

Research article

The impact of leaders of internationalization in highly specialized academic fields: case study in implant dentistry and biomaterial education and research. Part 3: comparison of dental implant group strategies in French, Italian, Spanish and Korean universities using the ISAIAS FAST score

Lidia M. Wisniewska,^{1,2,3,*} Yeo-Won Jo,⁴ Sang-Yong Kim,³ Sarah Amr,⁵ Georges Khoury,⁶ Pablo Galindo-Moreno,⁷ Elena Sánchez-Fernández,⁷ Ana M. Carrillo-Badillo,⁷ Ana I. Renta-Davids,⁸ Gaetano Marenzi,⁹ Gilberto Sammartino,⁹ Hom-Lay Wang,¹⁰ David M. Dohan Ehrenfest,³ and Manuel Fernández-Cruz.¹

¹ Department of Didactics and School Organization, Faculty of Education Sciences, University of Granada, Granada, Spain

² Department of International Relations, Paris Sorbonne University, Paris, France

³ LoB5 research unit, School of Dentistry & Research Center for Biomineralization Disorders, Chonnam National University, Gwangju, South Korea

⁴ Graduate School of Education, Chonnam National University, Gwangju, South Korea

⁵ Department of Periodontology, Faculty of Odontology, University Paris 5 Descartes, Paris, France

⁶ Department of Implantology, Faculty of Odontology, University Paris 7 Diderot, Paris, France

⁷ Oral Surgery and Implant Dentistry Department, School of Dentistry, University of Granada, Granada, Spain

⁸ Institute of Education Sciences, Rovira i Virgili University, Tarragona, Spain

⁹ Department of Oral Surgery, Faculty of Medicine, University Federico II of Naples, Italy

¹⁰ Department of Periodontics and Oral Medicine, The University of Michigan, School of Dentistry, Ann Arbor, Michigan, USA

*Corresponding author: Lidia M. Wisniewska, liliw@interia.pl

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Abstract

Background and objectives. Internationalization is a major evolution in implant dentistry and biomaterial education and research. The aim of the present 3-part study was to apply the ISAIAS method (Intercultural Sensitivity Academic Index & Advanced Standards) in this highly specialized dental field, and to evaluate the impact of leaders of internationalization. In this third part, the ISAIAS method was applied to the dental implant and biomaterial groups of 4 participant universities, to highlight the impact of their internationalization efforts and leaders in these Asian and European contexts.

Materials and Methods. A group of 20 teachers/researchers and 20 postgraduate students related to the dental implant and biomaterial research and education groups of 4 different dental schools (from respectively University of Granada, Spain; University Federico 2 of Naples, Italy; Paris University, France; and Chonnam National University, South Korea) were observed through the ISAIAS FAST (Fast Assessment Screening Test) questionnaire and through intensive field study (mixed methodology, i.e. combination of qualitative and quantitative methods). A final ISAIAS FAST score (mean value) was calculated for each group, including the mean scores in the 4 dimensions of intercultural competences, and

scores were integrated with field observation for interpretation. Results were correlated with previous results obtained on the general campus and dental schools of the participant universities, and to the profiles of the local leaders of internationalization in the field.

Results. The scores observed in the 4 academic environments were very different between the groups, and revealing very different patterns. Scores in Granada University were the highest from all groups for the teachers/researchers group, but revealed the wish for more development of international dimension at the post-graduate level. Scores in Paris University and Naples University were intermediate and revealed a neat positive impact of local leadership when available. The scores observed in South Korea appeared quite high, revealing a wish for internationalization.

Discussion and conclusions. The presence of leaders of internationalization is clearly an important factor of improvement of the intercultural competences of teachers/researchers and postgraduate students in the field of implant dentistry and biomaterial education and research. The impact of these motivated individuals and its intensity are, however, different depending on the academic environment. The ISAIAS mixed methodology is a very useful method to evaluate the Strengths, Weaknesses, Opportunities and Threats of the internationalization efforts of a group or school, but it requires to combine the FAST scores with an in-depth field study, in order to determine the exact situations and how to improve the performance of the entities and their interactions with international partners in the field of implant dentistry and biomaterial education and research.

