguistic landscape offers a panorama of the multilingualism in urban spaces, unveiling how citizens symbolically construct and interact in public space, how language choices influence social interaction and communication.

Embracing a mixed methods nature and a Research and Development approach, the study focused on two main objectives. First, to develop knowledge about the multilingualism present in Aveiro´s linguistic landscape, conducting a case study research for this purpose; and secondly, to understand the educational relevance of the linguistic landscape in Primary School curriculum by conceiving and validating an educational resource aimed at Primary School teachers.

Several street and documental pictures were taken in order to carry out the sociolinguistic study of the linguistic landscape of Aveiro, and a content analysis and semiotics discourse analysis were made. Interviews to the shop owners and local government agents on the possible meanings of the linguistic landscape are also part of the collected data. These interviews were analysed following content analysis methods an allowed us to understand the arguments behind both top-down and bottom-up linguistic choices.

Meeting the educational aims, we conceived, implemented and validated an educational resource intended for Primary School teachers - the Educational Guide "Linguistic Landscape in the city". In the context of the implementation and validation of the Guide, a focus group session with the participant teachers was carried out. Other research data such as lessons´ observation, reflection notes, pre-questionnaires and post-questionnaires were included.

Our study showed that the landscape of Aveiro is mainly multilingual, where languages have different levels of relevance and visibility. English is prevalent among the 21 foreign languages found. It was also noted that Chinese has a strong symbolic presence by using strategies of authentication, namely typographic choices and architecture features. Moreover, Aveiro´s linguistic landscape displays two different graffiti natures: the negotiated graffiti, being consented by local authorities in a dialogical process with bottom up actors; and the transgression graffiti, acting as the voices of protest and dissidents.

EDUCATIONAL COMMUNICATION AND SCHOOL COMMUNICATION IN ESTONIA

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Keywords

educational communication; communication management in schools; public schools; school's communication

Abstract

The main aim of my research is educational communication.

Many theorists suggested already more than a decade ago that the school management is changed in short period of time and expectations and demands for leaders have increased (Harris et al., 2003; Hämäläinen, Taipale, Salonen, Nieminen, & Ahonen, 2004). Economic Cooperation and Development Organizations OECD first TALIS study (Vooremäe, 2009) points out that school leadership is, according to education policy, priority issue in the world. Expectations for school leaders activity and fastidiousness for preparation are increased (Vooremäe, 2009). Second TALIS study (Übius, Kall, Loogma, & Ümarik, 2014) supports the previous, affirming that requirements for school leaders are higher than ever.

Trying to meet the demands, the school leaders have to take into account constant changes and keeping up with them (Kink, 2006; Senge, 2009), although at the same time schools are pressured to slow down changes, maintain conservatism and preserve traditional type of learning (Senge, 2009; Kuurme, 2007, Hämäläinen et al. 2002). Great technological and social changes at the beginning of the 20th and 21st century are not leaving

the schools untouched and require skilled strategic management from them (Brundrett, 2012). It is important for schools to skillfully and thoughtfully deal with their communication and target groups because of the times changing (Porterfield & Carnes, 2012). Based on the fact that school is a constantly changing organization (Nikkanen & Lyytinen, & Kasuri, 2005; Senge, 2009; Torokoff & Mets, 2004), and changes require deliberate communication to target all target groups, so they would understand the changes as much the same way as possible (Brundrett, 2012; Saksakulm Tampere, 2005), is the strategic public relation important area in schools (Porterfield & Canes, 2012).

Due out the importance of communication field in management of general schools and the lack of specific requirements and previous studies, raise research problems:

- how important are public relations (communication management) in the context of managing schools
- how do school leaders, teachers and different stakeholders understand educational communications importance, content and specialities
- how do work the practical organizing of communication management in schools

Research Approach/Method

In my thesis I plan at least three more studies to get deep understanding about the topic as possible. I prefer to use qualitative methods. My interdisciplinary studies look two faculties - school management and communication – in the same context. Qualitative methods are widely used on the field of studies about school management since the middle of last century (Brooks & Normore, 2015). Communication theory itself is more metatheory and there are no widely accepted theory or methodology and no measurement tools or concrete mathematic calculations as well (Palmaru, 2003). Qualitative method give chance to get more information and understand deeply the aim of my studies (Palinkas et al., 2015). As I told I prefer qualitative methods but right now I can't completely exclude quantitative studies if needed.

