

SERVICE-LEARNING IN DENTAL EDUCATION. THE EXPERIENCE IN MALTA

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ABSTRACT

Service learning has gained relevance in dental education in the past decades. Traditionally it is integrated in community dentistry as a key component of the dental curriculum. However emerging trends in our communities' demand further exploration and development of this notion. Community dentistry, through service learning, provides the framework for the student to understand the concept of social responsibility. Furthermore, it enhances the educational experience in the different aspects of dental education, including improving their clinical skills, self-confidence and empathy. At the same time, it proves to benefit the communities at large by providing access to oral health care.

In this paper, we present our experiences in service learning and growing as a community-engaged faculty by providing healthcare to vulnerable populations, creating programs and opening several clinical facilities, and finally earning the respect of the community. Service learning has become one of our greatest strengths as a Faculty.

Keywords: Service-learning, dental education, health disparities

1. INTRODUCTION

Service-learning has gained relevance in dental education in the past decades. It has been described as an educational method that provides mutual benefits for the dental schools and the community. It enhances teaching and learning, promotes social responsibility and addresses the needs of the community (Hood, 2009). Moreover, it increases self-confidence and facilitates the transition from student to professional (Leistner, et. al., 2017). Traditionally, service-learning has been a key teaching method in community dentistry. Recent trends in dental education promote this method in all areas of dentistry.

The Association for Dental Education in Europe has been facilitating the harmonization of the Dental Education for the last 45 years by establishing an undergraduate curriculum framework to guide higher education entities on the profile and competencies of the graduating dentist in Europe. These guidelines recommend that learning in the oral health field should follow competencies and learning outcomes in four educational domains: Professionalism, safe and effective clinical practice, patient-centred care and dentistry in society (Field, et. al., 2017). As a core ethical principle, patient welfare, respect to patient autonomy and commitment to social justice are of utmost importance (McLoughlin, et. al., 2017).

Moreover, article 34 of the EU Directive 2005/36/EU indicates that a dental student shall have “the skills necessary for carrying out all activities involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues” (Article 34, EU Directive 2005/36/

EU). The ADEE and the EU Directive 2005/36/EU have provided the conceptual framework for change in dental education in Europe. Faculties have adapted by identifying means for successfully training their students and at the same time serve their communities, obviously the impetus for this change reflecting the individual experiences of the diverse communities at large. Furthermore, the FDI World Dental Federation envisions that oral healthcare, and therefore dental education, shall adapt to the increase in need and demand for oral healthcare by prioritizing vulnerable groups in our society and improving their quality of life (Glick, et. al., 2012).

These current trends in dental education as well as the needs of our community have marked our Faculty. In this paper, we present our experiences in service learning and growing as a community-engaged faculty by providing healthcare to vulnerable populations, creating programs and opening several clinical facilities, and finally earning the respect of the community. Service learning has become one of our greatest strengths as a Faculty. We believe that service learning has changed the way we do dentistry and the way we teach and learn. Our objective is to improve the quality of life in our community, starting with those that at the moment may be underserved in oral healthcare.

2. DENTAL EDUCATION

2.1. Dentistry and the four main areas in Education

Dentistry and the allied dental professional courses are healthcare courses that in most countries are taught separate from Medicine. It involves the study of the orofacial region and its relation with the body. These professions include dentistry, dental hygiene, dental technology, dental therapist and dental assistance. These professionals form the dental team in a collaborative approach.

Dentistry is defined as the “branch of healthcare devoted to maintaining the health of the teeth and other tissues in and around the mouth” (ADEA, 2022). In dentistry, there is a series of specialities, very much like medicine and surgery. These specialities are grouped in four different departments: Prosthetics and rehabilitation; Oral diagnosis, Paediatric Dentistry and Community dentistry. For teaching purposes, dental education works in a spiral fashion. On the final stages of the dental training, students integrate all aspects of dentistry to their patients. That is, the difficulty of the treatments increases but so does the level of dexterity and ability of the students to understand how each area of dentistry influences their management.