Keywords. Attitudes, culture, dental implants, education, international cooperation, international educational exchange, leadership.

1. Introduction

The strong internationalization of higher education and research is a major evolution and need of the Academic world [1], as a natural consequence of the globalization of the economy of sciences and knowledge [2]. As it was discussed in the previous parts of this series of articles, in the field of dental education and research, the internationalization process has followed a very specific path related to the nature of the dental profession itself, which is very regulated in most countries. However, even if the undergraduate programs remain very national in many countries, the process of internationalization is impacting dental schools more and more, particularly through international postgraduate programs and through research collaborations [3]. Like in all other specialties, the process of globalized interactions is often complicated by the significant cultural differences of perception and action and the different organizational cultures of each country and institution [4,5].

The POSEIDO (Periodontology, Oral Surgery, Esthetic & Implant Dentistry Organization) was developed as a consortium of Academic entities and an international scientific network of Academic Departments and Scientific Societies [6]. The organization regroups a majority of dental school departments, but it is also including Departments of orthopedics, immunology, plastic surgery, veterinary sciences, biotechnology and biomaterials, in order to promote trans-disciplinarity through various forums of discussion and debates [7,8]. This network is an interesting example of globalized inter-academic cooperation in the dental education and research world. Even if it could have faced the traditional problems of intercultural cooperation, the collaboration between entities remained smooth and efficient [9]. It was advocated that the intercultural competences and experience of the POSEIDO key members allowed to overcome most intercultural difficulties up to now [5]. The hypothesis is that the specific experience and personality of the local

leaders of internationalization of the groups joining POSEIDO were at the origin of this smooth cooperation [10], with the development of an efficient collaborative activity, particularly in the field of biomaterial research.

The next steps of the POSEIDO project are to develop deeper links between all partners of the consortium, particularly building commonly funded research and post-graduate education large projects at a world scale, particularly in the field of implant dentistry and biomaterial research [3]. This will necessarily require even more diplomacy and intercultural competences from all stakeholders [2], and the POSEIDO community and Foundation decided to fund a global program of evaluation and development of the intercultural skills of its actual and future members [11], in order to avoid any major critical situations in the future steps of the project development. The ISAIAS program (Intercultural Sensitivity Academic Index & Advanced Standards) was designed as an evaluation, education and conflict prevention global initiative, to promote smoother and more efficient global cooperation, particularly in the field of implant dentistry and biomaterial research and education [1].

The ISAIAS Fast Assessment Screening Test (FAST) Score was developed as a simple tool of evaluation of the level of internationalization of a university, school or department. This score is calculated through the use of a questionnaire of assessment of the internationalization efforts of a university campus through the development of intercultural competences of the academic stakeholders, based on the concepts and key parameters isolated by Deardorff [12,13]. In this series of articles, the ISAIAS FAST scores were calculated in 4 different Academic environments (France, Italy, Korea, Spain) involved in implant dentistry and biomaterial education and research within the member Academic entities of the POSEIDO network, to evaluate and understand the internationalization patterns of these Universities, dental schools and implant and biomaterial research and education significant groups.

In the first and second articles of this series, the ISAIAS FAST methodology of assessment of intercultural competences at the scale of a campus was described, following the concepts and list of components of the intercultural competences proposed by Deardorff [12], and then evaluated in the specialized environment of the respective dental school of the participant universities.

In this third article, the ISAIAS FAST method was used specifically on the groups of teachers, researchers and students that could be considered as a core of implant and biomaterial research and education in these 4 different dental schools, including some individuals with international reputation that could be considered as leaders of internationalization in their respective context. The first objectives were to evaluate, how local strategies of internationalization of higher education and research may have influenced the development of the intercultural competences of the postgraduate students and teachers/researchers of these specific groups. The final objective of this work was to integrate these data with the scores and observations of the general campus and dental schools, in order to highlight the impact of leaders of internationalization in the highly specialized academic fields of implant dentistry and biomaterial education and research.

