

COMMENTARY

**The Past is a Foreign Country: Reflections of a Head of
Department¹**

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To Be or Not to Be, That is the Question

In October 1996 I was appointed Head of Department (Mathematics). Before that time I taught for twelve years in a primary school, then mathematics for five years at secondary level and seven years at the post-secondary level. I must say that the time spent teaching at primary level are amongst the most I cherish. At no time in my career have I felt so much in control of teaching and learning. I had my own class, I was in contact with the pupils almost all the time, I could organise activities without the constriction of time frames imposed by teaching periods that characterise post-primary education and I could organise displays of children's work on the walls of the classroom. On reflection I think my approach to teaching mathematics was oriented too much towards drill-and-practice and a transmission mode pedagogy. With hindsight I would have liked to include more constructivist pedagogies. But as a Maltese proverb states: *Wara kulhadd gharef (Everyone is wise with hindsight)*.

When I moved on to teach in a secondary school the advantages of teaching in a primary school were absent. Besides, because students were admitted after passing a competitive examination at the end of primary education, I expected that they would not only have higher competencies in mathematics but also more positive attitudes towards the subject. I was to some extent

¹ The first part of the title is borrowed from L.P. Hartley's (1986) famous novel. The exact quote is: "The past is a foreign country: they do things differently there."

disappointed in this respect and, although I was teaching mathematics at a higher level, I encountered students who struggled with mathematics and, even worse, had negative attitudes towards the subject.

Although I had always wanted to teach mathematics, as this was my subject of specialisation during the teacher training course, I really became interested in mathematics after completing a B.Sc. in mathematics and computing in 1991. I clearly remember one of our lecturers suggesting that once we complete the degree we ought to do some reading into the multi-faceted nature of mathematics. And that is what I did. After reading such gems as Davis and Hersh's *The Mathematical Experience* and Bell's *Men of Mathematics*, I was hooked on the fascinating subject that is mathematics.

The decision to apply for the post of Head of Department (HoD) was far from a straightforward one. I was happy teaching 'A' level mathematics at a local Sixth Form college. On one hand, I wished to do something different with my career that would give me the opportunity to share my love of the subject with others. On the other hand, I did not know what to expect. Which school would I be transferred to? Would I be accepted by the teachers there? In the end, I decided to apply and, as they say, the rest is history.

Unfortunately, being intrigued by a subject is one thing, sharing its beauty with others, especially if these others are students who happen to have had only negative experiences with mathematics, is another. As a mathematics teacher I have frequently, though, admittedly, not always successfully, juggled pressures to 'cover the syllabus' by activities from the compendium of mathematical activities found in Bolt's series of books (1982, 1991, 1996) or incidents from the rich history of mathematics. Now that I had been appointed HoD could I perhaps share my passion for mathematics with students and teachers alike, thus improving the negative perceptions students might have of the subject?

This short commentary consists of a number of personal reflections on my role as HoD in a secondary school. In retrospect, I have to acknowledge that, in view of my aspirations, the experience was a very positive one even though I have not always been successful in what I set out to achieve and, admittedly, some things I could have done differently.

Rules are Meant to be Broken

The official duties and responsibilities of a Head of Department are spelt out in Ministry of Education, Youth and Employment (2007). Although these stipulations look admirable on paper, in my opinion, they may be limited in raising standards in mathematics teaching and learning, especially if they are construed to regard the HoD as a mere appendage to higher grades within a bureaucratic machine. In a system in which change is managed in a top-down fashion, often with little consultation with the HoD, the latter may find him or herself compelled to implement policies with which he or she may or may not agree (Turner, 2005). For example, about two years before I retired from public service, HoDs were asked by a high-ranking official to forgo part of their duties to dedicate time to produce a series of so-called 'Reusable Learning Objects' (RLOs). These consisted of a series of IT resources that could be used by the teacher to teach mathematics. Although I did not object to being involved in the project, I felt that forgoing the duties of HoD would have a negative bearing on the teaching and learning of mathematics.

To avoid being constrained by procedures dictated from above I adopted two strategies. First of all, I always strove to be involved in all issues that concerned the teaching and learning of mathematics within my school, whether these were spelled out in the job description or not. As Pope (2010) points out, subject leaders for mathematics are responsible for the quality of the mathematics education of every person in the school, they are accountable to the school's senior leadership, they are ambassadors for their team, as well as advocates for mathematics. For example, assigning classes to different members of department was always a delicate aspect of the job that entailed constant consultation, often during summer holidays, with the teachers themselves and the head of school.

Second, during my eighteen years as HoD I have, with other colleagues from the national Directorate for Quality and Standards in Education (DQSE) and The Malta Mathematics Society, promoted a number of initiatives on a national level that seek to enhance the enjoyment of the subject and contribute to raise standards in the teaching and learning of mathematics. In spite of the fact that these endeavours have involved work that went over and above the duties stated in the job description of HoD, they have given me great satisfaction.