2.2. Community Dentistry and service learning

Community dentistry is a broad term that defines an area of dentistry where there is a holistic approach on the population’s oral health. Community dentistry also represents Dental Public Health in which the aspects of oral health care are taken into consideration as a population, a specific group in the community and as an individual (Gallagher, 2005; Gallagher & Field, 2017). Dental courses, including dentistry and dental hygiene, offer community dentistry from the first year of studies until graduation. Aspects of prevention and health promotion are offered from the first year of studies and are applied in the clinical training and through service-learning in different community-based activities.

In the recent decades, the role of community dentistry in dental education has gained importance as it is considered to shape social responsibility in the training dental professional (Dao, et. al., 2005; Smith, et. al., 2006; Volvovsky, et. al., 2014). Community-based dental education has been introduced in most dental schools in different degrees aiming to provide community oral health education to their students and to provide oral health care to the vulnerable groups in their society (Mathu-Muju, 2018).

Community dentistry, therefore, involves all aspects and specialities of dentistry and enhances the educational experience in the different aspects of dental education. By organizing these outreach programmes, community-based dental education presents wide variety of clinical scenarios in which all skills of dental student are put to practice, including behavioural management (Daher A, et. al., 2012; Johnson, et. al., 2012; Goswami, et. al., 2018). Studies show that from the first year of studies, community care, through service learning, can meaningfully change the students' response to social justice (Furlini, et. al., 2018).

Service-learning in community-based dental education was introduced in dentistry in the different continents for a variety of reasons. In some dental schools, this educational method was considered initially to reduce costs of dental education and increase the possibility for training (Mathu-Muju, 2018). Some other dental schools envisioned this as a possibility to reach to vulnerable groups with difficult access to oral healthcare after identifying shocking oral health disparities as is seen in institutionalised older adults (Santucci & Attard, 2015) or geographically isolated populations (Agius, et. al., 2018). In the recent decades, dental schools are introducing service learning as a practice to reach out to other groups according to age, gender, race, geolocation, among others, considered vulnerable or presenting with restricted access to oral healthcare (Mathu-Muju, 2018).

Research on service-learning has proven benefits as a method of learning (Brondani, 2010; Dharamsi, et. al., 2010; Furlini, et. al., 2018; Attard, et. al., 2018). Our group performed a study on the students' perceptions following the introduction of service-learning in a teaching dental clinic in the major state older adults' home in Malta showing their willingness, preparedness and confidence to manage vulnerable patients as their time of exposure increased. (Attard, et. al., 2018). Nonetheless, community-based dental education should not limit itself to clinical training but activities that enable the student to reflect upon their experience (Brondani, 2010, Dharamsi, et. al., 2010, Furlini, et. al., 2018, Attard, et. al., 2018).

Finally, literature in community care and service learning in dental education suggest that the introduction of service learning in the dental curriculum goes hand in hand with the introduction of allied dental professional courses that expand the reach of oral healthcare in the different groups of the community (Mathu-Muju KR 2018).

3. EXPERIENCE IN SERVICE-LEARNING

3.1. Malta: A small country within the EU. Sociodemographic of Malta

Malta is the smallest country in the European Union and has the highest population density. According to Eurostat, the population for 2020 was of 516,600 people in an area of just over 300 sq. km, with a density of over 1,400 inhabitants per sq. km. Malta is strategically located in the middle of the Mediterranean Sea between Tunisia and Sicily. It is a country with a thriving economy and a 3.1% unemployment rate (NSO Feb 2022).

3.2. Dental education in Malta

The University of Malta was established as a University in 1769. Currently, there are over 12,000 students in undergraduate and postgraduate courses. It has 14 Faculties, 19 institutes, 11 centres and 2 schools. The University of Malta has been graduating dentists since 1918. Our Faculty is the smallest, yet its presence in the Maltese society is strong as one of our strengths is our social responsibility and our presence in the community.