2. Materials and Methods

2.1. General methodology

In the dental school of each participant university, the ISAIAS FAST questionnaire was proposed to 20 postgraduate students and 20 professors/teachers or researchers of these 4 different dental schools, including some individuals with international reputation that could be considered as leaders of internationalization in their respective environment. The test sample was significant, but cannot be considered as fully representative; the sample of this study case was intentional. Data were collected between 2012 and 2014 at the School of Dentistry, University of Granada (UGR, Granada, Spain), the Faculty of Odontology, University Paris 5 & Paris 7 (Paris, France), the School of Dentistry, Chonnam National University (CNU, Gwangju, South Korea) and the Department of Oral Surgery, Faculty of Medicine, University Federico II of Naples (Unina, Naples, Italy). In each School, there was at least a significant implant and biomaterials research and education group with some leaders involved in the international POSEIDO network. In this case study, it was decided to analyze three very different European universities (Granada, Naples and Paris), to be able to compare 3 different approaches of the European implementation of internationalization of higher education and research with a very typical Asian campus (Chonnam).

It is important to point out that “postgraduate” has always to be understood (in this study) as general dentists following a supplementary specialization diploma, what placed them in direct contact with active leaders in implant dentistry and biomaterial education and research. In Korea, the new dental students have already finished their bachelor degree prior to apply and to enter in a dental school, and are therefore considered as postgraduate students following the local terminology. In France, Italy and Spain, dental students without their dentist diploma are considered as undergraduate students, and postgraduate students are only those working for a specialization diploma. This specificity of terminology has however almost no practical impact.

The methodology used in this study was the same as the one described in the first article of this series (see article 1 for details), using a mixed methodology, i.e. a combination of qualitative and quantitative methods and methodological and data triangulation. The quantitative methodology was using the ISAIAS FAST questionnaire of assessment of the internationalization efforts of a university campus through the development of intercultural competences. The analysis of the questionnaires allowed to calculate the Fast Assessment Screening Test (FAST) Score of an individual or a group of people.

2.2. Description of the questionnaires

The exact description of the questionnaires can be found in the first part of this series of 3 articles, as they were exactly the same (see article 1 for details). The key points were recalled below.

The questionnaires were built in 2 slightly different forms. One was formulated for teachers and researchers to determine in which measure the participation in international research/educational projects has impacted the development of their intercultural competences. The second was formulated for students to determine in which measure the internationalization efforts and program offered by their University - during the curriculum (obligatory courses and activities) and through extracurricular activities (all nonobligatory activities related to the campus life, such as conferences, sports, student union activities or

informal or personal meetings with foreign colleagues, etc.) - has impacted the development of their intercultural competences.

The first part of each questionnaire was gathering the main data of identification of the person filling this anonymous questionnaire, to place the answers in an adequate perspective. The second part of the questionnaire was the statistical part with a series of 30 very accurate statements the reader had to agree or disagree, in order to evaluate accurately the profile of the person and to calculate his/her ISAIAS FAST score. For each question, the person filling the questionnaire had to choose the option which best fitted his opinion between 4 options, each option being associated to a score between 1 and 4: Strongly disagree (1), Disagree (2), Agree (3), Strongly agree (4). This is a classical multiple-choice format using an unipolar Likert scale from 1 to 4. The final analysis and synthesis of these scores allowed to calculate the score of each person and finally, after integration of all data, the ISAIAS FAST score of the whole group under observation.

Finally, the questionnaires were translated in the language of the population to analyze (in Korean for the Chonnam campus, French for the Sorbonne campus and Spanish for the Granada campus), except in Italy where the students were able to answer the questionnaires directly in English. In Korea, Spain and France, a few questionnaires were also used in English when students or teachers/researchers were foreigners not perfectly comfortable with the local language.

2.3. Treatment of data and calculation of the ISAIAS FAST score

The treatment of data used in this study was the same as the one described in the first part of this series of 3 articles (see article 1 for details). The key points were recalled below.

The questions of the questionnaire were deeply interconnected and built following a network of reasoning that allowed to detect anomalies in the answers. They were regrouped in 4 groups, termed the 4 dimensions (D) of the questionnaire (following and adapting the general components of intercultural competences proposed by Deardorff): “Attitudes” (D1), “Knowledge and Comprehension” (D2), “Skills” (D3) and “Desire internal outcomes” (D4).