Participants

My first study was about public relations and communication management in public schools based on Estonian state gymnasium. The data was gathered with semi-structured interviews and analysed with qualitative inductive content analysis. The research results showed that school leaders understand communication management and its role in school leadership very differently. At the same time, variegated communication practices were described. As a part of this research, the school leaders were asked to suggest different development activities/ improvements to support the communication management of the schools in the future.

My second study will focus on teachers and their role in communication. Schools are public organisations and teachers have an important role in school's work. With interviews in focus groups I want to know how teachers see themselves as workers on public profession and how they understand their role in school's communication or reputation building. With other studies I want to focus on different stakeholders and their understanding, roles and needs in educational communication.

Time planning

I finished my first study year 2016. At the moment I'm working on writing an academic article based on this study. At the same times I'm improving my general theory and preparing for my second study which is focused on teachers. My doctoral studies should finish year 2020.

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AMBASSADORS FOR BIODIVERSITY

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Abstract:

Objectives

The "Ambassadors for Biodiversity" is an oceanic literacy project that draws from candidacy prepared by Torres Vedras Municipal Council and Lourinhã Municipal Council to Operational Sustainability and Resourceless Efficiency Program (PO SEUR) and it is developed by DCEA/FCT - Nova University of Lisbon.

The media often dictate a general basis, due to easy and quick access. As local traditions and heritage (natural and edified) are forgotten or confused with information of global aspect or other regions of the planet. To overcome this gap, "Ambassadors for Biodiversity" aiming at promoting the efficient use of natural resources and sustainable behavior, especially in areas of high coastal and marine biodiversity , including habitats of Rede Natura 2000.

In 1992, at Rio Conference, Local Agenda 21 called for creation of an innovative model that would develop sustainable civic conduct and first foundations were laid for environmental education (UNESCO, 1998). Initiatives such as National Environmental Education Strategy 2017-2020, Declaration of the Decade of Education for Sustainable Development (2005-2014); Millennium Goals and UN-proclaimed Sustainable Development Goals are examples of this paradigm.

Environmental Education is fundamental to ensure "acquisition of knowledge, skills, values and attitudes, with a view to sustainability, enabling an active and environmentally cultured citizenship" (APA, 2016: 4). Rather than

promoting this process in schools, it is important that "in addition to the scientific-pedagogical exercise, reinforce, therefore, actions with the active population, even in their places of work or leisure "(APA, 2016: 9).

Through techniques studied by communication of science, it is possible to systematize and transmit an educational program to all community levels and explain concepts as: galleries and riverside forests; cliffs with vegetation of the Mediterranean coasts; embryonic mobile dunes; fixed dunes and dune vegetation; beaches; intertidal zone; roots emerging from the sea and marine fauna and flora (birds, echinoderms, mollusks, crustaceans, among others); areas of landscape interest; paleontological sites.

Its main objectives are to visit local biodiversity and traditions; sensitize for sustainable behavior in coastal and marine environments and increase environmental awareness in schools as well as local community participation.

Conceptual framework:

In this project we follow Lia Vasconcelos's criteria for building social sustainability, based on John Dewey's constructivism and Paulo Freire's pedagogy, in order to make students an active agent and using practices such as Problem Based Learning (PBL).

This process allows to creating a community of practice, promoting the development of critical spirit and fomenting an exchange of ideas, building social capital (relations between participants) and intellectual capital (new knowledge). The reproduction of the practice is not amenable to copying or "institutionalization" because it follows the evolving, self-organizing and evolutionary model / process.

Key concepts: Communicative and strategic action (Habermas, 1990), Emancipatory Learning (Freire, 1985), Communities of Practice (Lave and Wenger, 1998), Construction of social sustainability (Vasconcelos[a], 2012), Problem Based Learning (Vasconcelos[b], 2012).

Participants

Methodology:

Kimble (2014), for example, analyzes environmental education and its effectiveness in the school community in field lessons, live animal sessions, and museum sessions.

This project explores systems of "hands on" (active involvement) and it is organized in three major actions that are interlinked:

1. Educational itinerant exhibition: creation of posters, games, videos, interviews, stories and infographics and adapted exhibition guides.
2. Educational project: development of specific contents for different disciplines/degree, related "local content" and general programming (teachers are consulted).
3. Awareness and action campaigns: development of programs such as photographic safaris, peddy papers, field classes; election of recognized key members in local communities to represent the project; training volunteers who promote activities in local events.

