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UNIVERSITY OF MALTA

A Word from the Rector

The following address was delivered by the Rector on the occasion of the Third National Chemistry Symposium organized by the Department of Chemistry, Faculty of Science on 6th March 2006.

I would like to welcome you today to the Third National Chemistry Symposium, organized by the Department of Chemistry. The two previous symposia have proved to be a huge success and the department of chemistry deserves all credit for having organized them.

Since the 1950's higher education in the Western world evolved from being an elite to a mass phenomenon. In Malta it took us three decades to catch up with the massification of higher education. But thankfully we have now achieved that stage. Since the 1990's our University may be said to have played two major roles – a social one, promoting a culture of life long learning by delivering an increasing number of tertiary education programmes in a wide range of disciplines, thereby enhancing a Maltese identity in the context of tradition and international developments. A second perhaps even more important, role may be defined as utilitarian, supporting the economy of the country by providing the skilled human capital required and strengthening our country's profile and credibility in the international arena. The University is increasingly exploring ways in which it can collaborate with local services and industry and stimulate through innovation their development. The funding by the EU of our University and Air Malta as joint participants in the Fly Safe consortium is a very recent example. Our partners are the top European research organizations in the airline industry and include the French Thales Avionics, Airbus, Rockwell Collins and the Universities of Darmstadt and Cranfield. The launching of the European 6th Framework Programme of Research, Development and Innovation in Malta was carried out by our university together with the Compostela Group of Universities of which we are very active partners together with Malta's business institutions, the Federation of Industry (FOI) and the Chamber of Commerce. We as a university, are willing to go well beyond the halfway point to meet and anticipate the requirements of our industry. One only needs to look at the spread in expertise of the over 10,000 graduates the University has produced in the last four years if confirmation is needed. The University is justly proud of its achievements – achievements acquired at no mean cost and frequently under severe financial constraints. But this should in no way be interpreted that the University feels that it can now rest on its laurels, that it is becoming complacent. Far from it. The university justly expects better funding to allow it to develop into a Regional University of quality – nay, my *cri de coeur* is that we be aided to develop into *the* Regional University of quality. Our students, our academics, indeed our country deserve nothing less.

The staff at the Department of Chemistry enjoy an excellent track record in producing well qualified graduates who are actively sought after by the local industry, and by leading international universities to pursue doctoral degrees by research.

In recent years, a good number of our chemistry graduates have been employed by various chemistry related companies: plastics, electrochemical, food and beverages, and much more recently by emerging pharmaceutical companies. It is my pleasure to note that these companies have a high regard for our University and its Department of Chemistry. A proof of this is that this symposium is being sponsored by four major pharmaceutical companies - *Actavis Ltd.*, *Arrow Pharm (Malta) Ltd.*, *Medichem Manufacturing (Malta) Ltd.* and *Starpharma Ltd.* Their support to the department is highly appreciated and will continue to ensure that the University will keep on producing well qualified scientists.



Signing the agreement with the Universities of Clausthal and Oldenburg

The University is pleased by recent developments in the Maltese economy where for example, the pharmaceutical industry is making heavy investments in this country. The University also understands its particular obligation of providing the country with the qualified persons that are required by industry and society to be able to develop and function effectively.

The University has always responded to such challenges with alacrity. Realising the need that the pharmaceutical industry had to be provided with chemists who are specially trained to work in this sector, it immediately developed and started to offer a Postgraduate Diploma in Applied Chemistry with the scope of providing the industry with specialists who are well qualified to work in the pharmaceutical sector. We were ready far before we got the green light and the money with which to buy the necessary equipment.

The University also prides itself on the fact that despite its tiny size and very limited funding, it has continued to be involved in research projects in collaboration with other institutions. This is true even in Chemistry, a subject where meaningful research requires equipment, materials and resources that are expensive. I am pleased to see that in spite of all these difficulties, members of our Chemistry Department are having their work published in very high calibre international journals such as *Chemical Communications*, *Applied Organometallic Chemistry*, *the Canadian Journal of Chemistry* and the *Journal of Materials Chemistry* which have also classified a publication produced by our department as a 'hot paper.' When our academics publish their research work in this way, they are acting as ambassadors of our university thus ensuring that Malta's only University will continue to be considered as a key player in the European Tertiary Education arena. Indeed, academic research has always been an important measure of a University's standing in the international community, and if our University wants to remain a key player in this field it is essential that its academics and students continue to be involved in research and present their results at international conferences or publish them in high calibre journals.

Academics from the University of Malta are also working very hard to attract external funding for financing their research. It is with pleasure that I note that in the last two years, the Chemistry Department was awarded two significant grants through EU FP6 to support research work: 66,000 EUR for a *Chemistry in Society* project aimed at resisting inequalities created through science and technology and 250,000 EUR for research in the field of auxetic materials. Last year, the Department was awarded more than Lm28,000 through the national RTDI programme which is administered through the Malta Council of Science and Technology (MCST) and I am pleased to see that a number of papers presented at this symposium have been financed through this grant.

Vaclav Havel, an honorary graduate of our university, aptly observed that we live in an era in which everything seems possible but nothing is certain. The future is also happening faster than many of us can imagine. I am sure that the vast majority of you, with me, share a vision that was so forcefully delineated by J. William Fulbright in 1977 : 'We must try', he said, 'through education, to realize something new in the world – by persuasion rather than by force, cooperatively rather than competitively....' We are all working to continue to achieve the broadening of young people's cultural horizons, the increasing of their capacity to think and work globally and the creation of opportunities for them to participate in making the world a safer place to live in. These are the main targets which we have set ourselves to achieve. These are the targets which I am sure we shall achieve through an exercise of dialogue and exchange of views.



Roger Ellul-Micallef - Rector

Revealing the Learner's Potential *The Grundtvig "Let Me Learn" project*

Mr Colin Calleja

Introduction

Me: Describe your experience at school.

Mark: I used to run away sometimes.

Me: Why do you think that school was not a place of learning for you?

Mark: I don't know but I am not stupid. Even if I do not know how to read and write, I know how to do other things.

Me: Do you mean that you found learning outside school easier?

Mark: Yes. Definitely.

Me: (on observing him send a message on his hi-tech mobile phone) For example, does the way that mobiles work interest you? Is it something you learnt how to operate easily?

Mark: Yes exactly. (Here he went on to say how he loves electronics and how easy he finds it to solve technical problems). For example, in my family I solve all technical problems, not even my brother who has done well at school can do the work I do.

I explained briefly that different persons have different learning patterns and this may have well been the reason why he did not do well in school because the teaching patterns did not tally with his way of learning.

Mark looked at me, smiled, nodded and said 'You will understand me. Are you going to be my teacher?'

An excerpt from an anecdote related by one of the participants

Over the past two years we have been working on a Grundtvig 1 project training Adult trainers in the Let Me Learn Process® (LML). This project departed from the idea that learning is an individual process that each and every learner continually goes through. The rationale of this project was the belief that educators can create a listening environment in which they can hear the voice of the adult learner, understand the learner and be a guide towards the learner's success. This project takes its inspiration from the assertion that all learners have the potential to learn to use their personal learning processes to enhance their lives.

This project focused on developing a training model, which provided all those working within the field of adult learning, training and life-long education with a curriculum to help adult learners develop strategies to succeed in their learning. This course highlighted the interactivity of each learner's mental processes explained by the Let Me learn Process®, an advanced learning system (Johnston, 1996; Johnston, 1998; Calleja, 1998) and identified through the administration of the Learning Connections Inventory (LCI) (Johnston and Dainton 1994), an internationally validated instrument used to capture the degree to which each learner uses or avoids the four mental processes of Sequence, Precision, Technical Reasoning and Confluence.



At the meeting held in Rome at UoM's Link Campus. The author is third from left.

These tools (the theory, the instrumentation, and the curriculum) were delivered to trainers and adult learners with the purpose of creating learning environments which truly respect the diversity of the learners and their learning processes. Finally, this project sought to create an awareness and tolerance by adult educators of the impacts of the differences among learners and how these affect workplace and classroom tolerance and output.

What they say ...

The best way to capture the effectiveness of a process is through the voice of the participants themselves. During the course of their training, participants were asked to reflect on their growth and write short reflections in which they were to express how they saw themselves perform their work better. What follows are some excerpts from these reflective journals:

Jacqueline Micallef Grimaud is a teacher trainer at the Malta College of Arts, Science and Technology (MCAST) who reflected on how this training helped her to understand better candidates taking a vocational teacher training programme which she together with her colleagues were organizing.