The score of each dimension gave important information on the development of each specific component of intercultural competences, and therefore allowed to draw a specific profile of each individual (or group of people), independently from its global FAST score. Furthermore, many informal interviews with the responders have been done.

When considering each questionnaire separately, in order to calculate the scores of each dimension, the scores of all questions composing a dimension were added, and the total was then divided by the number of questions of the dimension. To calculate the ISAIAS FAST score of each individual, the scores of all questions were added and the total was divided by 30 (total number of questions). The score of each dimension and the total FAST score were therefore always between 1 and 4.

In this study, all data were integrated through Statistical Package for the Social Sciences (SPSS, IBM, Armonk, NY, USA) program, in order to get a mean value of the scores of each dimension and of the final ISAIAS FAST score, of each group of students and professors/researchers evaluated in each dental school.

Finally, these statistical results were completed, analyzed and compared using the qualitative data gathered during the investigation. It was voluntarily avoided to draw a direct statistical comparison between the tested groups, as it would be meaningless. The scores have to be compared while taking especially into consideration the national and

organizational culture and other qualitative data that influence the understanding and interpretation of each score.

3. Results

Following the previously described mixed methodology, data have been collected in the dental schools. The answers to the questionnaires were integrated in order to calculate for each tested group, the mean value of the global ISAIAS FAST score and of the scores of each dimension of intercultural competences. Results of the Professors/teachers and researchers were presented in the **Table 1**, and results of the postgraduate students were presented in the **Table 2**.

In each group, some strong personalities serving as leaders of internationalization have been identified and selected to serve as reference points of the dental implant groups. All of them were confirmed with the highest FAST scores (above 3.8) and therefore could serve as leaders of the groups of postgraduate students and reference points for the index of teachers/researchers.

The scores observed in School of Dentistry at the University of Granada were very high for the group of teachers/researchers, the highest among all the groups tested in this 3-part study. On the contrary, the scores of the post-graduate students - even if still quite high - were the lowest observed in the University of Granada in this 3-part study, marking a form of frustration and many unfulfilled expectations.

The scores observed in the Faculty of Odontology at the University of Paris were globally quite low for the group of teachers/researchers (below 2). On the other hand, the scores of the post-graduate students were the highest found in all Paris groups tested in this 3-part study, highlighting clearly the impact of local leaders of internationalization.

The scores observed in the Department of Oral Surgery at University Federico II of Naples were globally almost the same between the group of teachers/researchers and the group of postgraduate students, and a bit higher than the scores observed with undergraduate students, showing the impact of local leaders of internationalization, within the limits of their context.

The scores observed in the School of Dentistry at Chonnam National University were globally quite high, higher than all other groups observed in CNU, reflecting the effects of local leaders of internationalization. Teachers/researchers of CNU had the second highest scores after those of UGR, and post-graduate students had the highest scores among all post-graduate groups observed in this study. The field study highlighted that this positive result did not follow the reality of the situation, and reflected more the wish and enthusiasm for internationalization than the real local activity.

Scores and field studies were integrated in details in the discussion section.

Scores of Professors/Researchers in the Dental School					
University (Dental School)	Dimension (D) scores				Total FAST score
	1D. Attitudes	2D. Knowledge and Comprehension	3D. Skills	4D. Desire internal outcomes	
University of Granada (Spain)	2.97	3.07	3.25	3.02	3.086
Paris University (France)	2.08	1.84	1.99	1.85	1.938
University Federico 2 of Naples (Italy)	2.85	2.16	2.60	2.70	2.582
Chonnam National University (South Korea)	2.9	2.7	2.8	2.7	2.773

Table 1. Intercultural dimensions and total ISAIAS FAST scores of a group of Professors and Researchers from 4 different Dental Schools.