Monitorization and evaluation of data is based in: questionnaires (Kimble, 2014; Markos, Boubonari, Mogias, & Kevrekidis, 2017; Summers, Kruger, Childs, 2001), interviews and live observations/video recordings (Farnsworth, 2011, Kimble, 2014).

Activities will be recording in order to identify signs of learning and interest in participants reactions, divided by: a) pleasure, inspiration, creativity; b) skills; c) knowledge; d) environmental attitudes and values; e) activity, behavior and progress.

Outcomes:

There are studies that prove that introduction of games and activities with motivating characteristics has positive results in environmental education (Sangiorgio, Lorenzi, Fiore, Montinaro, & Basset, 2014).

The main outcomes expected are:

a) Contribution to increase local literacy in relation to biodiversity (species, threats, preservation forms) but also paleontology and fishing traditions (extinction and climate change concept, cultural and intergenerational testimony about landscape and fished species changes).

b) Education for participatory and environmental responsible citizens.

c) Local community appropriation of the project.

Scheduling

Project management and operation: jan.2017-dec.2018

Image development and communication strategy: jan.2017-mar.2017

Itinerant exhibition - jan.2017 / dec.2018

Educational project - Sep.2017-Dec.2018)

Awareness campaigns - April 2017 - Dec.2018)

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INITIAL TEACHER TRAINING PROGRAM WITH STS/CT ORIENTATION IN REAL SCIENCE AND TECHNOLOGY CONTEXTS

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Keywords

Initial Teacher Training; STS/CT Orientation; Real Science Technology Context; Scientific Community

Abstract

Over the last decades, research experiences in real science contexts and the collaboration with scientists, as a teachers' education strategy have been gaining visibility [1; 2]. Indeed, the promotion of this involvement, by establishing scientist-teacher partnerships, can have profound impacts on teachers' conceptions and practices. Also, it can provide a means to improve their conceptions and attitudes regarding science and deconstruct the existing stereotypes towards scientists [1; 3]. In addition, a transfer of this research experience to the classroom context may be seen, which is in line with a Science-Technology-Society (STS)/ Critical Thinking (CT) teaching orientation capable of increasing students' success in science learning [4].

Despite the importance attributed by several studies [1; 2; 4; 5], to the scientific community participation in teacher education programs and to their involvement in real contexts of Science, still are rare the initiatives by training institutions which enable future teachers to have authentic research experiences and also collaborate with scientists.

Participants

In order to meet the needs of a preservice science teacher's education with STS/CT orientation, this research aims to develop and implement an Initial Training Program (ITP) on the Curricular Units (CU) of disciplinary content and didactics from the Master Degree in Elementary Education of Aveiro University, and will be guided by the following questions:

What is the impact of the ITP in:

i) the STS conceptions of future teachers?

ii) the future teachers' CT skills?

iii) the transfer of future teachers' acquired skills in their practice context?

Based in this questions, this study aims to achieve two goals:

i) develop (design, implement and evaluate) an ITP, with STS/CT orientation, on the classes of CU of disciplinary content and didactics from the Master Degree in Elementary Education of Aveiro University, that envolves future teachers in real Science and Technology contexts and members of scientific community in the classes;

ii) supervise the tranfer of ITP participants' acquired skills to their practice context.

This study began in March of the present year and will last four years (forty-two months).

Due to its finality, this investigation, will assume a predominantly qualitative nature, once it intends to investigate ideas, discover meanings in the individual actions and social interactions from the perspective of the intervening actors in the process [6]. In this more interventional and transformative context, it was chosen a methodological plan of Action-Research (AR), since this study will be oriented towards the understanding and possible improvement of teacher education, through the reflexive transformation and critics over the action. Therefore, three cycles of AR will be considered, embodied in the main research development phases.

The AR uses methodological tools that allow the researcher to gather information about the action development and afterwards clarify the research problematics, to develop the pertinent solutions, to plan the necessary interventions to influence the problematics and to produce knowledge [7; 8]. Thus, this research will use techniques such as survey, analysis and observation, with diversified instruments from each of them in order to obtain a data triangulation [questionnaire Views on Science-Technology-Society – VOSTS (portuguese adaptation - abbreviated version of 19 items by Canavarro, 1996); interviews; diary of investigator; portfolios; Cornell Critical Thinking Test (Level X)]

Attending the research design, it will involve six phases: i) exhaustive documentary survey of the "state of the art"; ii) initial survey of STS conceptions and CT skills; iii) selection of real contexts of Science and Technology and of scientists; iv) design and implementation ITP; v) supervision of ITP participants in their practice context; and (vi) characterization of STS conceptions and CT skills at the end of the intervention.