"Within the Professional Development Centre, MCAST, Malta, we have 47 candidates (assistant lecturers) taking a Vocational Teacher Training Programme. This group is split up into three tutor groups: there are 15 candidates in my group. We exposed these candidates to a two-hour personal learning journey on one Monday during which they completed the LCI (Learning Connections Inventory). The inventories were validated by us during the week. The following Monday we took the candidates through the LML theory and a detailed description of the patterns.

Although their reactions were more or less expected, their enthusiasm for this theory and its application went beyond all expectations. In fact they are now applying the LCI, validated by us, to their students as part of their assignment on learning theories. This development could not have taken place if the team and I had not steeped ourselves in LML terminology garnered from readings and conversations, some of which we elaborated during meetings under the guidance of one of our tutors, Colin Calleja.

In observing my tutor group during their encounter with LML, I, once again, experienced that sense of elation, albeit vicariously, that I had felt during the initial training in Rome. I have come to terms with the idea that I myself have been empowered through my personal experience of LML but I have not yet fully accepted that I have been enabled to empower others endowing them with a feeling of self-worth and self-realization. I pray that I will do so with a deep sense of responsibility and all-enveloping humility."

Vesna Podgornik is a curriculum developer in the Slovenian Institute for Adult Learning (SIAE). In her reflection she expresses her understanding of the process and how she internalized it. She explains with some precise details how she intends to use it within the centre and in the training of counsellors and adult trainers.

"With the knowledge of the Let Me Learn Process® and the comprehension of its importance for the education in general (from the point of view of learning, teaching and guidance in the education of children, adolescents and adults) as well as with the knowledge and qualification for using LCI questionnaire, counsellors can help the adults within the education programmes to become more successful learners.

Through individual guidance consultation, the counsellor will make his/her clients with learning problems, looking for help in the guidance centre, familiar



At the opening of the meeting held in Città della Pieve

with LML process. On the basis of the results derived from doing the LCI questionnaire and the suitable counsellor's interpretation, clients will get to know their combination of learning patterns (which pattern they most often use, which one only occasionally when they need it and which pattern they avoid); they will also learn the characteristics of individual learning patterns, and above all, they will get to know themselves as learners. Furthermore, they will understand that people learn in very different ways, each of us in our own way. No combination of learning patterns is worse or better than the others. However, if there is a learning pattern that we avoid in our learning, we have to forge its use. Secondly, we have to tether the use of the patterns we use the most frequently. Then, if a pattern is used only as needed,

we might need to intensify it. We have to develop special strategies to be able to use a certain learning pattern when it is necessary (needed). Thus, the adults in the process of education will develop their own learning strategies, which will help them to better succeed in their learning journey."

Mark Vesser Habibuw from the centre for the promotion of diversity (ECHO) in The Netherlands wrote the following anecdote after the second training session. Here he explains his experience with a simple task which through his better understanding of his learning processes he now can look back and learn how best to handle similar situations.

"Yes, I did it again....unbelievable, but true!!!!!!!!!!!!!!

Knowing my patterns now, the one(s) I use first and the ones I avoid (especially the technical reasoning) I can now understand WHY I made such a terrible mistake. Shortly after our session in Rome, I had to give a three-day training seminar for managers.

On the third day of the seminar all simulations were to be recorded on tape. The management asked me to keep all the recordings after the training in order for them to take it home for some specific reason. Before taping, I got precise instructions from the webmaster about how to use the video camera, the sound, light etc. I wrote most of the instructions down on a small piece of paper knowing my lack of technical knowledge and affinity with it. Guess what ... on day three, the original video camera was replaced by another camera due to a mechanical failure. Without taking the time to read the new instructions, I started at a sort of 'at random' to tape the simulations. I hoped that luck would be with me that day whilst I knew what risk I took. By the end of the day, I only had one single simulation taped instead of the eight we had to do. I felt so annoyed because of the fact that I simply had not given myself the time to start a little later with the training in order to rehearse with the new video camera.

It has again all to do with my strong use of precision and sequence, 09.00 a.m. is 09.00 a.m. and shuffling the day's program is so difficult for me. To summarize, I have to tell myself in certain situations to be more flexible with my 'vast' training's repertoire, to allow myself to stretch my confluent pattern and take some risks."

Nicolette Camilleri, coordinator of the Literacy for those seeking Employment programme within the Employment and Training Corporation (ETC – Malta) expresses her enthusiasm as she used the inventory with her colleagues and realized how she can now understand better and in a more meaningful way those with whom she shares her working life.

"I did not realize what impact the first session had on me. I find myself trying to guess learning patterns of nearly all the persons I meet! Even though I have not yet had the opportunity to administer the LCI to my trainers and trainees, I have found myself trying to observe their learning patterns and more importantly, I have become more tolerant of their different ways of doing things. I have, however, administered the LCI to my immediate boss and my two colleagues, all three persons I work with on a day-to-day basis.

Boss: Has to approve ideas. He leads with his precision, thus wanting to know all the details. He seeks relevance due to his high score in technical reasoning and wants to have a clear plan with clear instructions (S:25 P:29 T:28 C:21). Our boss is inundated with our new ideas and keeps telling us to stick to original plans.

Myself: I lead with my sequence, I need a plan and to order my ideas but I also love entertaining new ideas (S:30 P:25 T:12 C:27).

Colleague A (We work on the same project) We always call for Colleague A each time we have a problem with the computer or anything else that would require reading the manual. Colleague A and myself never agree on the sequence of doing things. She tends to start a lot of projects before completing any of them. Often Colleague A does not read the instructions thoroughly and as a result does not understand the task completely (S:22 P:18 T:28 C:28).

Colleague B (my colleague with whom I share the room) Always insists that things should be done differently and avoids the norm (S:22 P:26 T:20 C:29).

This was such an eye-opener to us all. I was happy that all were interested to find out their learning patterns and we discussed them as we understood them. This exercise was great for all of us. We can now say that we have improved our working relationship and it was the first step to take to see the learning patterns in action around me all the time."

Comprehending the potential

Through these reflections and anecdotes one can see (albeit at the very beginning of their awareness and training) the impact this process had on these participants. So what is the real potential of this process? Where does it originate? And where is it being implemented?

The Let Me Learn process® aims to:

- (1) provide an accepting environment in which adult educators and counsellors grow in awareness of the learner's voice in which learners accept self as a capable learner and create meaningful communication;
- (2) provide a nurturing environment in which the learner's patterned learning processes are developed. This is hoped to be achieved through creating a peer awareness of unique learning processes, developing opportunities to work with other learners in a respectful learning environment and create successful partnerships;
- (3) enhance and accelerate professional development plans for individuals while helping to streamline and customize training programmes to suit an individual's or a team's learning needs. Finally,
- (4) provide a challenging environment in which learners exert independence and resourcefulness in negotiating learning experiences (Johnston, 1998) whilst building cohesion and reducing friction thus enhancing organizational morale and team satisfaction.

The above aims are not intended to create new structures within the organization, but to induce and support reorganization through self-organization. "This deep change," states Johnston (1998), "occurs only when those involved in it are highly committed to increasing their awareness of how they learn, act upon their knowledge, and take time to review with their peers their newly attained insights" (p.294). Such a process not only liberates learners but also helps create "a sense of optimism about organizational change, a sense that change is possible" (Osterman and Kottkamp, 1993, p.186).



At the London meeting

Leading the future

The Grundtvig Let Me Learn Project, which is jointly coordinated by the Let Me Learn – Malta Centre of the Faculty of Education and the European Office of the University of Malta has involved a number of European Countries and thus established the process in the Czech Republic, Slovenia, Italy, Holland and Spain. It included eleven organizations and adult learning institutions which have incorporated this process into their programmes and curriculum. The University of Malta, through its close collaboration for the past 10 years with Professor Christine Johnston from Rowan University, has succeeded in helping

these learning and training organizations to better serve their learners. This process has also caught the attention of a network of universities which have joined forces to bid for a Marie Curie 3.5 million Euros project in the field of Black Energy. The coordinators are asking the LML Centre to help them, in the words of the coordinator, "sharpen our awareness of these issues and to help to identify how ... (we can) better train young researchers. And the young researchers, once they realize how they learn best, can use this information to decide on their future career path."

