



Research article

## The impact of leaders of internationalization in highly specialized academic fields: case study in implant dentistry and biomaterial education and research. Part 2: comparison of dental school strategies in French, Italian, Spanish and Korean universities using the ISAIAS FAST score

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### Abstract

**Background and objectives.** Internationalization is a major evolution in implant dentistry and biomaterial higher 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 second part, the ISAIAS method was applied globally to the dental schools of 4 participant universities, to highlight the impact of their internationalization efforts in this specialized education environment in these Asian and European contexts.

**Materials and Methods.** In each campus, a group of 60 undergraduate dental students from 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 and validation. Results were correlated with previous results, which had been obtained on the general campus of the participant universities.

**Results.** The scores observed in the 4 dental schools presented different patterns, but relatively mild scores (always between 2 and 3), what appeared typical from schools with moderate internationalization policies, i.e. a wish for internationalization which may not be fully fulfilled because of the local organizational culture.

**Discussion and conclusions.** In the second step of this 3-part study, the ISAIAS FAST mixed methodology has been applied to a very specialized academic environment, the dental schools, and allowed highlighting the similarities and the major specificities (Strengths, Weaknesses, Opportunities and Threats) of the internationalization efforts of these specialized dental entities in the more general environment of the University. The final step of this 3-part study requires the evaluation of the FAST scores of more specialized groups of stakeholders in the dental implant and biomaterial research and education groups, in order to evaluate and understand how the local leaderships are impacting the level of internationalization of education and research in this specialized fields.

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

## 1. Introduction

The massive internationalization of higher education and research is a relatively recent major evolution and need of the Academic world [1], as a natural consequence of the globalization of the economy of sciences and knowledge [2]. 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. Dental schools are indeed mostly designed to produce future dental clinicians, and this profession is traditionally quite protected in most countries. Like most medical specialties, the recognition of diploma is often limited between countries, and there is a strong limitation for clinical exercise for clinicians moving between countries. This frequent situation limited in many countries and during many years the development of international education in this specialized field, and the schools of dentistry were often outside of this general movement of internationalization of campuses. This situation evolved only recently and very slowly with the development of diploma recognition in European countries and through specific international agreements (for example France and Quebec). In fact, in most cases, the major part of the internationalization of the dental schools can be found in the post-graduate programs and in the research activities. Therefore the dental schools are interesting indirect markers of the internationalization of a University and of the general mentalities, as they may reflect the general evolution of a campus and of researchers, more than the evolution of the Graduate School itself.

The POSEIDO (Periodontology, Oral Surgery, Esthetic & Implant Dentistry Organization) is an international scientific Consortium of Academic Departments and Scientific societies [3]. The Consortium is mostly gathering dental schools, and is oriented to dental sciences, biomaterials and implant dentistry education and research, even if it also offers a trans-disciplinary approach in many topics (biomaterials, orthopedics, cancer, etc) [4-6]. As a global inter-academic experience, the POSEIDO community is facing permanently the wide cultural differences between the various stakeholders of the Academic environment. The POSEIDO community therefore funded the ISAIAS program (Intercultural Sensitivity Academic Index & Advanced Standards), in order to evaluate the degree of

internationalization and intercultural sensitivity of the community members worldwide, and to develop new strategies and standards to promote smoother and more efficient global collaborations in the field of implant dentistry and biomaterial research and education [7,8].

As it was shown in the first article of this series, the first project of the ISAIAS program was the development of a simple tool of evaluation of the level of internationalization of a university, school or department through the assessment of the intercultural competences of its academic stakeholders [9]. It was termed the ISAIAS Fast Assessment Screening Test (FAST) Score. 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, based on the concepts and key parameters isolated by Deardorff [1,10,11]. This questionnaire was previously developed, statistically tested and validated between the University of Granada and the Oslo and Akershus University College [12].

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. The Universities serving as examples in this first study were selected to highlight the differences between a specific Asian model (the Korean model in this case)[13] with 3 different versions of the European environment. In the first article 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 developed by Deardorff [10].