With this research, similar to other studies [9; 10], it is expected the development of a more consistent and realistic STS conceptions, the development of PC skills and the improvement of the practices of the future teachers, resulting from the transfer of the skills acquired in the ITP to the practice context.

The present study assumes relevance not only in the promotion of a Science Education with STS orientation but also by the possible contributions to a change in STS conceptions, the development of CT skills and the improvement of future teachers' practices and consequently, of their future students. Thus, it is considered that this study, well communicated to society, could have profound impacts on the construction of knowledge, attitudes and skills needed to make responsible decisions and solve social situations /problems with a scientific-technological component [3].

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IMPROVING STUDENTS' RELATIONSHIP WITH MATHEMATICS THROUGH SELF-REGULATED LEARNING IN KENYA SECONDARY SCHOOLS

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Keywords

Self-regulated learning; Mathematics; Secondary schools; Kenya

Abstract:

My PhD study's main objective is to explore how fostering self-regulated learning (SRL) can in the short- and long-term improve the Kenya secondary school students relationship with mathematics and by extension their achievement in the relevant mathematics examinations. It's specific objectives include exploring; the impact of student gender in fostering of SRL; the adequacy of the current core mathematics text in fostering SRL; the nature of interaction between SRL and other key constructs like self-efficacy, attitude, epistemological and intelligence beliefs and academic emotions in mathematics; and the key components (and nature of interaction of the components) of a local SRL model for learning mathematics in secondary schools in Kenya and how it relates with some of the already developed SRL models.

Background

Mathematics proficiency amongst primary and secondary school students is a key policy concern for the Government of Kenya (Government of the Republic of Kenya 2007). The Kenyan government through its current development blueprint titled Kenya Vision 2030 recognize the critical role of

mathematics alongside science and technology in steering the country towards global competitiveness. As a result, the country has set key SMT (science mathematics technology) national policy directions including; attaining international ranking in SMT and increasing and expanding enrolment of students in science and technology subjects in technical institutions and universities in the country (ibid).

Attaining these policy goals has however remained elusive due to persistent underachievement in secondary school level mathematics. The country's mathematics mean grade for the Kenya Certificate Secondary Examinations(KCSE) done by all secondary school students at the end of their 12 year of compulsory education is yet to hit the 40% mark, the minimum entry requirement for admissions for most higher education courses. The situation has been reported to be worse for female candidates who continue to post much lower grades in SMT subjects compared to their male counterparts in the national examinations.

An equity feature of mathematics education which has not generally received as much attention as gender is the 'poverty' link to mathematics underachievement in secondary schools in the country. The 'overall' blindness and silence on the link between social economic status and general education outcomes in Kenya secondary schools may be due to it having deep historical roots: Kenya inherited from its colonial masters and has maintained a tiered system of secondary schools made up of four tiers; National, Extra County, County and sub-county schools. The approximately 80 National schools are generally , considered as 'elite' schools: they are the most resourced in terms of infrastructure and teachers; only the 'top' students (from each of the 47 Counties) in regards to total score in Kenya Primary Certificate of Education (KPCE) (a summative national examination taken at the end of the 8th year of primary education) get selected for their form one admission; and they are the most expensive public secondary schools in terms of 'school fees' meaning that the top students from the poorer families may sometimes have to forfeit their admission to the schools for schools lower in the tier because of lack of school fees.

At the bottom of the tier are the sub-county schools (over 2000 in number) which usually are the least resourced and are known to attract the lowest performers in KCPE and a few of those who can't afford the schools fee demanded by schools higher in the tier (Glennerster et al. 2011; Kimsop, Otiso and Ye 2015; Hungi and Thuku 2010).

The gap in performance in KCSE (and mathematics by extension) amongst the school types is generally very high; take for example the KCSE results in 2008; in district schools only 11% of students scored at least C+ compared to 43% of those in the Provincial(County and Extra County) and 90% in National schools (Glennerster et al. 2011).