In conclusion

The Let Me Learn process® hopes to continue supporting learners and learning organizations in identifying the barriers to success and set priorities resulting in increased student success measured in terms of both individual and team performance.

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For further information on the Let Me Learn Process

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The Faculty of Science is 90 years old

In 2005, the Faculty of Science commemorated the 90th anniversary of its establishment as a separate faculty of the University of Malta. The Faculty Board met to discuss the business of the new faculty on 17th September 1915: the first Dean was Sir Temi Zammit, Professor of Chemistry, who was later to serve as Rector of the University. Science and mathematics had, of course, been part of the university curriculum from the inception of the university since these areas of study form the basis of the professional courses in medicine and architecture. However, the disconnection of science and mathematics from other general academic areas and their unification in a separate faculty paved the way for consolidation of studies in these areas as specialist disciplines in their own right.

To celebrate this 90th anniversary, the Board of the Faculty met on the 16th of September 2005, under the chairmanship of Professor Alfred J Vella, Dean. It suspended its normal agenda in order to mark the occasion with the reading of a commemorative paper by Professor Stanley Fiorini, who, besides being a mathematician by profession, is also a distinguished historian. Among those invited on this occasion were the Rector, the pro-Rectors, Registrar and also retired academic staff of the Faculty.

Today, the Faculty of Science consists of seven departments in the following areas, namely: biology; chemistry; mathematics; physics; statistics and operations research; computer information systems and computer science and artificial intelligence. The Faculty offers a 4-year joint Honours Bachelor of Science degree in two areas of study as well as postgraduate programmes at Masters and Doctoral levels.



Brief talk by Professor Stanley Fiorini during the Faculty Board Meeting held on Friday, 16th September, 2005*

The first sitting of the Faculty Board of Science, as we know it today, was held on the 17th September 1915; like today it was a Friday. The Rector, Dr Edoardo Magro was in the chair and there were three members in attendance: Professor W.F. Nixon B.Sc., Arc.Sc. (Professor of Mathematics) and two others, both future *Rectores Magnifici* of the University, Professor Roberto V. Galea L.S.&A. and Professor Themistocles Zammit C.M.G., M.D. (Professor of Chemistry). In view of the agenda for the day, the following two decisions were taken:

- (i) Henceforth there were to be two Mathematics exam papers, instead of the one as till then, in each of (a) the academic course of science, (b) the preparatory course of medicine, and (c) the preparatory course of engineering;
- (ii) Professors Temi Zammit and Robert V. Galea were elected to represent the Science Faculty on Council.

These details and others relating to the subsequent meetings of the Faculty Boards of Science can be found in a single register entitled "Faculty Board of Science Minutes (1915-1956)," catalogued as Vol. 444 in the University Archives (no pagination). As this register extends down to 1956 it has many an interesting detail very close to our own memory such as how, on 30 August 1950, Professor Edwin Borg Costanzi

* originally published in *Xjenza*, Vol. 10 (2005), pp 1-2.

(honouring us today with his presence) makes his first appearance on the board and, forthwith, is elected to represent Faculty on Senate.



Professor Stanley Fiorini

In this short presentation, I have been asked by the Dean to look back over the years to give an overview of how the various situations of Science in Malta developed to lead to that auspicious Friday, 17th September 1915 that we are commemorating this morning. (The looking forward is the task of this Faculty Board). Our *Alma Mater* has had a chequered career, looking back for its forked roots in the Jesuit-founded *Collegium Melitense*, begun in 1592, and in the School of Medicine founded by Grandmaster Nicholas Cottoner in 1676 in the *Sacra Infermeria*, both in Valletta. In these early precursor days, the study of the Sciences was well-nigh restricted to Mathematics, a School of which was erected in the *Collegium* in May 1655. Interestingly, the chair was funded by a tax on the croquet-like game of mallet, played in the Floriana walled Mall (whence the name), by leisure- and pleasure-seeking knights. The purpose, as conceived by

Grandmaster Lascaris who founded it, was purely functional and the discipline thought of as 'slave and servant' of the utilitarian sciences of navigation and artillery. One can, in some sense, say that the teaching of Mathematics flourished, on and off for about a century, until the suppression of the Jesuits and their college in April 1768.

Following the unceremonious dismissal of the Jesuits, Grandmaster Pinto took immediate steps to transform their college (now his college) into the university of his dreams. To this end, he invited some of the best men in Europe of the time, including a Florentine Servite, Padre Roberto Raineri Maria Costaguti, a mathematician of some repute, to be the first rector. Attached to this *Pubblica Università di Studi* was a *Collegio d'Educazione*, a kind of Junior College. According to the statutes drawn up by Costaguti himself, a full university course lasted eight years and was divided into two parts: the first three years led to the degree of Master of Arts in subjects common to all three Faculties of Theology, Jurisprudence and Medicine, whereas the last five were dedicated to these three traditionally professional courses; this basic structure survived till the very recent past. The teaching of the sciences, in preparation for the course of Medicine, found its way into the curriculum of the initial three years. Worthy of mention, is that Botany, an essential ingredient of the course of medicine that relied heavily then on the knowledge of herbs, was closely associated with a *Giardino di Botanica* that flourished in St Elmo's ditch where the medicinal herbs were grown.

Maltese exponents of science at this time included: (i) Dr Giuseppe De Marco of Cospicua, trained in the Jesuit College and in Pinto's *Università*, who has left us various writings, including (a) *Trattato di Trigonometria Piana*, (b) *Vulgaris Arithmetica Elementaris Theoria et Praxis* and (c) *Breve Compendio dell'Idrostatica*; (ii) Pride of place, however, should go to Giuseppe Zahra, likewise trained at the Jesuit College, but, having clashed with the Order on political grounds during the so-called Insurrection of the Priests, he slipped out of the island to Naples where he concluded his medical training and from there, he headed for St Petersburg, where he very likely came in contact with Euler himself, then by way of Paris and Messina, he ended up in Catania to teach Mathematics. Here, as incumbent of the Chair of Geometry, he earned for himself the compliment of being *il più valido matematico che fosse in Sicilia*; he now graces our Computer Science Building with his name.

The Order's stay in Malta came to a sad end in June 1798 when Napoleon Bonaparte summarily threw it out of the island. During a short six-day stay (13-19 June), Bonaparte revolutionized all the systems in these islands, including the educational:

- (i) fifteen primary schools were to be set up for the education of Maltese children;
- (ii) sixty boys, from the richest families, were to be sent to Paris to further their studies;

(iii) the University was to be replaced by a Central School run by eight masters, respectively in charge of: (a) arithmetic and stereometry, (b) algebra and electricity, (c) mechanics and physics, (d) geometry and astronomy, (e) navigation, (f) chemistry, (g) oriental languages and (h) geography.

Things augured very well for the sciences, but none of these grandiose schemes saw the light of day as by 1 September the islands were up in revolt and the French made way for the British. Even before the future of Malta was settled by treaty in 1813, the practical administration of the island was already in the hands of Alexander Ball.

It is to Ball's credit that the University began to function again very soon afterwards with three main chairs for Theology (Dogma, Morals and Canon Law), one for Medicine, one for Civil Law and three for the Faculty of Arts. These were (i) Humanities and Rhetoric, (ii) Logic and Metaphysics and (iii) Mathematics and Physics. This last chair was given to Carlo Azzopardi. The Reverend Canon Francesco Saverio Caruana, one of the leaders of the revolt and subsequently Bishop of Malta, a mathematician of note, was first rector of this refounded University (1800-1822). He also established the school of building and design at the University. Caruana resigned in 1822 and the dictatorial Governor, so-called 'King Tom,' Maitland grabbed the opportunity to set up a commission to investigate the educational system at this highest institution of learning. One practical result of this inquiry was the separation of the University from the Lyceum, physically by the construction of the Doric Gate in St Paul's Street under the Greek inscription, *Propylaion tes times he mathesis*.