Scores of Postgraduate Students in the Dental School					
University (Dental School)	Dimension (D) scores				Total FAST score
	1D. Attitudes	2D. Knowledge and Comprehension	3D. Skills	4D. Desire internal outcomes	
University of Granada (Spain)	2.464	2.16	2.45	2.53	2.406
Paris University (France)	2.77	2.25	2.81	2.53	2.595
University Federico 2 of Naples (Italy)	2.70	2.30	2.60	2.50	2.526
Chonnam National University (South Korea)	2.80	2.60	2.78	2.62	2.7

Table 2. Intercultural dimensions and total ISAIAS FAST scores of a group of Postgraduate Students connected to some implant and biomaterials leaders of internationalization in 4 different Dental Schools.

4. Discussion

4.1. General observations

The FAST scores and field observations in the 4 universities revealed very different situations and problematic. Even if the scores themselves appeared quite logical for the researchers, they shall not be considered without a deep observation and description of each national and academic environment. The FAST questionnaire was in many situations a support to evaluate deeper the reality of a situation that could only be understood by the campus field study. The combination of the scores of the questionnaires (quantitative analysis) and of the field study (qualitative analysis) has been sufficient to illustrate clearly the Strengths, Weaknesses, Opportunities and Threats of the internationalization efforts, and the differences and similarities in internationalization of higher education and research, in the tested dental implant/biomaterial groups from these 4 universities. The detailed analysis was done by school and described in its global perspective in the following chapters.

4.2. About the Implant/biomaterial Group at the University of Granada

Official programs in Implant Dentistry and Biomaterial at Spanish Universities are quite limited. Even if Implant Dentistry is the theme of the most important international meetings worldwide, it remains taught in Spanish Dental Schools in Surgery, Periodontics or Prosthodontics Programs, and not in specific programs based exclusively about implants. There is no official postgraduate program in Implant Dentistry, although there is a large proposal of unofficial programs offered by private entities, with a tremendous deregulation about teaching and research in Implantology and its associated techniques and procedures, as well as in biomaterial usage.

Traditionally, Dental schools have had a very limited activity in implant dentistry and biomaterials in the last 30 years, and it started to develop only in the last years. There are few active groups in Spain with some reputation in this field, normally associated to Periodontics or Oral Surgery Departments. They are focused mainly in clinical approaches and scarce clinical research, although there is currently a trend to basic research related to biomaterials and cell biology. The number of indexed international publications from Spanish authors has been also increasing in Implant Dentistry, and the visibility of some Spanish researchers in the key international meetings on the topic is increasing slowly.

Spanish dental implant groups are not following a pre-established strategy of internationalization, as the major institutions in North Europe and USA do. Traditionally the potency of the Spanish language has been a hidden enemy for this internationalization. Few professors in the middle age are able to speak fluently English, due to the educational policies followed in the 70s and 80s, what became an important limitation. University Complutense of Madrid leads the international visibility of Spanish Periodontics and Implant Dentistry abroad Spain. Other young Academic groups (like at the University of Granada) are developing different strategies based on the formation of their new elements in prestigious Programs in American Universities, promoting legal agreements between programs and their leaders, and generating a fruitful didactic and research collaboration between Institutions. However, only a small number of foreign students come to Spain to receive specific formation in Implant Dentistry, and the international relationship used to happen by emigration of young and capable pearls. Mechanisms to promote the return of these young specialists have to be developed in order to reverse the trend of the internationalization in Spain, related to Implant Dentistry and Biomaterials.

The results observed in this study somehow highlighted the problematic of the situation in Granada. The group of teachers/researchers showed a very high FAST score and high values in all dimensions of intercultural competences (the highest among all groups from this 3-part study). This revealed the effect of the strong policies of the University of Granada to promote internationalization as a main vector for its development and international visibility. Even if this group of professors experienced difficulties to communicate in English, the very strong ties and development of the dental school with other Latin countries (particularly in South America), may explain a part of this very high score. The recent efforts of the new generation of teachers/researchers towards North American Universities also explain a part of this positive result, as a form of significant enthusiasm promoted at the scale of the dental implant groups themselves.

