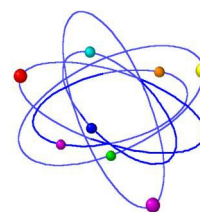




Directorate for Learning and Assessment Programmes



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STEM Popularisation Networking Festival 2018

The first Science, Technology, Engineering and Mathematics (STEM) Popularisation Networking Festival was recently held at Villa Bighi, Kalkara. The event showcased a range of national and European science outreach initiatives that the Directorate for Learning and Assessment Programmes within the Department for Curriculum, Lifelong Learning and Employability has embarked on.

The Minister for Education and Employment Hon. Mr Evarist Bartolo attended this event and lauded the commitment and action of different stakeholders to strengthen quality education in STEM on a national level.

The festival was attended by professionals from the science, technology, engineering and mathematics educational fields and Heads of School together with members of the Faculty of Education and Faculty of Science, representatives of local councils, European Representation in Malta, Embassies, Employers' Associations and local industry.

During the festival, the participants explored the STEM vision through a brief presentation that highlighted the aims and objectives, the implementation process, the targets achieved and the next steps of action. Indeed, the identified priorities for the coming years include STEM career awareness among female students, Science Outreach in the Early Years sector and enhanced education-industry links through teacher internship programmes.

The STEM Popularisation Networking Festival was partly funded through the EU funded Scientix 3 project, within the European Schoolnet.



Hon. Evarist Bartolo, Minister for Education and Employment addressing the audience.



Guests during the networking reception.



Hon. E. Bartolo, Mr G. Bugeja, Director Learning and Assessment Programmes, Ms D. Scicluna Bugeja, Assistant Director, Mr D. Degabriele, Assistant Director and Mr L. Scerri, Assistant Director.



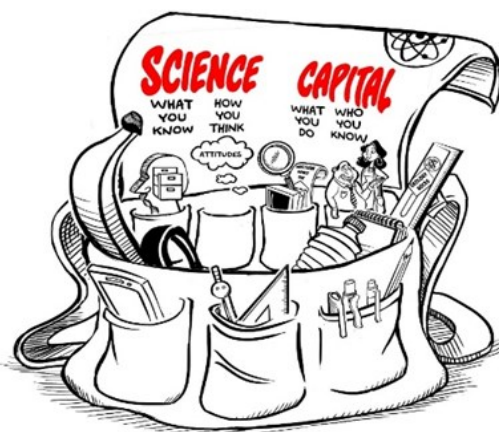
Student teachers during the festival.

Raising the Bar: Shaping Students' Science & Career Aspirations for STEM teachers

What careers do students aspire to? How can we encourage more students to undertake STEM related careers? These were some of the questions that were considered during the training seminar 'Raising the Bar: Shaping Students' Science & Career Aspirations for STEM teachers' organized on Friday 9th February by the Directorate for Learning and Assessment Programmes.

This CPD, held at St. Nicholas College Secondary School Dingli, aimed to explore and discuss the factors that shape young students' participation and engagement with Science and Mathematics. Professor Louise Archer, director at the Centre for Research in Education in Science, Technology, Engineering & Mathematics (CRESTEM) at the University College London, Institute of Education, coordinated this seminar and present several strategies how STEM career awareness could be embedded during STEM lessons.

During the seminar, Professor Archer argued that STEM teachers and schools should be aware of the students' science capital in order to develop a holistic approach that inspires more individuals to consider a STEM related career. Professor Archer also identified a number of approaches how schools can create the right ambience where students can enrich their science capital. These themes and other ideas, were ultimately discussed through Prof Archer's research and personal work experiences in the field of STEM education.



The seminar was well attended and STEM educators coming from the Primary, Secondary and Post-Secondary sectors managed to benefit from this CPD opportunity. This training seminar was partly financed through funding from the European H2020 research and innovation programme – project Scientix 3 coordinated by European Schoolnet (EUN).



Professor Archer addressing the audience.

"Equipped with his five senses, man explores the universe around him and calls the adventure Science."

-Edwin Powell Hubble

This article was written by Mr James Calleja, Assistant Lecturer, Department of Leadership for Learning and Innovation, Faculty of Education, University of Malta.

MaSDiV is an ERASMUS+ project aimed at supporting teachers to connect science and mathematics teaching to the learning of fundamental values in diverse and multicultural classrooms.

This project is led by a Faculty of Education team at the University of Malta working in collaboration with Education Officers within the Directorate for Learning and Assessment Programmes.

Spread over three years (2017-2019), this project involves the development of a research-based teacher CPD course to promote inclusive STEM education. This course is developed according to the latest research and standards related to CPD. Moreover, it is based on the well-researched STEM concept of IBL and it will be implemented across Europe.