Separate Faculty Boards for the various faculties began to be held at this time. Some information on student numbers is also available. The roll of students at the University in 1833 showed a total of 300 students of which 65 attended the Arithmetic Class. Professors had an honorarium, rather than a salary, amounting to £25 per year. Important names in science that appear in the 1820s and 30s included Dr Cleardo Naudi, *Professore di Chimica*, the teacher of Arithmetic was Sr. Gioacchino Busuttill, Professore di Botanica P. Carlo Giacinto died in 1829 to be succeeded by Dr Stefano Zerafa. Similarly, in that same year, the chair of Mathematics had been left vacant for some time by the death of Dr Giuseppe Zammit and it was being recommended that Sr Carlo Cicogani Capelli should replace him. A Dr Giuseppe Wettinger from Cremona, described as inventor of an aerostatic balloon, appears on the scene in the 1830s.

In a report of 1836, drawn up by two British scholars, John Austin and George Cornwall Lewis, the commissioners found a University system that was to survive until fairly recently, in which a six-year academic course consisted of an initial three-year course in philosophy leading to three other years in one of Theology, Law or Medicine. Intake used to occur every three years with a *numerus clausus* of 159 for the final three years. Students paid half-a-crown a month and total income from these fees in 1837 came to £149 3s. 2d., which sufficed for all the staff's salaries. Recommendations for reforms by the two gentlemen were turned down and there followed a time of turmoil which saw the toppling of two rectors in as many years. The lull that followed with the lengthy rectorship of Dr Saverio Schembri (1854-1880) was equally fruitless and a time of stagnation. Suffice it to mention that during this whole time, Council met



Professor A.J. Vella (*left*) current Dean of the Faculty of Science with Professor E.J. Borg Costanzi, a former Rector of UoM and also one time Dean of Science and Head of the Department of Mathematics

exactly once in November 1873. For a period of thirty-five years there were no Arts or Science degrees. The sciences reappear again in the reforms suggested by Sigismondo Savona who insisted that Theology students should have a grounding in Mathematics and Physics. This was vigorously opposed by the Church.

The Rector, Annetto A. Caruana resigned in 1896 as he could not handle the warring factions within the University. He was replaced by Napoleon Tagliaferro who came armed with a new statute. Tagliaferro was an outstanding academic who contributed to several branches of learning, including Mathematics, Archaeology, the Natural Sciences and the Maltese Language. He studied at the Sorbonne and his publications include a paper of 1879 on the then topical Transcendental Functions. One of his early achievements at the University was to subdivide the Faculty of Arts, till then known as the Faculty of Literature and Science, into two separate areas of study: the Arts and the Sciences, that included Engineering, Architecture and Pharmacy. The split into three faculties of Arts, Science, Engineering and Architecture belongs to the next rectorship of Edoardo Magro (1904-1920). The first meeting of the Faculty Board of Science was held 90 years ago almost to the day.

Chemistry: The link between the Sciences and the Arts

Dr Joseph N. Grima & Mr Victor Zammit, Department of Chemistry



Left: Professor Hoffmann with Dr Grima, above: with the auxetics research group, below: with Chemistry staff and students



On Monday, 7th November 2005 the Department of Chemistry hosted a public lecture delivered by Professor Roald Hoffmann, Nobel Laureate in Chemistry (1981), of Cornell University, USA.

Apart from his very significant achievements in the development of the extended Hückel method and for his work in exploring the electronic structure of transition states and intermediates in organic reactions, Professor Hoffmann is well known for his interest in Literature. In fact, he is a prolific writer and in 1988 he received the Pergamon Press Fellowship in Literature at the Djerassi Foundation, Woodside, California. Professor Hoffmann has also published two poetry collections: *Soliton*, by Truman State University Press and a volume of selected poems translated into Spanish, *Catalista*. He is also the co-author of a play, *Oxygen* which was premiered in the U.S. at the San Diego Repertory Theatre in 2001. This play has been translated into many languages and has had productions in London, East Lansing, MI, Madison, WI, Columbus, OH, Germany, Korea, Japan, New Zealand, and Toronto.

In his well illustrated lecture, entitled *Chemistry's Essential Tension: The same and not the same*, Professor Hoffmann gave his audience an insight into the different facets of chemistry and the sometimes invisible link which binds science (in particular, chemistry) and art together. Chemistry, poised between the physical and biological universes is very much on the human scale, and from that derives its great interest and its problems. Chemistry is, as it has always been, the art, craft, business of substances and their transformations. It is the science of molecules, both simple and complex – chemists always think simultaneously of macroscopic substances and

microscopic molecules changing. Such changes can sometimes lead non-scientists to perceive chemistry as a mysterious subject that can only be understood by the few who study and practise it.

However, as Professor Hoffmann discussed, chemistry is also an art and great chemists, such as Mendeleev who put together the periodic table, approach chemistry in a very similar way to how a poet builds a poem. In both cases, man strives to understand partly through intuition and partly by experimenting with words or numbers to finally achieve completion and understanding. There is a very strong element of creation or synthesis in chemistry, a feature that brings it close to the arts.

After the lecture, Professor Hoffmann visited the Department of Chemistry and Malta's Auxetic Materials Research Group led by Dr J.N. Grima which provided an opportunity to discuss some of the recent developments in the subject made by the group.

Two major research projects for the Auxetics group of the University of Malta in modelling and design of multi-functional materials

Dr Joseph N. Grima

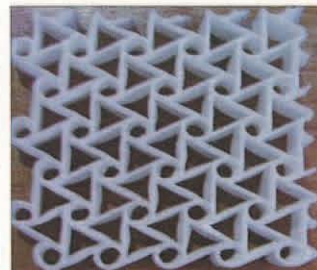
In 2005, the Auxetic Materials Research Group of the Faculty of Science, University of Malta led by Dr Joseph N Grima started its work on two major research projects: the CHISMACOMB project, a three million Euro EU FP6 funded project, of which more than a quarter of a million Euros were awarded to the University of Malta; and one on modelling of materials with unusual thermal and mechanical properties, a Lm28,700 project funded through the National RTDI programme administered by the Malta Council for Science and Technology (MCST).

CHISMACOMB (an acronym for Chiral Smart Honeycombs), is the result of a collaborative effort involving an international network consisting of production companies, research institutes and universities coming from five other EU countries (Germany, Greece, Italy, Poland and United Kingdom) and two Associated States (Israel and Romania). The consortium is led by Dr Fabrizio Scarpa from the University of Bristol, UK.

The CHISMACOMB project will investigate and develop a novel concept of cellular chiral honeycombs with embedded PZT sensors/actuators which can be particularly useful in aerospace and marine applications. Through this project, the consortium will be modelling and producing sandwich structures incorporating components having Negative Poisson's ratio (auxetic) which will have enhanced mechanical and dielectric properties. The design will be such that we will be able to include sensor and actuators in its microstructure with the result that we produce highly innovative smart sandwich structures.

The novel structural core concept will have paradigmatic properties compared to classical honeycomb materials currently used to manufacture sandwich components with complex shapes, and multifunctional active characteristics for structural health monitoring and electromagnetic compatibility applications, with no detriment to the structural integrity of the components. At the moment, no single core material can be used in a multifunctional design context like the one the consortium is developing.

The CHISMACOMB work involves base multiphysics modelling, sandwich structure design, embedding structural health monitoring and microwave absorption capabilities with custom-designed microsensors



and actuators in the material configurations. The University of Malta is primarily involved in the multiphysics modelling and currently employs four full-time researchers (Ruben Gatt, Pierre Sandre Farrugia, Victor Zammit and Trevor G. Chricop-Bray) on this project. It is envisaged that the know-how developed will be ideal to stimulate the development of intellectual properties, innovative end-user products and technology transfers.

The other project in hand which is financed through the National RTDI programme has offered the University a possibility to upgrade the research facilities in use by the auxetics research group, and this will enable it to further enhance its research efforts and to remain a key international player in the field of auxetics and related materials. The purpose behind this research project is to design or study new/ already existing structures and materials which exhibit negative Poisson's ratios (auxetic) and/or negative thermal expansion coefficient (NTEC) in an attempt to produce new materials and structures with these properties. The project will also study the possibility that these two unusual properties co-exist, and to study the effects of stress / temperature changes on the thermal / mechanical properties respectively. In view of the many additional beneficial effects in the materials' properties that result from having negative Poisson's ratios or negative thermal expansion, this work is also expected to result in development of intellectual properties which in the future could be incorporated in innovative end-user products.