We offer four undergraduate courses and, currently, four postgraduate courses including the PhD. The undergraduate courses include a 5-year course in Master in Dental Surgery (MDS), a 3-year Bachelor course in Dental Hygiene (DH), a 3-year Bachelor course in Dental Technology (DT) and a 2-year Diploma course in Dental Assistance (DSA). Following the Article 34 of the EU Directive 36/2005, contact hours are distributed in lectures, and practical and clinical hours. The hour distribution is presented in Table 1.

Table 1. Number of direct contact hours in each of the courses offered by the Faculty of Dental Surgery at the University of Malta. Number of hours are following the Article 34 of the EU Directive 36/2005.

Course	Lectures	Practical/ Clinical Hours	Direct Contact Hours (Total)
Master in Dental Surgery	1,170	5,215	6,385
Bachelor in Dental Hygiene	781	1,747	2,528
Bachelor in Dental Technology	660	2,200	2,860
Diploma in Dental Assistance	473	1,374	1,847

Source: authors

Although each course focuses on particular disciplines in dentistry, and as such are different in nature, we promote the interaction between the different courses earlier on in the respective years of studies, as we believe that the Dental Team is established in the early years of a career. This is achieved through integrated and joint clinical and practical training, outreach events organized by the Faculty.

The Faculty provides clinical training mainly in the Dental Teaching Clinic located in Mater Dei Hospital, the main hospital in Malta; Saint Vincent de Paul Residence for the Older Adults (SVPR); and the Mobile Dental Unit. The two latter are part of our Service learning focus and are the two pillars that have led us on an exciting journey.

The students are assigned a significant number of hours to service learning. Most of them occur in the residence for the older adults and the Mobile Dental Unit but also include outreach events and agreements to perform treatment to different vulnerable groups in our society. The latter take place in our main teaching clinic. Further to this, the University is building a new teaching dental clinic in our sister island, Gozo, to cater the needs of the population and as a direct response to epidemiological findings.

3.3. Projects in Community Service learning in Dental education in Malta

3.3.1. Our pillars: The Mobile Dental Unit and the teaching clinic at Saint Vincent de Paul Residence

Between 2010 and 2015, the Dean and the academics of the Faculty of Dental Surgery, identified a series of needs in the community that required addressing. Data on the current oral health status of the Maltese population in terms of the WHO Global Oral Health Programme (WHO, 2003; Petersen, 2005) was scarce and we required a means to reach out and identify the needs in the community.

3.3.1.1. The Mobile Dental Unit

For this, the Mobile Dental Unit (MDU), which is a fully equipped dental clinic in a truck, was inaugurated in summer of 2015. The Faculty of Dental Surgery envisioned reaching the Maltese population in their villages. This would also serve as a base for outreach programmes in health promotion that had been increasing in number in the recent years. Since 2015, the MDU has visited every week all villages in Malta and Gozo. Data of the oral health status of the population is continuously being compiled and we now have a clearer picture of the current oral health status of our population.

Faculty academics, and students from the dental surgery, dental hygiene and dental assistance courses provide a service as a dental team by educating the community, providing dental screenings, and carrying out educational interventions, dietary counselling and smoking cessation. Outreaches target towns and villages, local council community groups, schools, residential homes, special care institutions, workplaces, as well as national events organized by government entities.

The local businesses sponsor the activities of the MDU by providing oral care products such as toothpastes and toothbrushes that we distribute to the vulnerable and marginalised communities to enable better oral health.

On a dental screening in the MDU, patients are given an initial diagnosis of what is seen in their mouth. Options of management are explained. They can choose to have this treatment either at our teaching dental clinic, at the state dental clinic or at their private dentist. Many choose to continue treatment with our students.

