

# REPORT OF SIGF06 « EDSA RESEARCH »

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## PRELIMINARY STATEMENT :

The situation and solutions discussed in this SIG have to be regarded in their context. Participants quickly agreed that the situation faced is of great complexity as well as gravity. Situations amongst participant countries are very diverse. Yet, some general factors have been identified by members of this SIG as factors that either reduce students' interest of pursuing an academic career or limit actual students' access to research. Some pathways towards improvement have been proposed by members of this SIG. In regard of the very complex nature of the research world, one should keep in mind that the following propositions are very general ; thus the subsidiary principle should always apply. It is also entirely legitimate for this SIG to be maintained to explore further solutions.

## A BRIEF LOOK AT THE CURRENT SITUATION :

- An unprecedented shortage of academic staff in western Europe is expected by 2020
- Roughly 10% of students are interested in research
- Significantly more medical students pursue an academic career than dental students
- For students that want to get involved in a research lab, slots are limited and senior staff members often suffer high workload
- Students lack skills related to research, especially regarding Good Lab Practices
- Getting involved in a research project is very time-consuming and should be regarded mainly as a mid- to long-term project

## DISCUSSION REGARDING THE CURRENT SITUATION :

### ACADEMIC STAFF SHORTAGE :

The first problem that was underlined by participants is the **expected shortage of academic staff** in the next 5-15 years, mainly in western Europe. Students in general show very little signs of interest of pursuing an academic career. No evidence-based data was provided by SIG members but various reasons can be evoked.

First of all, it appears students know very little about the academic world. Although they spend 5 or 6 years studying in a university, they are not familiar with the academic system. Career paths are complex and very few students have actual knowledge of what an academic position consists in. They know such positions consist in giving lecture, (pre)clinical workshops and being involved in research but their ideas remain pretty vague.

Then, **most students are oriented towards private practice** and various reasons can be listed : higher incomes, more flexible schedules, the possibility to work part time, the chance not to have a supervisor, etc. It is also a trend that **part-time academic positions are also disappearing** in some countries such a France ; thus forbidding students that would be interested in pursuing a part-time private and part-time academic career to do so.

### HOW STUDENTS' KNOWLEDGE AND SKILLS IMPACT THEIR ACCESS TO RESEARCH :

Some students show interest in getting involved in research during their initial training. But it is very rare that such wills turn into an actual internship or commitment. Various factors have been isolated by members of this SIG.

It is true that **students often lack the proper skills to enroll in an actual research lab** since such skills are not part of the European compulsory curriculum. On the practical side, none of the members of this SIG stated that **Good Laboratory Practices** are taught to students in their dental school (either compulsory or as extra courses). Training students for lab work is a time-consuming activity and senior staff members already have high workload and cannot afford the luxury to do so, unless there is a hope of long term commitment by the student. On the theoretical side, students often lack the basics of fundamental biology, maths and physics to fully understand the work that is being conducted in research labs.

Even though it is always possible to self-literate oneself regarding some particular subjects, the implementation of a **biomedical master's degree conducted at the same time as dental studies** should be investigated by members of ADEE and EDSA. It could be advocated at European level to implement such curriculum. This could grant students with proper knowledge, adequate skills and a somehow « natural » way to enter an academic career.

### THE NEED FOR LONG TERM COMMITMENT :

**Research is a long process** and can take up to several years to bring results. This has a considerable impact on how positions are distributed amongst applicants. Since few slots are available in research teams for students, **long-term commitment** is often looked after by senior researchers when receiving applications. But enrolling in a PhD program is too demanding for students that are not yet positive about their academic career. This can be regarded as a reason that **limits students' wills to pursue a research career** since their determination to do so does not yet match the level of commitment expected by senior researchers. One could understand that as a process in which only the highest motivated students will enroll in research programs. But this could also be regarded as a factor explaining the low percentage of students enrolling in research programs ; students whom might have become very productive researchers for some of them.

Given the time necessary to conduct research properly, **short (1-4 weeks) internships** are rather designed as « **promotional materials** » for academic careers than to bring actual results. Nonetheless, such internships are a great opportunity to gain lab experience and new skills that will be of great use later on for the new academic dentist. Such experience in the lab is also an asset when applying for many positions in the academic area, e.g. PhD and post-graduate training.