Quality Assurance Committee Report for 2005

Professor Charles J. Farrugia, Chairman

Under the Rectorship of the current Rector, Professor Roger Ellul-Micallef, the Quality Assurance Committee (QAC) has been chaired at various times by either of the Pro-Rectors, Professor Charles J. Farrugia and Professor Joseph V. Bannister. The Committee is composed of academics, a representative of the Administrative, Technical & Ancillary staff, a Student Representative and the Registrar. In 2005, Professor Farrugia chaired the six meetings held. Excerpts from the QAC report for the year are being published below.



Internal Academic Audit

The audit constituted the QAC's major activity in 2005. Several types of questionnaires that could serve as a basis for the audit had previously been considered and at the first meeting in 2005 a final version was established. Furthermore, the Faculties, Institutes and Centres (F/I/C) to be audited were identified as well as the members of the audit team for each F/I/C.

In addition, the QAC established the procedures that would regulate the audit and the terms of reference of the members of the audit teams. The Internal Academic Audit 2005 was conducted to fulfil the University Strategic Plan goal number Nine stating that:

The University will expand its Quality Assurance programme to ensure excellence and accountability in teaching, research and administration. As a national institution relying on public esteem and state funds, the University is duty bound to ensure that its academic and other services are of the highest quality.

At this stage the audit concentrated mainly on the teaching services offered by Faculties, Institutes and Centres as a whole. Follow-up audits will be course specific and will give due emphasis to research. Eventually, external academic visitations and audits will become a regular feature of the University's calendar.

The 2005 audit provided Faculties, Institutes and Centres (F/I/C) as well as the University as a whole, with the opportunity to evaluate their quality of service be it through teaching, research, technical or administrative support. Academic and Support Staff together with students had an excellent opportunity to evaluate the extent to which the University's entities contribute to the academic, professional and social aspirations of their members.

Furthermore, the University wanted to comply with the 2004 Recommendation of the European Parliament on European Higher Education Cooperation in Quality Assurance. This Recommendation requests all higher education institutions within the European Union to introduce or develop internal quality assurance mechanisms. This academic audit also aimed to strengthen the recognition that the University of Malta enjoys among other European Universities.

The Quality Assurance Committee audited the University's ten Faculties and eight of its Institutes and Centres. Each of the 18 F/I/C were visited by an audit team made up of three academics namely a) a visiting external academic who is an expert in the discipline/s researched and taught by the specific F/I/C; b) the Dean's or Director's delegate and c) a representative of the University's Quality Assurance Committee, who acted as chairman.



In all, seventeen visiting external academics (one external covered a Faculty and an Institute) and 28 Maltese academics conducted the audits which were spread out through the months of March, April, May and June 2005. All members of staff and students were invited to meet the respective audit teams. In fact, more than 450 full-time and part-time academic and support staff together with some 750 present students and University graduates were interviewed. Some of those interviewed had scheduled meetings, others attended in groups or in private meetings. The audit teams also interviewed employers of the University's graduates.

Ten Preliminary Findings

1. The vast majority of staff - academic, administrative and technical support - are doing an excellent job. It was the general opinion of the external auditors that quality of service provided at the University is equal or superior to that of the institutions where they work.
2. Staff's output will be even more productive if the University was suitably funded and the F/I/C were adequately resourced. Adjectives such as "exceptional" and "admirable" pepper the Audit Teams comments on staff's commitment.
3. Academic staff are satisfied with the academic achievement of their students, although they would prefer them to be better equipped for independent study and work at University. A major source of pride is the students' accomplishments when they proceed to postgraduate studies abroad. Many academics wish to be engaged in more postgraduate work locally.
4. The vast majority of students have words of praise for the quality of service from their lecturers and support staff. They greatly appreciate the attention and dedication of their tutors. Some complain that they are over-worked and over-stretched, some are critical of the few lecturers who do not give their all. Former students overwhelmingly feel that they had "a very good deal at the University."
5. The feedback from the employers of the University's graduates is also very positive. They find them to be good thinkers, hard-working and excellent problem-solvers, even though they suggest improvements in practical hands-on skills.
6. Academic staff tend to over-teach and over-assess students with the result that they devote far too much time and energy on undergraduate courses, but not enough on postgraduate programmes and research. Many are prone to keep adding on new curriculum material, but are reluctant to prune and drop topics that are no longer so relevant.
7. Administrative personnel working in the F/I/C feel that work colleagues in central administration fail to appreciate their hard work and achievements in spite of the handicaps they have to overcome. At the same time, F/I/C staff do not seem to understand the complexities involved in running an ever-growing, internationally oriented University. Both sides need to strive hard to overcome mutual misunderstandings.
8. Academics are resentful of what they perceive as annoying bureaucratic academic requirements and financial regulations. These, they claim, sideline their attention and energies from other important commitments in teaching and research.

9. Under-staffing and under-funding are University-wide complaints. Lack of research assistants and research funds are big minuses; as are lack of office-space and sufficient labs. On the other hand, the University's pleasant physical environment and people's friendly relationships are definite pluses.
10. Many who read the above are likely to react with: "No major surprises here: I could have told you so!" However, what is new emerging from the Academic Audit, are not so much the answers, but the intensity of the feeling of the people interviewed, whether their reactions are positive or negative. All the members of the audit teams are impressed by this phenomenon.

Indeed, the overwhelming positive outcome that emerges from this exercise manifests itself in the enormous amount of satisfaction people felt by the fact that they were interviewed. The vast majority of staff, students, employers and graduates are grateful that the University sought their views and advice and all were very generous with both.

Conversely, the feeling of satisfaction has led to a crucial University-wide expectation namely, that once the authorities have all this valuable feedback, they will do - and be seen to be doing - something to strengthen the plus points and to minimize the shortcomings. However, this potentially one-sided expectation is in itself a shortcoming. The pluses and the minuses belong to all, and staff and students have to strive, all together, to satisfy the variety of expectations that emerge from this exercise. Its ultimate success or failure will depend on the extent that the University as a whole and as each individual will react to these findings.

The preliminary findings of the audit were agreed by the QAC, on 17th November 2005 and noted by Senate on 18th January 2006 and by Council on 16th February 2006.

At the end of the audit, F/I/C staff met to discuss the audit report and its recommendations. Meetings were also held with Department of Finance Officials, Senior Officials of the Registrar's Office and Faculty Officers to discuss administration and management issues that emerged from the audit. The QAC expects F/I/Cs to report within 12 months on the action that will have been taken as a result of the audit report and its follow-up discussions. In the meantime the QAC is keeping track of any discussions on the audit exercise held at F/I/C Board Meetings.

Staff Development Programme

The QAC re-launched the *Staff Development Seminars* with the following programme for 2005-2006:

- Promoting Excellence in Teaching and Learning
- The Use of PowerPoint in Lecturing
- Leadership for Faculty Officers
- Summative and Formative Assessment and Student Profiling
- Writing-up Project Proposals for EU Funding/ Organization and Funding for Research
- E-Learning: Advantages and Techniques
- Fighting Plagiarism



A Glance at some UoM Research Projects



AGRICULTURE

- **RTDI project on Medicinal Plants which links the areas of Pharmacy and Agriculture.** An international seminar was held in November 2005 involving participants from the north and south of the Mediterranean Basin. One of the aims of this research is to examine the active components in local herbs and plants with a view to their commercial viability. If this materialises it will give a new and alternative crop to Maltese farmers.

BIOTECHNOLOGY/ PHARMACEUTICALS

- **BIOPATTERN (FP6 Network of Excellence).** This project involves personnel from the Department of Mathematics; Department of Electrical Power and Control Engineering; Department of Electronic Systems Engineering. The Biopattern Network of Excellence integrates key elements of European research to enable Europe to become a world leader in eHealth with the Grand Vision of developing a pan-European, coherent and intelligent analysis of a citizen's bioprofile; to make the analysis of this bioprofile remotely accessible to patients and clinicians; and to exploit bioprofile to combat major diseases such as cancer and brain diseases. The 'bioprofile' is a personal 'fingerprint' that fuses together a person's current and past medical history, biopatterns – basic information providing clues about underlying clinical evidence for diagnosis and treatment of diseases – and prognosis; it also combines data, analysis and predications of possible susceptibility to diseases.

- **SENSATION** The Department of Electronic Systems Engineering is involved in this EU funded project that falls under the areas both of Biotechnology and ICT and deals with advanced sensor development for attention, stress, vigilance and sleep/wakefulness monitoring.