The Malta Mathematics Olympiad

The Malta Mathematics Olympiad dates back to the year 2000. This year was designated by the International Mathematical Union as the World Mathematical Year. The idea was that of the Malta Mathematics Society, of whom I was a member, and it aims to foster problem-solving skills, team work, and positive attitudes towards mathematics in young students in an atmosphere of healthy competition. The Malta Mathematics Olympiad is held every two years and is contested by students attending secondary schools. The event is now organised by the Mathematics Section within the Directorate for Learning and Assessment Programmes. The eighth edition of the Malta Mathematics Olympiad was held in 2017 and was contested by a record number of pupils attending schools from state, church and independent sectors. My role over the years has been to prepare questions, seek sponsors, and organise the event.

The Mathematics Venture

This activity was first organized in 2013 by the Mathematics Department of the Education Directorate in conjunction with the Department of Mathematics, Science & Technical Education, Faculty of Education, University of Malta. Its aim is to give students the opportunity to experience mathematics beyond the confines of the classroom. The venture consisted of

- a mathematics trail around Malta's ancient city, Mdina;
- a number of challenging problem solving activities; and
- a set of fun mathematical games involving collaborative work

Groups of four students visited a number of stations where they had to solve a number of problems relating to mathematics. The choice of Mdina gave participants a chance to appreciate this national gem with activities involving both mathematics and history. Besides, being a walled city with practically no traffic going through, it provided a safe environment for students to roam around.

The Mathematics Project Competition

This activity was organised in 2009 but has not been repeated since. Again the participants were students attending Forms 3 and 4 in state, church and

independent sector schools. They were required to work in pairs to produce a number of charts, a slide presentation, or models which focus on a mathematical topic. Each team could choose from a number of themes which included The Story of Number, Symmetry, Magic Squares, The Golden Ratio, Pi, Fractals, Circles, Conic Sections, Fibonacci Numbers, Prime Numbers, and so on. A short list of projects was chosen and each team had to make a presentation in front of two judges, who could probe the students' understanding of the topic chosen.

Gifted & Talented Activities

The origin of the Gifted & Talented activities was a talk to secondary school students delivered by Ian Stewart, mathematician and author of several popular books on mathematics, in November of 2006. This was followed by an activity animated by Mario Micallef, a Maltese associate professor of mathematics at Warwick University. Eventually, I was invited to take part in the project. If I remember correctly the first activity that I animated was entitled *Prime Numbers: The Atoms of Arithmetic*. These were followed by others featuring Platonic Solids, Fibonacci Numbers, Pythagoras' Theorem, Secret Codes, and Games. I must say that these activities have given me much satisfaction, and it was a joy when students approached me at the end of one of the sessions and told me how much they enjoyed it, or that they had read one of the books I had recommended during the activity.

MATHSLINE

In 1999 Peter Vassallo, then Education Officer for mathematics, and a colleague from whom I learnt considerably, proposed starting a publication dedicated to issues relating to mathematics education, especially with regard to the use of IT in mathematics education. The idea appealed to me as it provided an opportunity to put into print matters related to mathematics education. Indeed, I wrote about varied topics, but my favourite was my regular contribution on such topics as magic squares, mathematical humour, mathematics books for children, and so on. *MATHSLINE*, as the publication is called, has now been going for almost eighteen years. It includes contributions by individuals involved in mathematics education, including lecturers from the University of Malta, practising teachers, and Heads of Department. Of particular satisfaction was the twentieth issue (April 2009),

published to commemorate the 10th year of *MATHSLINE*. This issue included contributions by lecturers from the University of Malta and other individuals involved in mathematics education.

He that would Eat the Kernel must Crack the Nut

When I was appointed to the role of HoD I did not have all the competencies that I think a HoD ought to have. As a leader there are qualities that, in retrospect, I think it is important to possess. These include the ability to lead and manage people, to solve problems and make decisions, to understand the views of others, plan one's time effectively, and organise oneself well (Teacher Training Agency, 1998).

Love Thy Subject

Some attributes I did possess. For example, I knew the subject sufficiently well, and, perhaps more importantly, I was, and still am, passionate about it. Further-more, I have always sought to transmit this love of the subject to students, parents, and teachers through the way I talk, write and teach the subject. One of the most gratifying compliments I was ever paid came from one of the patrons at the pub where I often pop in for a drink ... or two. I had ordered my usual pint and bought a drink to a fellow punter with whom I had only exchanged a few words before. After a few moments of silence, he asked me whether I was involved in tennis. Clearly, I must have reminded him of someone, and I remarked that my face was common enough. "I wouldn't say common," he said. "you being a professor of mathematics." I remarked that I wasn't a professor and asked what had given him that impression. "By the way you talk about the subject. It is clear that you love the subject."