The low achievement in districts schools is generally considered unsurprising by the public and policy makers given the factors discussed in above section. In particular, underachievement in secondary mathematics in Kenya which is more of 'lower tier' secondary school 'issue' have been largely linked to aspects related to the innate ability of learners a fact that saw the government introduce an alternative curriculum for the low achievers. Taking into consideration the 'challenges' that students in sub-county schools face in their learning and consistent with the empirical evidence from mathematics education research that points to the fact that mathematics learning is context and value laden (Abram, Taylor and Jee Guo 2013) my main conjecture for my PhD study was that shifting to a self-regulated learning (SRL) perspective which in essence focuses on strategies and efforts applied by the learners in improving their skills and performance in unique learning environments (Nunez et. al 2006) may be a more viable option in addressing underachievement in mathematics in Kenya.

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DEVELOPING SUSTAINABILITY ENVIRONMENT EDUCATION OF PRE-SERVICE MATHEMATICS TEACHERS OF THE 2ND CYCLE IN ANGOLA

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Keywords

Initial teacher training; Environmental sustainability; Science Technology Society and Innovation Realistic mathematics

Abstract

This paper presents a part of a study whose main objective is to design and implement a didactic-mathematical intervention for future teachers of mathematics, of the second cycle of secondary education in Angola, that promote an education for environmental sustainability. The research's questions are 1- What perspectives does the students / pre-service mathematics teachers manifest, from the 2nd cycle of secondary education face to a Science-Technology-Society and Innovation approach? 2 - What are the practices developed by pre-service teachers, during the task design and implementation that favors the preservation of the Kilombo Botanical Center? In order to answer these questions we defined the following objectives:

- To analyze the procedures that pre-service teachers use during the implementation of the tasks, involving the context of environmental sustainability in Kwanza Norte / Angola;
- To develop tasks that stimulate the teaching and learning process according to the Science-Technology-Society and Innovation approach;

- To conceive, develop and implement processes and strategies for initial teacher training.

It is an investigation based on the socio-critical paradigm with a mixed-type methodological approach, that is, the qualitative and quantitative natures complement each other. The participants of the research are students of the Mathematics teaching course of the Pedagogical High School of Kwanza Norte, in a total of 60. In the scope of the first didactic intervention of investigating with these students, pre-service secondary education teachers, designed tasks in context of the Kilombo Botanical Center. In a second phase the future teacher's constructed mathematical models to inform the education for environmental sustainability using realistic mathematics of Freudenthal through the approach Science-Technology-Society and Innovation.

Problematic

Research problem is focused on the level of teachers' practices in the classroom that do not include environmental sustainability education through Mathematics Teaching. Our focus is the professional development of pre-services teachers of mathematics, for the 2nd Cycle of Secondary Education in Angola, that contemplates a new vision of the teaching and learning process that favors the environmental sustainability education using the Science-Technology-Society and Innovation approach (Acevedo-Díaz, 2008). The vision of realistic mathematical education of Freudenthal (1973) provide an methodological of problem solving near of context of the student.

Theoretical framework and review of the bibliography

The state of the art of this study focuses on five theoretical axes, plus empirical evidence in the area: (i) - the references of Initial Teacher Training (ITT), (ii) - Education for Environmental Sustainability (EES), (iii) - Science, Technology, Society and Innovation (CTS + I); (iv) - Realistic Mathematical Education of Freudenthal (RME).

Since 1992, in Angola, environmental issues have become in agenda of the Government, taking into account the fact that the effectiveness of environmental protection is strictly dependent on the system of changing citizens' behavior towards the environment. The objectives related to education for sustainable development mentioned in Resolution 42/06 of the Environment Law (Environmental Law 2010, p.80).

The theoretical foundations of realistic learning are established within the framework of the Comenius project 2003-2005 entitled "Learning in, to and through practice: Professionalism of future European teachers of reflexive learning" Based on these theoretical bases established in this international project, Esteve, Melief and Alsina (2009) coordinated the book learning in Early realistic training, presents the theoretical foundations of this training model they provide tools and techniques for the specific implementation of realistic learning in classes, and the publication concludes with the description of teacher training experiences In different areas, including mathematics education (Alsina and Planas, 2009).