However, the scores felt down significantly in the postgraduate group tested in this study (this was a lowest score of all the groups tested in the University of Granada). This result was clearly associated with unfulfilled expectations, with a frustration to not have more openings and more internationalization opportunities during their postgraduate studies. This group perceived the language as a much bigger difficulty than the group of teachers/researchers (young postgraduate students wished and expected to communicate in English, while teachers/researchers appeared satisfied to communicate in Spanish). As this group of postgraduate students was at the Frontier between the promoting internationalization policies of the University of Granada and the practical difficulties to fulfill concretely this internationalization, their answers to this test appeared more negative. This study therefore confirmed the paradox of the internationalization in Granada University observable in the field [14], between strong policies and practical limitations, and the need to develop more concrete opportunities to be able to compete with the North American model of massive internationalization of Higher Education.

4.3. About the Implant/biomaterial Group at Chonnam National University

In local clinics in Korea, the demand for dental implant grew intensively from the 90s. However, education in dental implants only started around 10 years ago for dental school students. Most general practitioners learnt dental implant surgery through seminars. Many dentists also went abroad for learning implant dentistry. The situation evolved very quickly in the last 10 years, simultaneously to the growth of the implant dentistry and biomaterial industry in Korea, and large quantities of seminars or courses for teaching implant dentistry are now organized in the country, becoming one of the most active center on the topic in Asia. Actually, Korea is in the top countries by number of implants per inhabitant, close to the statistics of Switzerland.

As dental implant is now a general treatment option in Korea, dental schools are trying to teach implant treatment to students as well as general practitioners. In CNU dental hospital, a special clinic for dental implant patients exists, and periodontics, maxillofacial and oral surgery, and prosthodontics groups are actively treating these patients in this special clinic. All these groups are involved in some way in dental implant and biomaterial education in the school. In the third year of CNU dental school, the subjects named “dental implantology”, “dental implant materials”, and “implant surgery” are listed on the curriculum, and students experience implant surgery and prosthodontics on the models. CNU Dental School was among the first schools to prepare such curriculum in Korea.

In Korea, a specialist system in dentistry started about 10 years ago, but no specialist in dental implant exists: periodontists or oral surgeons do most dental implant surgeries. To pass this specialist board, a certain number of cases must be done during the training in the dental hospital. These postgraduate students and their leaders constitute therefore the main dental implant and biomaterial groups and activities for education of the school. For implant and biomaterial research, CNU received several major national grants, such as the Brain Korea 21 (BK21), the NRF (National Research Foundation of Korea) Medical Research Center (MRC) for Biomineralization disorders and others, to promote this activity in the school. The development of bone regenerative biomaterials and strategies to improve peri-implant tissues has been an important objective of these groups (as a complement to the development of the dental implant industry), promoted at the level of the Ministry. However, the results of these efforts remain quite embryonic at this time. CNU implant and biomaterial groups have a good reputation in South Korea, but are not so visible internationally. As it is frequent in Korean universities, the cultural and language limitations seemed to impact significantly this endeavor.

International interaction is welcome at CNU dental school, as it is in the general policies of the university to promote internationalization of higher education and research to create “global leaders” [15]. Practically speaking, the actual internationalization is not so much animated and there is no real global strategy. The reason of this situation is that the CNU dental implant groups have a lot of patients, cases, materials and well-organized implant surgery procedures to manage, and an efficient internationalization strategy is not perceived as an immediate significant need. This is the paradox of Korean society where there is a wish for internationalization pushed by the authorities (which are expected to be obeyed, as it is a very collectivist Confucianist and pragmatic society with strong power distance)[4], in a very hierarchic and closed Academic environment that refrains this endeavor [15]. The CNU dental groups like to develop links with foreign schools to have global reputation, and the School even recruited a famous foreign professor for research and publication activity. Periodically they open a symposium to promote global relationships. It is also common to see dentists from China and Mongolia coming to CNU to learn dental implant surgery. As Korea has one of the most advanced implant dentistry industry in Asia, many Asian dentists are interested to have experience in Korea, and CNU dental school participates to this effort. Because of the specific cultural environment, this interaction remains, however, very limited in comparison to what could be developed (observations of foreigners), and the development of internationalization of these groups remains much lower than what can be observed in North American Universities.