### THE ACADEMIC WORLD AS PERCEIVED BY STUDENTS :

Although every course received by students is supposed to be evidence-based, some undergraduate students may **perceive research as a vague process**. SIG members reflected that sometimes it is difficult for educators to get students interested into research since they do not have the required knowledge. However, students and educators of this SIG agreed on the fact that **research labs should be more accessible to students**, even for visiting purposes and researchers might invite students more often to come and see their everyday work. The members of this SIG emphasize on the need for **proper promotion of academic careers**. Some propositions will be discussed later on in this document.

## TIME FOR CHANGE - A PROPOSAL FOR IMPROVEMENT :

All throughout the session, some propositions have been elaborated by the SIG members to improve the situation. To ensure clarity, they will be discussed using a point-to-point approach. However, members of this SIG would like to state firmly that such leads underpin a necessary change of paradigm.

### REFORMING OUR EDUCATIONAL MODEL TO IMPROVE OUR RESEARCH :

As stated earlier, it's the belief of this SIG members that the **implementation of a master's degree in the biomedical field conducted at the same time as dental studies** should be analyzed by members of ADEE and EDSA.

Research being very time-consuming, it might be a lead to **allow students to take a gap year or a gap semester from their dental curriculum**. This would give them the time to enroll in a biomedical degree or conduct some research. However, students are often afraid of losing their clinical and practical skills if they take a break from their dental studies. The **possibility of keeping some proportion of clinical training** while involving oneself in a research project should be investigated further by ADEE and EDSA members. The fear of losing skills so harshly gained might be the bottleneck of why some students interested in research refuse to enroll in full-time research programs.

By the same token, **creating a research-oriented part-time residency program** might be worth discussing. Residency programs train some of the top European students but the vast majority of them are clinically-oriented. Creating a research-oriented residency might give you graduates the opportunity to **pursue further clinical training** as well as having the chance to conduct some research or enroll in a unit. Such residency program would be considered by students a good time **to enroll in a doctoral program**, especially if they can do it part time.

Research being an international process, some might consider a good move to give students and young researchers to opportunity to go abroad and enroll in some program or degree. The last EU directive 2013/55/UE (Professional Qualifications Directive) implemented an EU-wide 12 months vocational training possibility for dental students. Perhaps the **possibility of a research-dedicated international VT-like program** should be discussed, provided the fact that such exchanges would result in actual research for dental students.

It's also a well known fact that **diversity of backgrounds** in research units is a key to productivity. In addition to the regular application process, some countries and universities have set up **parallel admissions for students from diverse background to enroll in a dental curriculum**. Such gateways concern - for example - engineers, business school graduates, PhD graduates, paramedical professionals... These students, given their various backgrounds, may bring new perspectives to research labs. They may also broaden the views of traditional students, thus getting them more involved in their curriculum.

### AN ADVOCACY FOR BETTER PROMOTION OF RESEARCH :

« PhD is sexy » : that is the message that has to be delivered to students and young graduates. The **need for a proper promotion of academic careers is urgent**, especially in regard of the 2020s expected shortage of staff. However, it is not the culture of researchers to promote their work as private businesses would do. Thus, the members of this SIG tried to elaborate some leads towards a better promotion of the research world.

Research is the unique way of creating new knowledge and we urgently need to promote it better. Researchers should **describe knowledge as the « last frontier »**. Every bit of Earth has been mapped, our deepest oceans have been explored, our highest mountains have been conquered

and some astronauts even walked on the moon ; what's left to us is the irrepressible desire of constantly being on the edge of science. It might be boring if you compare it to skydiving but research is not boring when you make connections no-one ever made before. And that's why research is fun and rewarding : **there is always a sense of discovery**. There is so much more in the world left to discover that it's really exciting and invigorating. Learning, getting new ideas and being inspired ; that is all research is about ! Research provides a **never-ending source of puzzles for brilliant minds to solve**. So why do academics love research ? Simply because the process itself is delightful ? Or because, **by tackling big problems and hefty questions, scientist try - in their own ways - to make the world a better place ?**

Somehow, **research is all about learning how to ask**. Conventional methods of teaching, based on passive lectures, might not be the optimal mean to stimulate the creativity and curiosity of students and young dentists. The global trend to consider **enquiry-based teaching methods** of learning as alternatives to traditional ones might offer a lead. Some non-conventional teaching methods (problem-based learning, clinical cases presentations, collaborative learning, blended learning, self-evaluation...) can be described as **more stimulating for some students since they rely on their curiosity** rather on their passive memory.