The general objective of Science-Technology-Society and Innovation is to contribute to providing a social policy orientation in the promotion and dissemination of science and technology (Marcote, 2007) .Articulating science and society through science teaching (Fátima Paixão and Jorge, 2016)

Calendar

Table - Schedule of Activities

2015	2016	2017	2018
Sep-Dec	Jan-Dec	Jan-Dec	Jan-Aug

1º Step

Define and design

T1 - Refinement of thesis project

Participants

T2 - Literature revision

T3 - Elaboration of the theoretical framework

2º Step

Prepare, collect And analyze

T1 - Obtaining documents

T2 - Elaboration of interview script

T3 - Interview with entities / key people

T4 - Organization and analysis of data

3º Step

Analyze and complete

T1 - Elaboration of study conclusions

T2 - Modification of the theoretical framework

T3 - Development of theoretical implications

T4 - Drafting of cross-study reports

T5 - Development of measures

4º Step

Disclose and defend the thesis of PhD

T1 - Elaboration of manuscripts

T2 - Dissemination of studies

T3 - Thesis submission

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LANGUAGE POLICIES IN PORTUGUESE PUBLIC UNIVERSITIES: EDUCATION AND RESEARCH

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Keywords

language policies; education; research; Portuguese public universities

Abstract

Theoretical Framework & research purpose

The economic, social and political integration of Europe has led the Council of Europe and the European Commission to take a number of language policy measures acknowledging plurilingualism as a driving force that promotes social cohesion and democratic citizenship (CCE, 2005).

In this context, higher education institutions (HEI) are being asked to contribute to the development of the European Higher Education and the European Research Area which are intended to be open to the world and globally competitive. This calls for the modernization of HEI at the levels of education, research and innovation which comprises the development of (multilingual) institutional language policies (Vila & Brexta, 2015).

The challenge of plurilingualism in HEI is located not only within education (ELC, 2012) but also within scientific research (Berthoud et al, 2013) as underlined by some pioneering European projects (Thematic Network Project in the Area of Languages; Language Dynamics and Management of Diversity; The Challenges of the Multilingual and Multicultural Learning Space in the International University). These projects conclude that European HEI have been developing language policies due to internationalization and to

contextual variables. They underline the importance of creating institutional spaces for joint reflection on issues related to languages and plurilingualism in the academia.

Considering this framework, this project aims at identifying and discussing institutional practices and discourses of Portuguese public universities concerning the use of languages and the development of language policies in education and in scientific research. This diagnosis is intended to contribute to the creation of spaces in Portuguese HEI where the "language issue" may be transversally discussed.

Aims

More specifically the project aims to:

- Characterise practices and discourses the use, status and functions of languages in education and in scientific research in Portuguese public universities.
- Analyse convergences and divergences in practices and discourses of the Portuguese public universities.
- Draw recommendations directed to Higher Education Institutions' management bodies with the intention of enhancing the development of plurilingual language policies.

Methodology

Research on higher education language policy has shown that the social representations of institutional stakeholders responsible for the institutions' management regarding language education and research policies may have a fundamental impact on institutional strategies (Tudor, 2004). Assuming that language policies cannot be carried out independently of social actors (Zhao & Baldauf, 2012), representations of languages and the role they play

in academia may be important obstacles to, or enhancers of, the development of language policies (Liddicoat & Taylor-Leech, 2014).

To access representations, two online questionnaires were sent to the institutional stakeholders responsible for the institutional pedagogical strategy and for the research strategy of the 14 Portuguese public universities, that is Vice-Rectors for Education and Vice-Rectors for Research. The questionnaire aimed at the Vice-Rectors for Education was divided into two sections: i. Language education at HEI and ii. Institutional language education policies. The questionnaire aimed at the Vice-Rectors for Research was also divided into two sections: i. Languages in scientific research; ii. Language policies in scientific research. The questionnaires were filled in by 5 Vice-Rectors for Education and 6 Vice-Rectors for Research.

After applying content analysis to the answers of the questionnaire, individual semi-structured interviews were undertaken with those Vice-Rectors. These interviews, which allowed gaining a deeper understanding of the interviewees' representations, were transcribed and subject to content analysis.

Results

The identified practices and representations concerning language education are quite homogeneous: within practices, language education means 'learning/teaching English" which makes the institutional stakeholders consider important to promote English-medium instruction. Within representations, learning Portuguese, Spanish and French is also valued since these are perceived as instruments that promote intercultural contact and as differentiator assets that enhance professional empowerment.

As regards languages in scientific research, English is the main instrument used in publication being perceived as the main tool for internationalising science and advancing researchers' careers. In spite of this, the Vice-Rectors highlight the need to use other languages, namely Portuguese, in the dissemination of science, as a function of context and desired impact. They also emphasise the relevance of defending Portuguese as an international science language.