ENERGY

- **Marie Curie Training Fellowship on Electrical Energy Conversion & Efficiency E.U. funded project.** This project involves personnel from the Department of Electrical Power & Control Engineering. Marie Curie ECON2 has three research themes as follows: Distributed Power and Renewable Energies; High Frequency Power Conversion and Motor and Generator Drives and Applications. The current projects in Malta are concerned with the development of new control strategies for enhanced drive train performance, in particular sensorless control of ac drives in the low and zero speed region. The projects are looking at novel signal injection techniques to be experimentally verified on surface mounted permanent magnet synchronous machines and off-the-shelf induction machines. The applicability of the same techniques to the increasingly popular DTC drives is also being investigated, with the potential benefit of extending their performance to the low speed region.

- **High Concentration Photovoltaics for Power Generation (HICON-PV) (FP6 project).** The Institute for Energy Technology is a partner in this project which aims at designing and testing the performance of specific solar modules under a concentration of 1000 suns. The Institute has the task of evaluating the potential of such technology in islands and the evaluation of simulation programmes specifically designed for this project.

EDUCATION & ENGINEERING

- **TREE** There is a total of 92 partner universities and research institutions involved in this project which is concerned with the standardisation and accreditation of courses in engineering education throughout Europe in which the Department of Metallurgy and Materials Engineering is participating.

ENGINEERING, MATERIALS RESEARCH

- **INNOVATE (Leonardo)** International On-Line Vocational Programme in Surface Engineering. The project aims to develop a new methodology of transitional open and distance vocational training programmes in the field of Surface Engineering. Partners include International federation of heat treatment and surface engineering and the Institute of Materials, UK

- **Realising the Technological, Environmental and Economic Potential of Active Screen Plasma Surface Engineering (FP6 project).** This project seeks to establish a coordinated and pro-active Europe wide knowledge base, plus an information, educational and training network, to accelerate the development of the full potential and industrial take-up of a world leading process capability in novel active screen plasma surface engineering.

ENVIRONMENTAL TECHNOLOGY

• Atmospheric Pollution Research

Researching atmospheric pollution in the Central Mediterranean. Global atmospheric Watch Station appointed by WMO. The main aim of this project is to measure ozone, carbon monoxide, sulphur dioxide and PM10 at background level. However, meteorological parameters such as temperature, relative humidity, wind speed and wind direction have been continuously monitored at Giordan Lighthouse since 1997. Also urban measurements of ozone, temperature, relative humidity, atmospheric pressure together with windspeed and wind direction and solar radiation are being recorded at the Xewkija station.

HEALTH

• Research on Communication Disorders in the Maltese population (FP6 project).

The main objectives of this project are to reinforce and develop the research and training capacity within the Communication Therapy Division of the Institute of Health Care as well as to develop specific research collaboration with the partner institution and the provision of unique research base within the European community related to bilingual populations with communication disorders.

INFORMATION COMMUNICATION TECHNOLOGY ICT

- **ALIPRO (FP6 project).** This is an EU project that is pushing for a better integration of research programmes on mobile communications in Europe. The consortium is led by the Polish MOST Foundation and its aims are to accelerate the improvement and alignment of mobility-related national and regional activities and programmes in the new member states and accession candidate countries, strengthening their integration on a European level. ALIPRO will achieve this goal through benchmarking, vision-building and roadmapping as well as dissemination of the results to the relevant stakeholders through a web-based information platform, a workshop, and presentations

at relevant national events. In this context, ALIPRO will conduct a survey on the national programmes in each country.

Another important goal of the project is to gather mobile-technology experts from the new member states and accession candidate countries and involve them into the work of eMobility, the Mobile and Wireless Communications and Technology Platform for concentrating European research resources in the mobile and wireless area.

• **TWISTER** – is a 3-year ongoing project concerning communications in deprived areas in which the Department of Communications & Computer Engineering is involved. The aim of the TWISTER project is to provide applications and services that meet the needs of user communities in rural areas. These services are provided over a communications infrastructure that covers rural areas in the most efficient manner, integrating satellite and terrestrial technologies. Within that framework, the following drivers and associated objectives have been identified as key:

1. Provide content and applications adapted to meet the needs of rural areas.
2. Investigate and validate in real operational conditions and on test beds the integration of DVB-RCS satellite communications standard with wireless type terrestrial technologies.
3. Develop and validate a set of service metrics allowing to quantify key parameters for network sizing such as resource utilisation at different points in the network topology or end-to-end quality of service.
4. Complement ESA activities on interoperable terminals by validating the performance of these terminals at end-to-end application level in a real operational environment.
5. Improve the use of satellite capacity. Potential techniques that have already been identified are multicast protocols adapted to satellite environment, intelligent caching mechanisms or higher coding/modulation schemes.
6. Define and disseminate a set of technical and quality guidelines for resellers on the installation and exploitation of DVB-RCS services.

• **MedVu (Eumedis) Mediterranean Virtual University – a project concerning the use of technology for Distance Learning.** The Mediterranean Virtual University (MVU) is a 4 million Euro EUMEDIS funded project which is coordinated by the University of Strathclyde, Glasgow. It concerns the setting up of a Virtual University between 11 partners, aimed at developing e-learning training modules in various domains. Through MVU, course participants will be able to register for and learn at their own pace, a number of topics using state-of-the-art multi-media training material. MVU, which has been running for several months, has reached a stage where a number of modules are available. Four of the modules are being developed at the University of Malta, 2 by the Department of Computer Science & Artificial Intelligence and 2 by the Department of Manufacturing Engineering.

MARINE SCIENCES

• **European Marine Protected Areas as tools for Fisheries management and conservation (EMPAFISH).** This is a Department of Biology research project.

The project has three general objectives:

1. to investigate the potential of different regimes of Marine Protected Areas (MPAs) in Europe as measures to protect sensitive and endangered species, habitats and ecosystems from the effects of fishing;

2. to develop quantitative methods to assess the effects of marine protected areas.
3. to provide the EU with a set of integrated measures and policy proposals for the implementation of MPAs as fisheries and ecosystem management tools.

TOURISM AND CULTURE

• **La Navigation du Savoir – Euromed Heritage II.** The Mediterranean Institute is involved in a project which aims at the creation of closer collaboration between the EU Mediterranean countries and the North African littoral. The project focuses on the historical docks of the Mediterranean and how these can be developed into profitable areas through cultural tourism.

• **Atelier I Mediterranean south/east dialogue – Erasmus Thematic Network.**

This is a Faculty of Laws project which aims to widen the cultural horizons of people in various work contexts and professions through the use of new didactic means as well as conferences and meetings. It also aims to reinforce the role of universities in the integration process and the development of individual territories.

TRANSPORT

• **FLYSAFE (FP6 project).** This is a very large and valuable project involving the safety of landing and take off of aviation transport. The University of Malta and Air Malta plc are participating in the FLYSAFE consortium that has successfully bid for a research contract with a proposal worth in excess of 50m Euro in the 2nd call of the Aeronautics Thematic Area of EU Framework Programme 6 organized by the Research Directorate in Brussels. The consortium, headed by Thales Avionics of France, brings together top European industry and research organizations to develop the next generation safety avionics for commercial aircraft. Partners include BAE Systems, Airbus Industrie, Rockwell Collins, Diehl Avionics, DLR, NLR, UK Meteo, Cranfield University and Darmstadt University. The University of Malta will be responsible for the development of warning systems that will alert the crew of an impending danger of collision on the ground and in the airport terminal area. The work, which is led by Dr Ing David Zammit-Mangion of the Department of Electronic Systems Engineering, Faculty of Engineering, will be conducted in close collaboration with a team of researchers from Cranfield University who are responsible for the development of the displays associated with the system. Air Malta, under the direction of Captain Laurence Gatt, Manager, Technical and Projects, will be providing end-user input to various activities within the whole programme. This is considered by the consortium to be crucial in the design and validation phases.

EDUCATION - CIVIL SOCIETY – ENVIRONMENTAL EDUCATION - CREATIVITY

• **Civil Society Project under Jean Monnet European Centre of Excellence**

The European Documentation and Research Centre (EDRC) as a Jean Monnet European Centre of Excellence is involved in a project which oversees the assimilation in Malta of the *Acquis Communautaire* in key areas, including transposition of legislation and the impact on Maltese institutions, politics, policy-making and society in general. The ultimate target audience is civil society as a whole. A main area of focus is social inclusion.