For people reluctant to pursue an academic career, there is also the **possibility to conduct research in the private sector**. Such pathways are often not mentioned to students when they look after career opportunities. Partnerships between academic institutions, private corporations and students organizations might include such promotion and offering internships in the private sector could be discussed.

## GOING THE EXTRA MILE - WHAT EDSA AND ADEE CAN DO :

*Reaching agreement on the current situation and giving leads towards change is already a great success. But EDSA and ADEE can achieve even better by joining forces. Members of this SIG came up with some actual projects that could be implemented as of today and set the trend for change.*

### NETWORKING :

**EDSA and ADEE** gather together roughly **60 000 students and countless academics from more than 160 dental schools across Europe**. This network is for sure one of the most efficient networks of teachers, researchers and undergraduate students around the world. It gives its members the opportunity to create **long-lasting collaborations**.

ADEE and EDSA networks are also of great interest when it comes **broadcast** news, information, and new recommendations (via mailing lists for example).

### TRAINING :

Since the main requirement to work in a research lab is often the know-how, some sort of **training could be offered to students to learn Good Laboratory Practices**. Such training could be organized in various forms, including workshops, seminars, webinars, special-purpose internships... They could be organized by **EDSA's partner universities** in collaboration with **ADEE** and perhaps **IADR** (International Association for Dental Research) or other societies. Such training could also take place during EDSA meetings, congresses and summer camps or during dedicated summer/winter internships in EDSA's partner universities.

### EDSA RESEARCH PROGRAM :

Through its network of good-willing partner faculties, **EDSA** has been in position to initiate a **research program offering several research internships to european students**. For 2014, EDSA has been able to secure **18 positions for 9 projects in Yeditepe University** (Istanbul, Turkey ). Various projects were available from Yeditepe University's Faculty of Dentistry and

Faculty of Pharmacy : orthodontics, endodontics, operative dentistry, periodontology, preventive dentistry, oral and maxillofacial surgery, dentomaxillofacial radiology and pharmaceutical technology. **EDSA partner Colgate-GABA kindly provided 6000€ to the research program** and successful applicants were given the opportunity to apply for a bursary in order to cover the costs of living and transportation during their research period. All the projects will be presented in next YUDBAT & EDSA meeting in Istanbul between 11-19 April 2015.

Such internships are great opportunities for students who want to get involved in actual research teams for a **4-6 weeks period**. Students gain knowledge about the research process and **useful skills to work in a lab**. The international dimension is also very attractive since students are given the chance to **improve their english** as well as **meeting new people** and **discovering a new culture**. It is the belief of the members of this SIG that such internships should be offered more often to students.

EDSA will work on **involving more faculties to this research program**. EDSA and ADEE members are kindly asked to broadcast any information regarding the EDSA research program and to try to involve their respective institutions.

#### **LONG-TERM COMMITMENT :**

As stated earlier, the need for long-term commitment of students might be a factor explaining the low interest shown by students towards research. The 4-6 week timespan of the internships secured through EDSA research program might also limit the reach of the research projects. Members of the SIG came up with two ways to try to overcome such issue.

Firstly, since research projects are conducted through many years, it would be of great interest to **build long lasting collaboration between research teams and EDSA Scientific Officers**. This way, **students would be offered the chance to follow their project on a multi-annual period**. Secondly, since different stages of the research process require different competences, this would be a way to **involve multiple students in the same research unit on the long run**. For example, on the first year a project is conducted, a student could apply as clinical assistants and the year after, an other student could apply to work side by side with the biostatistician of the project.

Long-term commitment of the students could give them the **legitimacy to ask to be credited in the to be published article**. Long-term commitment is also a sign of seriousness that can be used with corporate partners when negotiating sponsorships.

#### **ADVOCACY :**

It is the **duty of all EDSA and ADEE members to advocate for improvement in the field of dental education and research**, notably regarding the involvement of students. The statements in this document offer a wide variety of viable arguments for change. EDSA and ADEE networks can be of great support in the spread of these views.