Concerning the development of institutional language polices, the following trends were identified: inexistence of initiatives, structures or documents concerning the development of language education and research policies; inexistence of an organised debate concerning those policies and of an 'institutional locus' promoting reflection. These reported practices contrast with the overall representations of the Vice-Rectors who believe that it is important for universities to develop their own institutional language policies.

These results highlight two main issues: the existence of transversal tendencies regarding the Vice-Rectors' representations and a divergence between these representations and the institutional practices they report. In fact, while representations are 'broader', showing a more comprehensive view of the importance of different languages for individuals and institutions and pointing to a more plurilingual science, the practices they report are 'narrower', expressing a reductive perception of language education policies and being a reflection of the current monolingual status of global science.

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MAPPING MATRIX OF AUDIOVISUAL CONTENT TO CROSSCUT VIDEO CONTENT AND BUSINESS ENGLISH LEARNING OBJECTIVES

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Keywords

English as Foreign Language; Business English; Audiovisual Content; Collaborative platform

Abstract

Research statement

The purpose of this research is to develop an Online Collaborative Platform (OCP), to be a valuable audiovisual resource for informal English learning scenarios, with two main functions: i) support crowd mapping of Audiovisual Content (AVC); and ii) serve as an online AVC repository for teachers and learners.

Creating such a platform implies the development of a mapping Matrix, embodied in the OCP, which will crosscut AVC and Business English (BE) learning objectives. This Matrix will address several features of the analyzed AVC: structural, situational, communicative, proficiency level of AVC using the European Framework, and communication skills commonly associated to BE, among others.

Conceptual framework

The EU testifies how English is a significant language, even in a continent that values its linguistic heritage [1]. As a learning subject, English is found on all levels of academic education, from kindergarten [2], to university [3] and even specific adult education [4].

Learning English was also a necessity felt by professional classes, like doctors or lawyers, hence the need to develop English for Specific Purposes (ESP) syllabi to cater the needs of these specific learners. A branch of ESP is BE, which is English language "shared by the international community engaged in specific business activities across national or geographical borders" [5]. Given this specific learning context, one should also notice that BE is a branch of English language learning that targets both native and non-native speakers of English [6].

Concerning AVC, Nielsen's [7] report evidences a growth of hours dedicated to AVC consumption in all demographics. This data confirms that AVC, as an entertainment form, is massively consumed.

The connection between AVC consumption and the role of English as lingua franca was established by Steemers [8] that identified American productions on a global level, recognizing both a global audience and a domination of the global market by American products.

Such a wide variety and range of AVC provided theoretical approaches to using AVC in English didactics. McNulty & Lazarevic [9] list some advantages of using AVC in English didactics, like synchronous communication exposure. However, Bahrani et al [10] identify some of the constraints relating to the same issue, like exposure to irrelevant/difficult vocabulary.

Researchers have also studied the effect of collaborative platforms on the teaching/learning of EFL. Being a technology that rose with the evolution of Web 2.0 tools, it is natural that this topic is still in need of further study. Still, Massive Online Open Courses got optimistic responses in a study by Bárcena et al [11], and the Duolinguo platform was reviewed by Hockly [12].

This theoretical background, which addressed the several mentioned fields, confirmed the lack of a solution to the problem at hand and provided a consistent framework to develop the methodology to propose a solution to the problem.

Methodology design

Considering the context, the adopted methodology was Developmental Research, according to what was theorized by Richey et al (2004) [14], Van Der Maren (1996) [15] and Richey and Nelson (1996) [16]. It is the most appropriate methodology when developing an "Instructional System Design" to solve a practical problem relating to teaching/learning (Van der Maren, 1996) [15]. Apart from this focus on problem-solving in educational settings, Developmental Research also predicates an alliance of interests in modern digital technologies (Seels e Richey, 1994 [17]). Here is the methodology design:

Project phases:

Phase 1 - Design of the Matrix – Completed in May 2017

Identify the

->markers of AVC consolidated in the literature;

->valued markers AVC by EFL learners;

->elements of the B2 level in the CEFR; relevant communicative skills for in BE;

->basic AVC classification practices.