- **Biology, Health and Environmental Education for better Citizenship (FP6 project).** The aim of this project is to improve understanding of how different aspects of citizenship, including affective and social dimensions, are promoted through Biology, Health and Environmental Education. The Centre for Environmental Education & Research (CEER) as the Malta partner will develop a critical analysis of syllabus and schoolbooks as well as of teachers' and teachers-to-be conceptions. The project will be largely comparative across the 20 countries involved in the survey.

- **The European Network of Sport Science, Education and Employment (ENSSEE) European Commission.** This project involves personnel from the Department of Mathematics, Science & Technical Education. To encourage greater European cooperation amongst all organizations involved in the development of education, training, research and employment in sport and physical education, in order to develop better quality sporting opportunities for all. The ENSSEE is a non-profit making association founded in 1991 and the members are higher education institutes, vocational training associations, sports organizations and professional associations responsible for educational research and employment programmes in sport.

INTERDISCIPLINARY PROJECTS

- **Phonetics and Phonology**

This research involves personnel from the Institute of Linguistics as well as from the Department of Computer Science & AI in the analysis of prosodic structure and intonation. Work in this area of linguistics in the English Language is very advanced, but still very much in its early stages in the case of Maltese. It is therefore Maltese that features more prominently in this research although some work on Maltese-English as well as on dialects of Maltese is being undertaken. Research continues into the production of commercial products, in this case particularly products having a speech-related interface such as Text-to-Speech systems, which have been and continue to be developed for many languages. As part of the MLRS project, a corpus of written Maltese is being compiled while research will also focus on the compilation and annotation of a spoken corpus of Maltese. This field of study, at the cross-roads between areas including linguistics, computer science and speech technology, has implications for continuing development of better quality information technology products such as, for example, mobile telephony systems having a speech-related interface whose intonational interface sounds less robotic than that in products available at present.



- **eMaps**

E-MAPS is a European Masters Programme in Performer Studies with a totally unique nature and dynamic within which would-be researchers start considering the highly complex training process which contemporary performers undertake (be they active in theatre, dance or sports) as a locus for research in the fields of Learning, Memory and Creativity. Academics in the five participating universities – Malta, Roma 'La Sapienza', Paris XIII, Leicester De Montfort, and Poznan Adam Mickiewicz – are converging their separate, ongoing research into a unique programme that will offer tuition in five diverse disciplines: Cognitive Neuroscience, Cognitive Psychology, Philosophy, Sports Sciences and Performer Studies. This research involves

UoM's Mediterranean Institute and the Department of Physiology and Biochemistry.

Twentieth Anniversary of Malta University Services Ltd

Professor Robert Ghirlando, Managing Director

This coming September, Malta University Services Ltd (MUS) celebrates the twentieth anniversary of its registration as a limited liability company. In fact, it was in September 1986 that the company was registered with the name of Medabuc Ltd. Its first shareholders were Malta Development Corporation (MDC) and the University of Malta. The idea for the formation of this company came about during a seminar on Technology Transfer that was organized by Medelec in late 1985 to celebrate its tenth anniversary, a seminar that was chaired by Mr Nigel Eldred, Managing Director of Salford University Business Services Ltd and a former Director of Medelec.

MUS started operating in 1988 when it employed Roger Vella Bonavita as its first General Manager and Dorothy Bannister as his secretary. The company then changed its name to the present one and at the same time Salford University Business Services Ltd (SUBSL) took up shares in the company. Eventually, the University bought the shares of SUBSL and MDC (which by now had been taken over by Malta Government Investments Ltd) with money that the University had earned from the company.

The company has been operating profitably ever since and although it is best known for its training courses (and sometimes only for this), it has in fact been very active in many fields. Besides training, it has undertaken activities in the fields of consultancy, testing, publications and special projects.

It is, of course, only natural for a University company to be actively involved in organising courses, seminars and conferences. Over the years, MUS has not only organized short courses in various disciplines, but has also collaborated with other entities to offer specialised courses. These have included Henley College, the Institute of Management Information Systems (IMIS), University of Greenwich, the Chartered Institute of Bankers and others. In organising these courses, MUS has been careful to ensure that they were complementary to those offered by the University of Malta and not in competition. Indeed, in many cases, the University has been a partner to the arrangements. It has also organized numerous seminars and conferences, from the early Pharmacy symposia to the first engineering conference for the Chamber of Engineers. In May 2005, it very successfully organized an important international conference on *Continuous Auditing*, together with Rutgers University, the University of Kent and UoM's Faculty of Economics, Management and Accountancy.

Another successful training project has been the International School of English. This school was actually set up in 1972 by the Ministry of Education to teach English to foreigners. In 1998, the Ministry asked MUS to take over the school, and it has run it ever since. The ISE also conducts TEFL courses which are in great demand.

Publications are another must for a University and MUS has undertaken a number of publication projects, such as *Birgu – A Maltese Maritime City*. Subsequently, the University decided to set up a separate publications company, Malta University Publishers Ltd in which MUS participated by taking up shares in it, and eventually also becoming responsible for its management. MUPL has an excellent working relationship with the University's Editorial Board and produces all the books approved by the Board for publication by Malta University Press. It also produces the *Journal of Mediterranean Studies* for the University's Mediterranean Institute and the *Journal of Anglo-Italian Studies* for its Institute of Anglo-Italian Studies, as well as textbooks for MATSEC and other books that are published by MUPL itself or other publishers.

In the area of consultancy, MUS has been particularly active in the field of



The Rector and Professor Ghirlando presenting the proceeds from the sale of *Qawsalla* to Mgr. L. Gatt, Director of *Id-Dar tal Providenza*

environment-related work. Indeed, MUS can boast of having been involved in all the early EIAs, except for the very first EIA for the Delimara Power Station. It was therefore an active participant in the development of the EIA process in Malta, together with the then fledgling Department of the Environment under The Hon Dr Stanley Zammit, Parliamentary Secretary for the Environment. Since then, a number of other companies have entered the market which has now become very competitive, but MUS remains active in this field.

Another important project in the environmental field is the Cleaner Technology Centre (CTC) which was set up with the Department of the Environment and the Department of Industry, both of which no longer exist since they have been incorporated into the Malta Environment and Planning Authority (MEPA) and Malta Enterprise respectively. The CTC has however, survived and continues to provide a valuable service by assisting the relevant authorities to organize important seminars and courses and other activities such as the Environment awards. It also assists industry by acting as a clearing house for technical advice.

The University's Engineering and Science Faculties have laboratory facilities for teaching and research purposes. These facilities, however, can also be used to serve local industry, and MUS has proved a useful channel through which to market these services, at the same time generating additional funds which have helped these departments to invest in more equipment. At times, MUS has provided the necessary finance to purchase equipment which then paid for itself through the income that the equipment itself generated. Attempts were also made to offer services in electronic repairs and in architectural model-making, but these were short-lived. On the other hand, calibration of measuring instruments, metallurgical and chemical analysis remain in demand.

One of the largest investments ever made by MUS was in the setting up of the Fish Hatchery at the Aquaculture Centre at San Lucian, where MUS invested Lm50,000. Eventually, MUS moved out of this project, having recovered its initial investment with profit. Another big project in which MUS was involved was the project management of the initial phases of the new hospital through its Project Management Office. MUS has also undertaken a number of much smaller projects, such as in solar water heating and ceramic coatings which however never developed into viable commercial propositions. That the number of successful commercial ventures has been small should not come as a surprise, given the size of our University. At the 2006 Annual Conference of the Malta Chamber of Engineers, Mr Karl-Martin Schmidt-Reindl from the Fraunhofer Venture Group of Germany, pointed out that one can expect only one or two spin-offs per year for every one thousand researchers.

Through its activities over twenty years of operation, Malta University Services Ltd has increased the access to training, education, advice and information of the community in which the University operates. It bears witness to how much can be achieved by drawing on the strengths of academia in tandem with external partners thereby making a significant contribution to the development of our island state.



MUS diver

The Literacy Unit

The University of Malta's Literacy Unit was set up in 1998. It is a research and development unit which focuses on the area of literacy and other Basic Skills. Dr Charles Mifsud is the coordinator of the Literacy Unit. Ms Rowena Grech is the Research Assistant and Ms Marjes Zammit is the e-learning coordinator. The main objective of the Unit is to respond productively to the increased need for literacy and other basic skills issues to be addressed in both professional development and research. The Unit is involved in policy advice, consultancies and training for different educational and professional bodies, ministries, national agencies and institutions. The Unit collaborates with the Ministry of Education, Youth and Employment, the Ministry of Social Policy and the Family, The Employment and Training Corporation, the Malta College of Arts, Science and Technology, the Foundation for Educational Services and a number of non-governmental organizations.