The MaSDiV course features three modules presenting inquiry-based learning (IBL):

- as an approach for addressing achievement-related diversity;
- in real-life, relevant contexts;
- as a tool for intercultural learning.

This CPD course offered two continuing professional development (CPD) opportunities – one for CPD leaders and another for secondary school teachers. MaSDiV has attracted 27 CPD leaders and 108 teachers from 32 different schools (from both state and non-state sectors).



Teacher leaders during one of the CPD sessions.

For CPD leaders, the course started in January 2018 and is aimed to assist them in learning about inquiry-based learning, diversity and multicultural classrooms and in leading a team. It is also aimed at introducing the CPD materials provided by the MaSDiV project and engagement in learning how to implement each of its three modules with mathematics and science teachers.

During the period March to June 2018, CPD leaders supported and facilitated the learning of teachers through school-based CPD. During these weekly sessions, CPD leaders assisted teachers and provided them with opportunities to engage in collaborative and reflective inquiry focused on the implementation of the MaSDiV modules.

In planning for lessons, the use of IBL strategies to address diversity and fundamental values is a key aspect of the school-based discussions held between teachers and their respective leader.

A celebration event for teachers and CPD leaders is scheduled to take place on Tuesday 3rd July 2018. The aim of this event is to disseminate the good practices carried out by teams of teachers together with their respective CPD leaders.



Teachers during the introductory meeting.

MALTESE SCIENTISTS

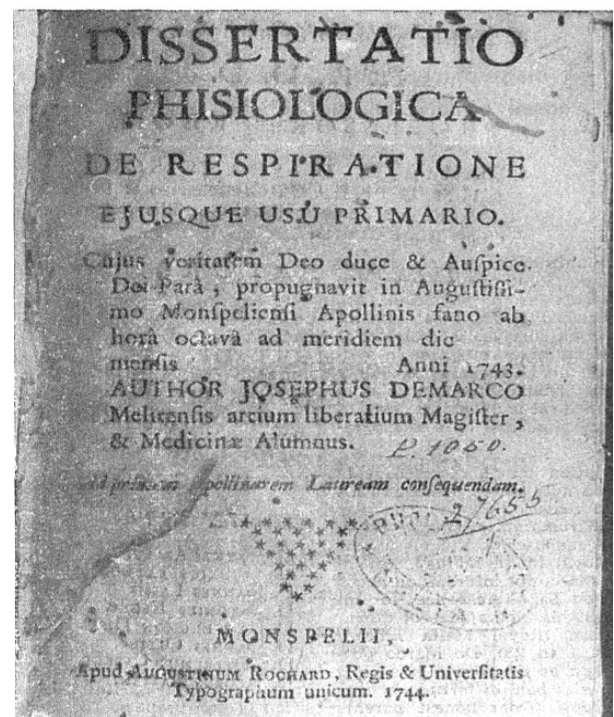
Giuseppe Demarco

1712 - 1789



Dr. Giuseppe Demarco was born at Cospicua in 1712. Cassar (1979) describes him as an eminently good student who “distinguished himself for his grasp of Latin, a language in which he wrote on medicine in later years” (p.542). When still a young man it was he who, on his mother's death, wrote the Latin epitaph for her tombstone in the parish church at Cospicua, After finishing his

studies in Malta in 1742, he proceeded to Montpellier where he did postgraduate work under Franeois de Sauvages de la Croix, a well renown physician. The medical school at Montpellier attracted students from many countries, perhaps because it was easy accessible from Spain and Italy. In 1744, Demarco defended in public his Latin thesis dealing with the physiology of respiration, ‘Dissertatio physiologica de respiratione, ejusque uso primario’ (Galea, 1972).



Title page of the Thesis presented by G. De Marco for his doctorate, published at the University of Montpellier in 1744

On his return to Malta, he settled at Senglea as a general practitioner but he found time to write on a diversity of medical subjects. He kept notes on illnesses observed by him ranging from measles and skin diseases, asthma epilepsy and apoplexy. In the 'Tractus de morbis pectoris', written in 1743, he describes the manifestations and treatment of tuberculosis. Because one of his relatives had died of tuberculosis, Demarco studied and advocated precautionary measures against that disease, which were adopted at Santo Spirito Hospital in Rabat and at the Sacra Infermeria in Valletta

Cholera engaged his attention in 1745, leprosy in 1764, and smallpox in 1763, 1769 and 1780. Rabies forms the topic of a treatise which remains in manuscript. His observations on these diseases constitute the earliest known records on communicable diseases in Malta. He may well, therefore claim the honour of being the pioneer of epidemiology in Malta.