Vision

However, knowing the subject, and being enthusiastic about it, is necessary, but not sufficient. The HoD – and here I think I was initially wanting – also needs to have a vision of how the subject should be taught. What is equally important is that the HoD is able to share this vision with the School

Management Team (SMT)², and other members of his/her mathematics department. Regular subject meetings during which teachers can share good practices with their colleagues are important. One such instance occurred when my school participated in the PRIMAS (Promoting Inquiry-based Learning in Mathematics and Science) project. Participating teachers met regularly and, after some initial concerns, shared practices that promoted inquiry. I specifically remember the point in the project when I invited teachers to have one of their lessons filmed. Initially the teachers were apprehensive, but when I offered myself to be filmed and invited teachers into my class, a number of teachers not only invited me to attend lessons, but also agreed to be filmed delivering lessons.

Communication

Being a good communicator is another quality that a HoD ought to possess. As I am rather shy by nature these communicative skills did not come naturally. However, gradually I managed to overcome my timidity, and could effectively connect with teachers, parents, and members of the SMT. With experience, I learnt to address teachers as well as parents, both as a group, and individually. At times, I must admit that I was rather brusque and should have been more cautious. Telling a head of school that his ideas are nonsense is, admittedly, not a suitable manner to address anyone, let alone a member of the SMT! Admittedly, the job of a head of school is not an easy one, especially if the school happens to have a staff complement of some one hundred teachers and learning support assistants and some eight hundred students.

No Man is an Island

A delicate issue here is when members of the department, especially those who have been teaching the subject for many years, may not share the same ideas about the teaching and learning of the subject. In a system where I had no say in the choice of members of my department, I had to accept the fact that the department can function with teachers having different ideas on how the subject is taught. Indeed, the challenge for the HoD is that of “attempting

² The School Management Team includes the Head of School, Assistant Heads and Heads of Departments of other subjects.

to realise the strength bound up in diversity, whilst minimising its weaknesses.” (The Mathematical Association, 1988, p.43). For example, a pertinent issue which never fails to give rise to an animated discussion is related to the use of the calculator. Some members of staff, especially those who did not make use of this device during their compulsory schooling, insist that the use of calculators should be limited because students tend to rely excessively on the calculator, even to multiply two single-digit integers. Others, for whom technology has been part of their lives since childhood, tend to be of the opinion that technology is an important part of our lives and students should be allowed to use calculators whenever they need to.

As HoD I have always tried to establish a healthy relationship not only with the teachers within my department, but also with teachers of other subjects, other members of the SMT, personnel from the central administration (Education Officers, Assistant Directors), parents, and students. Perhaps, as a newcomer, the most difficult is to be accepted by the mathematics teachers within the school. The new HoD has to prove him/herself by demonstrating that his/her presence will make a positive difference to the teaching and learning of mathematics within the school. Indeed, I can say that many teachers, HoDs, and EOs have been a privilege to work with. However, the human relations side of the HoD goes beyond simply proving oneself to one’s colleagues. I have always felt that it is very important to remember that being a subject leader is not just about the subject but also about people. Every individual has his/her personality and a life beyond the position he/she holds that is fraught with joys and tribulations. Being aware of these makes the HoD position more difficult on one hand but more gratifying on the other.

Professional Integrity

Another quality that I have always viewed as important is to establish professional standards with respect to curriculum planning, teaching, and assessment. This I have sought to achieve by establishing high standards through example, and setting professional standards in various ways, including the writing and updating of schemes of work, assisting the Head of School in assigning teaching duties to the various members within the department, acquiring learning resources, and keeping records of student achievement. Meeting parents to discuss issues relevant to their children’s mathematics education have, in general, been very fruitful, though these had to be tackled with the utmost tact as parents tend to raise issues that might

involve individual members of the mathematics department. I remember an occasion when a parent spent a good quarter of an hour complaining that her daughter's teacher could not maintain discipline, nor explain concepts, only to realise at the end of the diatribe that the teacher was not a mathematics teacher at all!

Related to the above I have always sought, as teacher and HoD, to improve myself through reading and attending relevant courses that have enabled me to improve the teaching and learning within the department. Over the years I have also been involved in numerous professional development sessions involving teachers of mathematics. As teachers employed in state schools have to attend such courses, their perceptions of these activities are varied, although, in general, I think that they have been positive. One funny incident which I still recall was with a group of some sixteen teachers, all of whom were females except for one middle-aged gentleman. My favourite approach in these sessions was to stimulate discussion and reflection about some particular issue or other. In this particular instance, I had no problem with the ladies in the group. They became so engrossed in the subject that I could hardly venture a comment myself. The gentleman, on the contrary, refrained from taking part in the discussion, even when I asked whether he had an opinion. Finally, some half an hour from the end of the session, he raised his hand, and I, relieved, asked whether he had anything to say. "May I leave because I have to pick up my daughter from her school?"