The results observed in this study highlighted the problematic of the situation in CNU. The FAST scores of the teachers/researchers and post-graduate students were quite high (the postgraduate group had the highest score among the 4 dental schools), proving a real wish to internationalization, engraved in their thinking by the strong hierarchic pressure of the University and Ministry policy (the need to create “global leaders”). Moreover, many Professors/researchers in CNU have spent some years abroad (often in the US) for their PhD or research leave, and were therefore quite opened to the concept of internationalization. On the other hand, the field study highlighted the relative weakness of this internationalization, mostly due to the practical organizational culture of the university and the limitations imposed by the hierarchic organization of the school [16,17]. This kind of discrepancy between the wish to internationalization and the concrete result can be found in the Asian countries with a strong collectivist Confucianist organization [4]. The FAST score of CNU revealed therefore the real potential of the dental implant group, more than its current

practical reality, and is an invitation to push for a more efficient organization in order to improve the international impact of the CNU dental implant groups.

4.4. About the Implant/biomaterial Group at the University of Paris

Even if the field of biomaterials and implantable material research is now a major center of interest worldwide, it is difficult to point out in Paris University a real strategy or a strong well-identified group of research and teaching in this field with a worldwide fame and recognition. Some research groups have a good reputation in some aspects of dental materials (composites, ceramics particularly) and oral biology, but the research in implantable biomaterials and implant dentistry remains limited in both Paris dental schools.

In France, due to historical reasons and the administrative organizational culture, the concept of post-graduate diploma and specialization in periodontology and implant dentistry (as it is found in Anglo-Saxon countries for example) does not exist. However many diplomas have been developed to teach the basic clinical techniques and knowledge in periodontology and/or implant dentistry, mostly in the form of University Diplomas (DU) or as a part of the new Diploma of Specialization in Oral Surgery. In all cases, independently from these major diplomas, most dentists learn implant dentistry through companionship, private courses and their own experience. Dental schools can also deliver various kinds of certificates or attestations. Paris 7 Diderot dental school has a significant tradition of clinical teachings in implant dentistry and related applied biomaterial research, and it is probably the most active dental school in France on this topic; for the Academic year 2014-2015, 5 active clinical University Diplomas covering different aspects of periodontology and implant dentistry can be observed.

Dental Implant Groups at Paris University do not have a global and coherent strategy of internationalization, in the way it is defined in major Anglo-Saxon Universities. These groups are developing links with foreign schools, mostly in the French speaking area (particularly in Africa and the Middle-East), and the university diplomas are in theory opened to all foreigners (with the obligation to speak and understand French). These university diplomas can only receive a very small number of participants (4 to 10 for example) and therefore the quantity of foreigners is very small. Moreover, these groups have limited research and publication activity in English (while they are much more active in French publications and meetings), what is also reducing the opportunities of internationalization. On the other hand, the few students following some leaders of the dental implant groups of Paris University have the opportunity to develop their intercultural skills through the international experience (contacts, international meetings, access to international journal and motivation to read them) associated to their leaders.

The results observed in this study highlighted the problematic of the situation in Paris University. The mean scores of the teachers/researchers were the lowest from the 4 universities, below the medium level (2). However, 2 very different patterns of responders could be observed (through the questionnaire and field research). Some Professors had very opened attitude toward international activities in Academia and these mostly reflected positive outcomes of international collaboration in the questionnaire (higher FAST score), while others (particularly the youngest responders) appeared refractory to internationalization basic understanding and concepts. This result confirmed the field observations gathered during the study and the knowledge about the dimensions of the French national culture (high power distance, high individualism and high uncertainty

avoidance)[4], where many young teachers/researchers, paradoxically, were very French-centered, what did not correspond to the attitudes of the more experienced professors.

On the other hand, the group of postgraduate students showed a much higher FAST score (second, just a bit lower than the Korean one), with a very positive attitude, even with the difficulties in knowledge and comprehension. The score of this group was the highest from all French groups tested in this 3-part study, and it can be directly connected to the leadership of a few strong personalities in the dental implant/biomaterial groups promoting this positive behavior. Therefore, Paris dental schools are good examples of closed systems that are able to open considerably as soon as an adequate leader of internationalization is activated.