The first mention of the diabetes by local practitioners has been documented in 1782 when Dr. Giuseppe Demarco described in his manuscript notes a case of a nun suffering from diabetes, who in the space of ninety-four days voided 3594 chamber-pots of urine. His reference to contemporary medical literature confirms that Dr. Demarco was familiar with the relevant literature (Savona-Ventura, 2002).

In 1788, Grand Master De Rohan commissioned Demarco to proceed to Tripoli, as a specialist, to cure Mustafa Pasha, whose name had been connected with Malta since the conspiracy of the slaves (Galea, 1972). Paradoxically enough, a successor to Pinto, whom this Muslim had attempted to murder to wrest the island away from the Knights of St. John did his best to help the Pasha in his struggle with death. During his stay, Demarco availed himself of this opportunity to investigate the ecology and types of illnesses in that part of North Africa thus being one of the earliest investigations in medical topography (Cassar, 1979).

Demarco died at Valletta in 1789 and was buried in the family vault found in the parish church of Cospicua.

Reference:

Cassar, P. (1979). *Portrait Gallery: Dr. Giuseppe Demarco. Heritage Magazine, Malta.*

Galea, J. (1972). *Doctor Giuseppe Demarco (1712-1789). A biographical and bibliographical study based on hitherto unpublished material. The St.Luke's Hospital Gazette, Volume 7, Issue 1.*

Savona-Ventura, C. (2002). *The History of Diabetes Mellitus. A Maltese Perspective. Retrieved from http://staff.um.edu.mt/csav1/books/diabetes_hist.pdf*

World Space Week 2018

This article was written by Ms Stephanie Maggi Pulis. Ms Maggi Pulis is Head of Department (Physics), within the Secretariat for Catholic Education, National Coordinator WSW(Malta) and Scientix 3 Ambassador.

The UN General Assembly declared 4th to 10th October as World Space Week (WSW) to celebrate each year, at the international level, the contributions of space science and technology to the improvement of the human conditions. These dates were chosen due to important milestones in space exploration in the past:

- October 4, 1957: Launch of the first man-made Earth satellite, Sputnik 1, thus opening the way for space exploration;
- October 10, 1967: The signing of the Treaty on Principles Governing the Activities of States in the Exploration and Peaceful Uses of Outer Space, including the Moon and Other Celestial Bodies.

Since its declaration in 1999, WSW has grown into the largest public space event on Earth. In 2017, when Malta joined in, there were more than 3,700 events in 80 countries celebrating the benefits of space and the excitement of space exploration. The 2018 theme is “Space Unites the World” to celebrate the role of space in bringing the world closer together. The event details can be found at <http://www.worldspaceweek.org/>.

In Malta, the event will be celebrated between 12th and 14th October, 2018 with the collaboration of Esplora Interactive Science Centre, the Institute of Space Science and Astronomy (ISSA) at the University of Malta, the Astronomical Society of Malta (ASM) and the National Coordinator of WSW(Malta). An exhibition with space school projects will run alongside spectacular photos by the Astronomical Society of Malta. Different attractions in the programme include (i) the opportunity to meet real-life astronomers and do observations using specialised telescopes, (ii) following simulations, (iii) participating in talks and (iv) a number of hands-on workshops. This year schools will be given the opportunity to book their students for the event on October 12th, 2018.

WSW 2018 in Malta will gear young people into science, technology, engineering and maths whilst providing the opportunity for people to learn more about the benefits that the world receives from space.



Operation Wallacea Malta

This article was written by Mr Nathan Adams. Mr Adams is United Nations Association in Canada Project Officer & Mediterranean Operation Wallacea Wildlife Conservation Research Office Manager.

Operation Wallacea Malta (www.opwall.com) organises international wildlife conservation expeditions for Maltese Secondary School, Sixth Form and University students and teachers at biodiversity hotspots across the world. Students and teachers are taught the latest scientific approaches on how to research wildlife in a manner that is directly applicable to students' O-level and A-level material. This provides students with the once-in-a-lifetime opportunity to apply the science knowledge out of the classroom in order to assist professional scientists in their respective fields of study. The data that the students help collect contributes to various research studies that are eventually published in peer-reviewed scientific journals.

Since 2015, over 160 Maltese participants have attended Operation Wallacea expeditions, including work with indigenous communities and professional scientists in Tropical Rainforests and Savannahs and also SCUBA diving at biodiverse coral reefs. Expedition sites attended by Malta volunteers include: Romania, Croatia, Indonesia, South Africa, Cuba and Honduras.

The aim of organising these expeditions for students is to ensure that Maltese and Gozitan students acquire international opportunities and experience to enhance their CV and become competitive for future employment and post-graduate university enrollments. Moreover, these expeditions qualify students as Open Water PADI SCUBA divers and trains them as research assistants, providing them with innumerable opportunities both within Malta and internationally upon their return.