3.3.1.2. Saint Vincent de Paul Residence for the older adults

At the same time as the MDU was being planned, the Dean and the academics saw the need to provide training to their students in Gerodontology given the rising number of older adults living in Malta. Following several clinical research studies conducted in the area (Santucci, et. al., 2014; Santucci & Attard 2015a; Santucci & Attard 2015b), the Faculty along with the Ministry for the Family and Social Solidarity and Saint Vincent de Paul Residence's, inaugurated the teaching dental clinic at Saint Vincent de Paul Residence in the summer of 2015.

Saint Vincent de Paul Residence (SVPR) was selected for this purpose as it is the largest state Residence for the older adults in Malta. Initially, the clinic catered for the older adults living in the residence. However, soon older adults in the communities close to the residence and other state homes for the older adults requested appointments for their residents. Other private homes followed in this petition. Currently, dental treatment is provided to all population over 65 years of age living in a home for the older adults or in the community. Most treatments are performed in-house while patients are referred to our main dental clinic or to the Dental Department of the main hospital in Malta for complex treatments. Students also perform supervised treatment to bed-ridden patients at the wards. Apart from this, they attend other residences in Malta to carry out health promotion.

The students are exposed to over 100 hours of clinical training annually in Gerodontology and perform most treatments while learning to modify their diagnosis and management according to the complexity of the medical history and the frailty of the older adults.

In 2018, our group performed a study on the perception of self-confidence in treating older adults after three years of the inauguration of the teaching clinic and six years following the introduction of specific study units on Gerodontology. Results showed that students gained confidence while progressing in their studies, and after a considerable number of direct contact hours, including receiving the theoretical component in Gerodontology. The trends varied as some students felt comfortable while treating the older adults in their first years of studies; then, as the complexity of the cases increased, so did their concern. On their last year of studies, after a number of treatments and hours, and their skills

improved, the students regained their confidence. Most agreed that the number of hours of clinical practice was good, while 20% expressed their interest in furthering their studies in Gerodontology (Attard, et. al., 2018).

Every year, the students are involved in activities to reflect upon their learning in the service learning activities. Fourth- and fifth-year dental students have a storytelling session of their experience in their SVPR rotation. The aim of this session is to facilitate reflection of their experience with a vulnerable population and clients who are in their end stage of life. They are instructed to write a 5-minute story of an event that has made an impact in them during the hours of contact. We organize a session in which all students read their stories to their peers and their tutors. The stories are compelling and emotional. They prove the positive impact of service learning in dentistry. Some of these reflections were published in 2018 (Attard, et. al., 2018).

3.3.2. Special Olympics

In 2014, academic members of the Faculty specialized in special care and in paediatric dentistry, liaised with the Malta Special Olympics team to provide oral healthcare prevention and promotion within the Healthy Athletes, Special Smiles framework of Special Olympics Malta. Students from dentistry, dental hygiene and dental assistance as well as the full-time and part-time academics participate yearly offering their service to the athletes and their families. This year, the Special Olympics Invitational Games 2022 international competition is being organized in Malta between the 14th and 18th of May 2022. The event is expecting over 1,000 athletes who will visit the Islands to compete. This is the first major meeting for Special Olympics as we emerge from Covid pandemic. These athletes will be seen by our academics and our students as part of the *Special Smiles* screening services.

3.3.3. Outreach programmes in Smoking cessation

In 2014, a study unit on the impact of smoking and smoking cessation was introduced to the programme in dentistry and dental hygiene in their second year of studies. Since then, every year, the students participate in several outreaches in the community to promote healthy living and smoking cessation. Behavioural aspects are covered in this study unit and is a good introduction for preclinical students to discussing healthcare issues with the population. In these outreaches, they explore the individual response to health promotion as well as the need for policies. Furthermore, smoking cessation is now an integral part of the Mobile Dental Unit events. Integrating smoking cessation to our curriculum, as well as to the outreach programmes and the Mobile Dental Unit events provides us with an opportunity to explore behaviour beyond the domains of dentistry. This helps the student to reflect on how behaviour and choices affect our lifestyle and the quality of life.