Phase 2 - Validation of the Matrix by an expert panel – To be completed in July 2017

AVC using the Matrix

Semi-structured interview to collect feedback that would improve and validate the matrix

Phase 3 - Embodiment of the matrix in the OCP – To be completed in July 2017

Construction of the prototype

Assistance of a volunteer from DeCA who possesses the technical skills for the task

Phase 4 - Validation of the OCP – To be completed in February 2017

Collection of feedback with peers and learners

Data analysis to confirm research purpose

The feedback and contributions collected in Phase 4 will be treated and analyzed using qualitative techniques, namely content analysis. The collected data will provide the data to determine the relevance of this OCP as an auxiliary tool directed to teachers and learners of BE.

Expected outcomes

At the end of this research project it is expected to achieve a validated matrix to map AVC and a prototype of the OCP that will provide users with a tool to map AVC and search for AVC to address their learning needs. It is also expected to validate, through an evaluation phase, the relevance of this type of tool in the teaching/learning of BE.

Timetable

Please click on this link to get more information about the timetable: https://www.dropbox.com/s/exqcrp683154da0/Timetable.pdf?dl=0

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PERSPECTIVES OF PARTICIPANTS IN ONE EXPERIENCE OF EDUCATIONAL INTEGRATION BETWEEN SCIENCE AND ENGLISH AT PORTUGUESE MIDDLE SCHOOL LEVEL

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Keywords

CLIL (Content and Language Integrated Learning); Science education; language-focused; English; Portuguese middle school grades (7th and 8th)

Abstract:

Transdisciplinary education is fundamental in overcoming characteristics and limitations of single subjects and aims at providing meaningful learning environments for new learning needs. Global demands for education being directed to scientific literacy and language proficiency, research on the integration of Science education and English learning as well as on the Language focus for Science education (Bunch, Shaw, & Geaney, 2010; Wellington & Osborne, 2001) is thus highly relevant. A possible educational approach is CLIL (Content and Language Integrated Learning), based on the principle that languages are learnt while they are used in socially relevant activities, aiming both at the learners' understanding of content (a specific subject or part of it) and at the acquisition of an additional (foreign or second) language (Coyle, Hood, & Marsh, 2010). The main purpose of our research – framed in the socio-constructive paradigm – is to understand what teaching strategies and classroom interactions have been developed in the CLIL-type "English Plus" (EP) project at 7th and 8th grades of one Portuguese state school and how teachers engage students and support their learning,

when Science education is integrated with the use/learning of English. After preliminary literature review and data collection, the current PhD study is at the third year and focused on data analysis and result discussion, that will contribute to the thesis dissertation in 2018.

A descriptive-explanatory case study has been designed embedding units (Yin, 1994), constituted by participants involved in the programme at different times and levels: the English teacher, who started the project in History in 2010 (Simões, Pinho, Costa, & Costa, 2013) and coordinator of the current implementation of EP Science, and 2 Natural Science teachers (one teaching at the 7th grade, first year in EP; one teaching at the 8th grade, third year in EP); 7th and 8th graders participating in EP (theoretical) Science classes and "project hour" on Science through English; single high school students (11, from different study areas, 12th grade) who had EP History from the 7th to the 9th grades. Data have been collected, during the 2015-2016 school year, from these different sources through a diversity of techniques: teacher and (former) student semi-structured interview; (7th and 8th grade) student semi-structured questionnaire; non-structured "at-different-degree" participant observation of classroom practices (roughly 1/w, during 5 months), lesson planning and other moments (unformal chats, phone calls, etc.); collection of school and teacher documents. Information gathered through interviews and the questionnaire constitutes the main corpus of data.

Software-mediated content analysis of transcribed (teacher and former student) interviews and (current student) descriptive questionnaire has been performed to identify conceptions of participants on Science and English, their relationship and possible learning advantages within this integrated educational approach using an additional language. Participants' context characterization provided by preliminary results (some of which appear in Piacentini, Simões, & Vieira, 2016) shows, through independent evidence, that a language-aware teaching methodology is important to improve the education of any specific subject and student learning and it increases the understanding of the Language use in/and Science learning. In turn, this opens further opportunities for investigation – the multiple dimensions

through which the language of Science and its communication/representation modalities are developed in the Science discourse (Scott, Mortimer, & Aguiar, 2006) also through the English language (Morton, 2012; Escobar Urmeneta & Evnitskaya, 2014) during EP (English and Science coteaching) and non-EP (only Science teacher) Science lessons – and reflection on teacher practices.

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Supporters and sponsors

This work is financially supported by National Funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., under the project UID/CED/00194/2013

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