4.5. About the Implant/biomaterial Group at University Federico II of Naples

The University of Naples “Federico II” has a significant tradition of clinical teaching in implant dentistry and related applied biomaterial research; there are several research groups on this topic that have significant reputation recognized nationally and internationally. The activity in implant dentistry started about 30 years ago and the results have been presented initially at national congress and private courses. The first international articles were published about 10 years ago. The barrier of the language has been being clearly a significant limitation, even if the situation has been improving slowly in the recent years.

In Italy, Universities can deliver various kinds of certificates or attestations in implant dentistry, but only the post-graduate Diploma of Specialization in Oral Surgery (which is a more general specialization) has a significant legal value. Followers can occasionally attend lectures on specific subject given by foreign teachers invited by the academic director of the diploma. However, the University does not support other significant post-graduate activities and the economical resources remain scarce, as they come only from the very limited subscription fees of the followers. The circumstances described above may explain how, in this highly competitive scientific field, no strong or large group of research has been developed. Professors organizing these diplomas have a key role in the internationalization of the Napolitan University in the field of implant dentistry and related applied biomaterials, but they have often to develop everything by themselves.

Dental Implant Groups at Naples University do not have a global coherent strategy of internationalization as it is defined in major Anglo-Saxon Universities. In recent time, Conventions have been set up with other Mediterranean Universities to promote cultural exchanges. The university diploma, even though opened to foreign students, is not a real vector of internationalization, as the proposed postgraduate activities remain very Italian-centered in the actual globalized and competitive post-graduate education offer. Only few students following some leaders of the dental implant groups of Naples University have the opportunity to develop their intercultural skills through the international experience (contacts, international meetings, access to international journal and motivation to read them) associated to their leaders.

The results observed in this study highlighted the problematic of the situation in the University of Naples. The FAST scores of both teachers/researchers and postgraduate students were positive and very similar. Correlated to the field study, the results showed a visible wish for internationalization within the practical limitations related to the organizational culture of the school. Teachers/researchers and postgraduate students showed higher scores in development of different aspects of intercultural competences in comparison

to the undergraduate students of this dental school. This positive result was mostly related to the impact of active leaders of internationalization in their close environment. However, this impact appeared limited by the practice: very limited mobility, rare foreign colleagues, etc. The absence of global strategy and difficulties of investment from the dental school to promote a more global activity and leadership for the specialized dental implant groups could be seen among reasons. Italy is a society with a high individualism, quite high uncertainty avoidance level and middle pragmatism [4], what can explain easily this very stable attitude, positive but limited. It is a model that needs a better organization of the school to promote a stronger leadership in the field (opinions).

5. Conclusion

Dental Implant/Biomaterial Groups had different ISAIAS FAST scores between the different universities, however, there was a convergence towards higher scores at the postgraduate level and between teachers/researchers. The groups in direct contact with the main identified leaders of internationalization of each dental implant group had in general the highest possibility for development of intercultural competences. However, field studies clearly showed that the Academic environment (organizational culture) and the absence of global strategy was often a limitation for the efforts of these leaders of internationalization.

This convergence may explain why the cooperation within the POSEIDO network is going smoothly, as all key members are active leaders of international academic collaborations with strong intercultural sensitivity. Those are major characteristics for the development of international, interdisciplinary projects in education and research and for the general improvement of the internationalization process of a campus in specialized fields such as implant dentistry and biomaterial research.

As a final conclusion for this series of articles, the ISAIAS FAST questionnaire and the score are interesting instruments of observation, but it should be never forgotten, that the calculation of a score value is not the real objective. First of all because this questionnaire allowed to go in direct contact and discussion with the groups of academic stakeholders and to perform elegantly a field evaluation of internationalization, where concrete information can be obtained. If the final scores and the field observation appeared to be well connected in this study, it is the sign that the questionnaire was well thought and the field study properly managed, but the score alone does not mean anything without a deep evaluation and understanding of the context in which it was calculated. It is a methodology proposed to see closer the dimensions of internationalization of a campus, overcoming limitations of evaluation through mobility statistics. The ISAIAS protocol is first of all a bridge of intercultural communication, and a first step to understand and improve the interfaces between groups of Academic entities.

Disclosure of interests

The authors have no conflict of interest to report.

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Author Contributions

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