3.3.4. Outreach programmes in events

The Faculty of Dental Surgery participates in most events of interest in the Maltese Islands. These include major events such as Notte Bianca and Science in the City. These events are organized in the city of Valletta every year and attract hundreds of thousands of people. The Mobile Dental Unit is placed in a prominent location in the city with people queuing for over one hour to be seen. The Malta Association of Dental Students meet with the organizers of the events a few months before and, with the help of the Deputy Dean, organize the event. Students from the early years participate in health promotion while those in the senior years give clinical advice to participants.

Further to this, the Mobile Dental Unit is invited to participate in events all year round, including health promotion events organized in villages, feasts, schools and fundraising events for health-related NGOs such Arka Foundation, an organisation that takes care of people with disability, and also

Puttinu Cares Foundation, a children’s cancer support group. Dental screenings, outreaches and other services also include entities such as Dar tal-Providenza, a long-term residence for people with disabilities; Agenzija Support, a governmental entity that cares for the people with disabilities; and Agenzija Zghazagh, an entity promoting well-being of young people.

In the recent months, the Malta Association of Dental Students (MADS), the student association integrated by students from the four courses offered by the Faculty, have been carrying out health promotion campaigns on television, schools, social media.

3.3.5. National Oral Health Surveys

Between 2014 and 2015, the children national oral health survey took place (Gatt, et. al, 2017) while the adult national oral health survey started a couple of years after and is still ongoing. We consider that by participating in the survey they understand their social responsibility is within the community.

Many of the parents of the 2,500 children screened for the children national oral health survey requested treatment from the dental students. These students performed general dental treatments, including preventive, restorative and orthodontic treatment.

3.3.6. The Pandemic and the impact in Service learning in dentistry

In March 2020 all clinical activities in dental education were cancelled in most of the World. In Malta, some activities partially resumed as early as in August 2020. Since the main teaching dental clinic is located in the main hospital in Malta, we were subject to strict infection control guidelines and measures depending on the country’s position in the Pandemic. Moreover, the measures of the Superintendence for Public Health in Malta did not allow the activities of the MDU or outreaches to take place until October 2020. Given the increased vulnerability of the older adults during the pandemic and before vaccination, most teaching activities were suspended in SVPR. However clinical services were still provided *pro bono* by the Faculty academics. In summary, only reduced activities in the main teaching clinic at Mater Dei Hospital were taking place. Our Service-learning activities were substantially reduced to the detriment of training our students.

In February 2021, after only one month of the vaccination campaign, Malta experienced its worst situation in the Pandemic with the hospital in the midst of serious challenges to maintain steady operations. All doctors and nurses were required in the hospitals and the Ministry for Health feared that the vaccination campaign would be curtailed. The authorities reached out to the Faculty of Dental Surgery for help. Soon students in different areas of health were asked to volunteer their time in the vaccination drive. Our Faculty prepared a roster for its students and academics, as well as dental professionals to volunteer. Within six hours of officially making this request in our Faculty, all available slots for four months were filled. Our students volunteered in this campaign until March 2022. Thanks to the collective efforts, Malta was the first country in Europe to have 80% of the adult population vaccinated by June 2021. By the end of July 2021, the Faculty’s students and academics had provided in excess of 100,000 hours of voluntary time in the vaccination efforts. In September 2021, at the start of the academic year, the MDU remained with restrictions of movement due to the public health measures. In order to continue with activities in the community, students were given a rotation in the vaccination centre at university. In 2022, all MDU activities have resumed and the mobile dental unit is back on the road.

The Pandemic might have stopped service learning activities in the community. Nonetheless, we celebrated the response of our students towards the vaccination campaign and volunteering their time. We understood how deep the outreaches throughout their course were engrained in them and how they understand their role in providing health to their country. This experience also underpins the notion of transferable skills, one of the tenants of UM’s teaching principles.