Beyond the Department

The position of HoD entails a considerable interaction with members of the SMT and Education Officers. As pointed out by Sammons, Thomas, and Mortimore (1997), as cited in Turner (2005), the whole-school context, in conjunction with the quality of leadership afforded by the SMT may be very important in enabling the department to function effectively. I must say that throughout my eighteen years as HoD I have found that the attitude of some members of the SMT towards mathematics education left much to be desired. For example, on several occasions I clashed with Heads of School when they encouraged students and teachers to miss mathematics lessons in order to attend rehearsals for some school activity or other.

This attitude contrasts drastically with the attitude towards mathematics in other contexts. For example, in an episode reported in Stigler and Hiebert

(1999), the authors were comparing video lessons from Japan, Germany, and the USA. While watching a film of a US lesson, a voice was heard over the public address system making an announcement about transport arrangements, an occurrence that is also common in Maltese schools. The Japanese member of the team was shocked that such interruptions should take place during mathematics lessons, pointing out that these disruptions would never happen in Japan as they interrupted the flow of the lesson.

Besides duties within the school I also had commitments assisting mathematics Education Officers. These included setting of examination papers, writing of syllabi, choosing of textbooks, and perhaps, more interestingly, animating in-service courses for teachers in state and non-state schools. The extent of the success of these courses, I must say, is rather limited, due mostly to the fact that most have been obligatory, and so teachers had to attend them whether they liked it or not. The objectives of some of the courses were quite ambitious. For example, I remember the first one in which I took part, during which teachers were introduced to software such as the programming language LOGO, and the dynamic geometry software 'Cabri Geometre' and were encouraged to use them in their mathematics lessons. While I still think that there is great potential in the use of computers in mathematics lessons, for a number of reasons the impetus behind the initiative was not maintained. Probably, the main source of this failure is that Maltese teachers' beliefs about teaching and learning are still more oriented towards learning through exposition rather than learning through discovery and/or learning through exploration. However, one must also take into account the limited technical support that was, and still is, available, as well as the relative complexity of the logistics involved in organising a mathematics lesson in the computer lab. From my interactions with members of my staff as well as other mathematics teachers it is clear that both these factors considerably diminished teachers' enthusiasm and willingness to conduct lessons in the computer lab.'

Mentoring

When I had completed the second draft of this commentary I asked two of my ex-colleagues who had lately been appointed as HoDs to read it and give me feedback. From their feedback I realised that I had not explicitly mentioned a very important aspect of the duties of a HoD: that of mentoring. On reflection, and judging from the comments provided by my two ex-

colleagues, I think this apparent oversight was not due to the fact that I did not perform any mentoring, but because I may have taken this role for granted. Indeed, one cannot avoid it even if one wanted to. New members of staff regularly join the department and it is the HoD to whom they refer for guidance. However, I have not regarded the role of mentor solely as having to do with the induction of new members of staff. Indeed, without even being aware of it, mentoring has been part-and-parcel of my HoD role, from my attitude towards the subject to the manner with which I dealt with different individuals, be they members of the SMT, colleagues, parents, and pupils.

... They Do Things Differently There

In the introduction to this brief commentary I declared that on being appointed HoD I sought to share my passion for mathematics with others and to raise standards of teaching the subject. I think that there were times when my goals were achieved as well as others when they were not. However, I wish that I could have done more, especially in promoting a pedagogy that is more constructivist, one in which students are given the opportunity to work cooperatively on tasks that encourage thinking and problem solving. This does not mean that other approaches may not at times be valid.

Collegiality is another aspect of school life I think is lacking in schools and which I would have liked to foster more. Although I feel that in the schools in which I was HoD I did achieve a certain degree of success in this respect, I still think that some teachers are reluctant to share ideas, with some preferring to be isolated from their colleagues. Perhaps, this can be achieved if the HoD has some say in the selection of teachers in his/her department. This might make it possible for teachers to share a common vision about mathematics and how it is to be taught. Furthermore, teachers should be given the opportunity to observe lessons of teachers that form part of their mathematics department. I think that if the HoD manages to create an environment of trust within the department, one in which he/she observes lessons, teachers observe his/her lessons, and teachers observe other teachers at work, one can go a long way in raising standards in mathematics teaching and learning (Ofsted, 2000/01). Such cooperation can give teachers the opportunity to learn from each other, to share resources, and to prepare and evaluate lessons together.

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