The Literacy Unit strives to improve practice and inform policy through the generation of knowledge by creating a strong research culture and by developing professional practice. It is committed to the promotion of high quality research, and its effective communication, and to maintaining strong partnerships with schools and the wider educational community. The Unit is an active participant in EU-funded programmes namely Lingua, EUMEDIS, European Social Fund, Marie-Curie and FP6. The Literacy Unit is currently engaged in the following projects:

- The Unit is the main pedagogical partner in the FP6 project UNITE – e-learning and mobile learning environments for the promotion of Basic Skills. This project is coordinated by the Fraunhofer Institute for Multimedia in Germany. A consortium meeting was held in Malta in May 2006.
- The e-Learning course in Basic English for Technical Purposes (ETP) was designed and delivered by the Unit to online students from 15 different Euro-Mediterranean countries as part of the Unit's participation in the EUMEDIS project ODISEAME. The online course which was oversubscribed twice has been recognised by EUMEDIS as an outstanding model for e-learning courses. It will be showcased at the forthcoming MDP meeting to be held in Alexandria, Egypt.
- The Unit is a major partner in the Marie-Curie Project – Transfer of Knowledge (TOK) Industry Academia Partnership (IAP) programme for the promotion of Basic Skills via ICT with the Universities of London, Paris and Athens, together with Cambridge Training and Development.
- The Unit has a major role in other European projects dealing with the Teaching and Learning of Basic Language Skills via e-learning, namely LinguaNet, e-EuroInclusion, ELNPlus, ELL and FEEL.

Left to right: Ms Rowena Grech, Dr Peter Rudd, Dr Charles Mifsud & Ms Marjes Zammit. Close collaboration exists between the Literacy Unit and the National Foundation for Educational Research, UK of which Dr Rudd is Principal Research Officer.



- The Unit, in conjunction with the Ministry of Education and the Malta College of Arts, Science & Technology (MCAST), is involved in a number of European Social Fund projects. These involve mainly the design and production of a number of Basic Skills courses and related materials for adults and the carrying out of basic research into the levels of Basic Skills of young people.

Recent publications include:

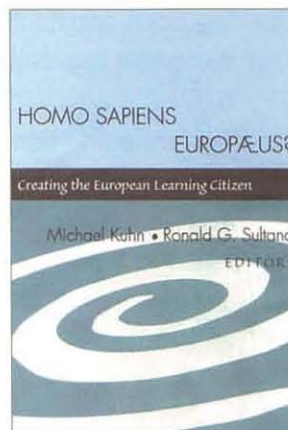
- Mifsud, Charles & Grech, Rowena, *et al.* (2005), "The Malta Literacy Value-Added Project – A Template for Value Added in Small Island States," *Research Papers in Education*, Routledge, UK.
- Mifsud, Charles & Grech, Rowena, *et al.* (2005), "The Malta National Literacy Survey of Year 5 pupils (aged 9-10)," *Research in Education*, Manchester University Press, UK.
- Mifsud, Charles & Zammit, Marjes, (2005), "Autonomous Language Learning via the Internet," in *Educational Virtual Spaces in Practice*, F.J. García, J. García, M. López, Editorial Ariel S.A., Spain.

Euro-Mediterranean Centre for Educational Research

Professor Ronald G. Sultana

The Euro-Mediterranean Centre for Educational Research launched its Masters programme in October 2005. The course, a MA in Comparative Euro-Mediterranean Education Studies, is the only comparative education research course that focuses specifically on Euro-Mediterranean affairs and has attracted much interest from local and international students. Among the many guest lecturers invited to teach on the course are Professor Andreas Kazamias from the University of Wisconsin and the University of Athens, Dr Zelia Gregoriou from the University of Cyprus and Dr Andreas Walther from the University of Tübingen.

EMCER produced two more issues of the *Mediterranean Journal of Educational Studies*, an international, biannual refereed journal with a regional focus. The journal is now in its eleventh year, and remains a unique source of information about education in the Mediterranean region, with subscriptions from all over the world. The founding editor of the journal, EMCER Director Professor Ronald G. Sultana, has also co-edited a volume titled *Homo Sapiens Europæus? Creating the European Learning Citizen* (published by Peter Lang Inc., New York), and he also co-authored a report on career guidance in *Europe's Public Employment Services* – a study published by the European Commission's DG Employment and Social Affairs. He has also carried out field research in Albania to document the hidden drop-out problem, the fifth in a series of monographs on educational innovation in the Mediterranean that he is writing for UNICEF.



Income and Expenditure Account

	Year ended 31 December	
	2005 Lm	2004 Lm
INCOME	15,448,997	14,418,734
EXPENDITURE		
Staff costs	10,981,102	10,909,152
Other operating expenses	3,883,574	3,580,136
Net allocation to funds	245,500	209,221
	15,110,176	14,698,509
Surplus (deficit) for the year	338,821	(279,775)
STATEMENT OF TOTAL RECOGNISED GAINS AND LOSSES		
Movement in specific endowment funds	28,297	-
Surplus (deficit) for the year	338,821	(279,775)
Total recognised gains/(losses) for the year	367,118	(279,775)
Reconciliation		
Opening funds and equity	(929,114)	(649,339)
Total recognised gains/(losses) for the year	367,118	(279,775)
Closing funds and equity	(561,996)	(929,114)
CAPITAL PROJECTS FUNDING		
Balance at 1 January	(87,110)	(48,871)
Capital projects payments effected by the University during the year	543,266	716,735
	456,156	667,864
Remittances received from Govt.	(513,106)	(754,974)
Balance at 31 December	(56,950)	(87,110)

	Year ended 31 December	
	2005 Lm	2004 Lm
BALANCE SHEET		
Non-current assets		
Financial assets		
- Investments held-to-maturity	192,400	151,800
- Investments in University companies	326,450	256,450
Total non-current assets	518,850	408,250
Current assets		
Loans to University companies and other entities	134,800	184,800
Debtors	286,716	220,260
Prepayments	275,090	259,048
Short term deposits	751,784	750,000
Cash at bank and in hand	1,522,272	605,629
Total current assets	2,970,662	2,019,737
Current Liabilities		
Funds designated for specific purposes:		
Academic	1,031,844	791,800
Operational resources	901,596	951,047
Other	1,498,047	1,361,167
Capital Projects funding	56,950	87,110
Creditors	563,071	165,977
Total current liabilities	4,051,508	3,357,101
Net current liabilities	(1,008,846)	(1,337,364)
Total assets less current liabilities	(561,996)	(929,114)
Represented by:		
Specific endowment funds	124,741	96,444
Other funds		
Capital fund	59,500	59,500
Accumulated net deficit	(746,237)	(1,085,058)
Total funds and equity	(561,996)	(929,114)

*Student Statistics**Student Intake 2004/2005*

<i>Undergraduate</i>	f	m	Total
Humanities	973	638	1611
Sciences	176	295	471
Other disciplines	192	131	323
<i>Postgraduate</i>	f	m	Total
Humanities	238	204	442
Sciences	10	24	34
Other disciplines	65	50	115

Student Population 2005

<i>Undergraduate</i>	f	m	Total
Humanities	3042	1885	4927
Sciences	662	1002	1664
Other disciplines	684	351	1035
<i>Postgraduate</i>	f	m	Total
Humanities	775	672	1447
Sciences	50	109	159
Other disciplines	115	97	212

New Graduates 2005

<i>Undergraduate</i>	f	m	Total
Humanities	731	442	1173
Sciences	119	197	316
Other disciplines	76	30	106
<i>Postgraduate</i>	f	m	Total
Humanities	151	131	282
Sciences	5	16	21
Other disciplines	31	29	60

also awarded:

2005: 409 diplomas; 165 diplomas (postgraduate); 62 certificates (postgraduate)

Degrees conferred, Diplomas awarded 2000-2004:

	f	m	Total
2000	660	645	1305
2001	1029	943	1972
2002	1096	937	2033
2003	1248	965	2213
2004	1643	1067	2710