3.3.7. Our next steps in Service learning in dental education in Malta.

The Coronavirus Pandemic may have interrupted our physical activities in the community, yet we continued planning. It gave us some time to regroup, organize new activities and establish links with other entities caring for vulnerable groups. In these two years, the University has signed a series of agreements with different entities for students to carry out dental management. In 2021, the University of Malta signed an agreement with the Foundation for Social Welfare Services, a governmental agency responsible for social services. This agreement was signed in favour of the child protection and alternative care directorates. The aim was to provide oral health promotion, prevention, and dental care to the over 750 children in alternative care, that is, in foster care and specific homes. In 2022, the same entities signed another agreement. In this case, with Aġenzja Sapport, the entity in charge of services for people with disabilities. Both projects have started and students are seeing for the needs of both children in alternative care, as well as people with disabilities. Beyond the dental care itself, these projects provide a framework for our students to experience the diverse realities of our society.

It is worth noting that the Faculty had modified the curriculum of the Masters in Dental Surgery in 2019 to incorporate a study unit in Special Care Dentistry.

Moreover, the MDU and the Faculty are planning our next moves towards promoting oral health in migrants, people with substance use disorder, people with eating disorders and Caritas Malta (a Church entity promoting social justice).

3.3.8. Gozo Teaching Dental Clinic

Gozo is the sister island of Malta. It is located northwest and separated by a 7 km stretch of sea. It is 27.43 sq.km with a population of just over 31,000 persons (NSO 2021). Studies by our team suggest that this population is underserved, possibly due to its geographically isolated location thus leading to double insularity. These studies observed that the oral health problems in this community were more noticeable than in the Island of Malta. Among the recommendations of these studies, our group considered that the island required accessibility and availability of dental health services (Gatt, 2017; Schembri & Attard, 2017; Agius et. al., 2018) specifically by establishing a teaching clinic. The Ministry for Gozo and the Gozo Diocese supported this view and have fully supported the Faculty's endeavours on this project. The Gozo Teaching Dental Clinic is a soon-to-be reality. We expect this state-of-the-art teaching unit to open its doors by the Fall of 2022 and our students along with the Faculty academics will participate in this oral health programme. The students will benefit from the clinical training and from learning how health determinants such as geo-location and double-insularity can modify the oral health of a population. At the same time, the Gozitan community will benefit from accessible treatments.

4. CONCLUSION

A Chinese proverb states that every journey starts with one single step. We embarked in the journey of service-learning initially thinking of answering some questions we had on the oral health status of our population. Little did we envisage that this would lead to a project to provide a service to the older adults. With these two ventures, our curriculum started changing and this created a cascade of events that led to ongoing projects and ideas that incorporate more programmes to tackle the oral health inequalities and needs of more vulnerable groups. At the same time, it would serve as the basis for community-based dental education.

Our students are the dentists of the future. Instilling the values of prevention, community dentistry and health for all, as well as prioritizing the care for vulnerable groups augurs well for the oral health of our country.

The Faculty of Dental Surgery of the University of Malta has greatly contributed towards health promotion in the community by enhancing the Preventive and Community Dentistry and Public Health curriculum and staff members; performing research to understand the needs of the community and acting on them; increasing the intake of students in different dental courses and emphasizing the importance of increasing the number of dental hygienists within the community; building the infrastructure for provision of community prevention and care in different localities in these small islands in order to improve access to dental services for all; reaching out to vulnerable and marginalised communities; liaising with several national government authorities such as the Ministry for Education and Ministry for Health to introduce preventive programmes in schools; and, educating on oral health at the individual and community level.

When we started the journey, we were unaware that this would not only benefit our students and the community, but that it would also change us, academics and staff of the Faculty, and the way we teach. Furthermore, we have gained respect in the community and the different governmental agencies who look for us for treatment of vulnerable groups. We have a long and exciting road ahead with an aim of a more equitable oral health in our community.

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