These expeditions also allow students and teachers to network within the international scientific community. Moreover, many Maltese students that have joined Operation Wallacea expeditions have eventually completed degrees in relevant subjects and go on to careers in wildlife conservation or field research. We have received feedback from teachers in Malta that students tend to perform better academically after their Operation Wallacea expeditions. This summer, students from the following educational institutions will attend Operation Wallacea expeditions: St. Benedict's College Secondary School, Bishop's Conservatory Secondary School, Sacred Heart Minor Seminary Secondary School, St. Martin's College Secondary School, San Andrea Secondary School, Junior College Sixth Form, Giovanni Curmi Higher Secondary School, Sir M.A. Refalo Sixth Form, St. Aloysius' College Sixth Form, St. Martin's College Sixth Form and the University of Malta

Following her experience in Croatia (2017), Dorothy Attard student at Sir M.A. Refalo Sixth Form commented: "Unforgettable in so many ways! I learned a lot, which helped me look at life from a different perspective. This experience taught us that nothing can substitute hands-on experience! I thank my friends, my school teacher, my school and the Malta Operation Wallacea office for making such an incredible school trip possible!"

Interested in organising an expedition for your school?

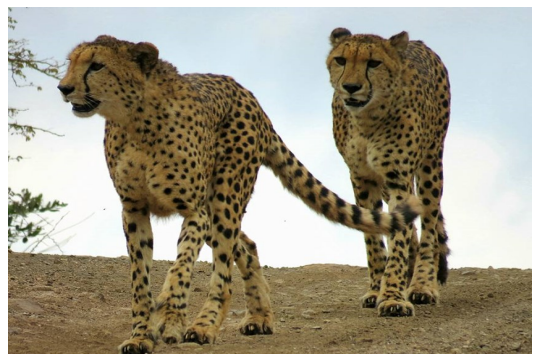
Contact malta@opwall.com for further information. Website: www.opwall.com



Certificates of participation and recognition awarded to 160 Operation Wallacea students and teachers from Secondary Schools, Sixth Form Schools and the University of Malta. - Annual Ceremony for Operation Wallacea Volunteers on 29th May 2018. Photo: Kevin Abela



Students from Sir M.A. Refalo Sixth Form School learning how to SCUBA dive in Croatia. Summer 2017. Photo: Lorraine DeBrincat.



Cheetah Conservation Project at Operation Wallacea South Africa Expedition, 2016. Photo: Nicholai Xuereb.

Go4Research

The Faculty of Science (UM) in collaboration with the Directorate for Learning and Assessment Programmes (DLAP) has launched the second edition of the Go4Research students internship programme. The internship offers a number of students who participated in the Malta Junior Science Olympiad (MJSO) the opportunity to pursue their interest in STEM, by joining academics in their research projects within different STEM fields. The programme also aims to facilitate students' transition into further and higher education & training in STEM subjects and prospective careers. The internship programme also targets to create better partnership opportunities between local STEM researchers/lecturers and young science students. The internship will be held during the summer months, after all SEC exams are over.



Workshops for Science Educators

In April and May, Science teachers had the opportunity to participate in a number of training workshops where they discussed the proposed methods of continuous assessment and the reviewed Science syllabi. During the workshops, Matsec representatives and officials from the Directorate for Learning and Assessment Programmes gave an overview of the proposed changes. After these presentations, Biology, Chemistry and Physics teachers attended separate sessions where they provided their own feedback regarding the changes as proposed. These sessions also helped teachers to enhance the standardisation and validation of continuous assessment.

Industry Internship for STEM Educators

The Directorate for Learning and Assessment Programmes in collaboration with the Malta Chamber of Commerce, Enterprise and Industry launched a unique CPD opportunity for STEM educators. This will consist of an internships lasting from one to two weeks, with a number of companies which have agreed to cooperate in this initiative.

The aim of the internship is to provide STEM educators with first hand industry and research experience. The internship is aimed to enhance the connection between current local research and STEM career/work opportunities with classroom practice thus enhancing the teaching/learning process. Teacher internships provide an excellent avenue for ensuring that the curriculum remains current and relevant to the local industry and research context.



The teachers will work in local industries with engineers, material scientists, marketing analysts, environmental consultants, physicists and other industry personnel. During the work experience, teachers will encounter STEM applications that they can relay back to their classroom. Thus, the internship will focus on guiding teachers to effectively align authentic STEM experiences into classroom practice while building in-depth and practical knowledge of the rapidly evolving nature of STEM careers.

This newsletter is designed and compiled by the Directorate for Learning and Assessment Programmes.

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Directorate for Learning and Assessment Programmes
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We would appreciate feedback from science educators about this newsletter, its content and presentation.
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