In this second article, the ISAIAS FAST method was used for the first time in a limited specialized environment, at the scale of the dental schools participating to this study. The first objectives were to evaluate the level of development of the intercultural competences of the dental students during their dental studies, and how the local strategies of internationalization of higher education and research may have influenced this result. The questionnaire was used for the assessment of 4 different dental schools (1 Korean, 3 Europeans) with 4 different cultural and well-identified backgrounds, history and strategy. Therefore, a secondary objective was to check if in this specialized dental environment, the ISAIAS FAST score corresponds to the typical profile, easily observable and well documented of these 4 universities.

## 2. Materials and Methods

### 2.1. General methodology

The ISAIAS FAST questionnaire was proposed to 60 undergraduate and master students in the dental school of each university. The test sample is 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 Descartes (P5, 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). Dental students were always in the last years of their studies, and were therefore almost dental professionals already. 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 “undergraduate” has always to be understood (in this study) as dental students under formation to become a general dentist. 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 questionnaire 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.) - had 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 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 Paris 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 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.

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 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 participant school, the mean value of the global ISAIAS FAST score and of the scores of each dimension of intercultural competences. Results obtained in the groups of the undergraduate students are presented in the **Table**.

The scores observed in the 3 universities presented different patterns, but relatively mild scores (always between 2 and 3), what appeared typical from dental schools with moderate internationalization policies, i.e. a wish for internationalization which may not be fully fulfilled because of the local organizational culture.

The scores observed for the students in the School of Dentistry at the University of Granada were a little bit higher than on the general campus, and among the 2 highest scores (with CNU) in the 4 participant dental schools. It appeared as a marker of the particularly strong policy and enthusiasm for internationalization of this university.

The scores observed for the students in the Faculty of Odontology at the University of Paris were significantly lower than on the general campus of Paris-Sorbonne, and also the lowest among the participating dental schools, highlighting a significant isolation of this

group of future dental professionals from the internationalization efforts, particularly in comparison with students from the general campus.

The scores observed for the students in the Department of Oral Surgery at University Federico II of Naples were a little bit lower than in the UGR and CNU, but still in the same range, and reflected this intermediate situation of relative enthusiasm for internationalization within the limitations of the local organizational culture. The score of the general campus could not be evaluated extensively in this work.

The scores observed for the students in the School of Dentistry at Chonnam National University were much higher than on the general campus and were among the 2 highest scores (with UGR) in the 4 participant dental schools. This result was often associated with the social status of the future dental professionals in Korea, which were often a bit older and more interested in international experiences than the other categories of students.

The scores appeared coherent with the field observations in all aspects. Scores and field studies were integrated in details in the discussion section.

<b>Scores of Undergraduate Dental Students in the Dental School</b>					
<b>University (Dental School)</b>	<b>Dimension (D) scores</b>				<b>Total FAST score</b>
	<b>1D. Attitudes</b>	<b>2D. Knowledge and Comprehension</b>	<b>3D. Skills</b>	<b>4D. Desire internal outcomes</b>	
<b>University of Granada (Spain)</b>	2.76	2.48	2.65	2.56	2.612
<b>Paris University (France)</b>	2.27	2.088	2.187	2.03	2.141
<b>University Federico 2 of Naples (Italy)</b>	2.6	2.4	2.4	2.5	2.473
<b>Chonnam National University (South Korea)</b>	2.8	2.6	2.75	2.35	2.62

**Table. Intercultural dimensions and total ISAIAS FAST scores of a group of dental students from 4 different Dental Schools.**



## 4. Discussion

### 4.1. General specificities of the dental community

In this study, all dental students from the 4 participant universities shared a very strong common point: all of them were studying dentistry. The methods of teaching, the practical perceptions and the clinical sensibility (in terms of esthetic and functional considerations for example) may be different between countries, but all dentists have a lot in common: most techniques and materials, daily life problems of a practice, relationships with pain and patient complaints for example. There is a joke about dentists that we found in most countries: it is better to not have several dentists in a family, because when they meet, they cannot impeach themselves to speak only about teeth. This is a population which appears, at first look, easier to internationalize, as the professional similarities are very strong worldwide, even if the social environment of the profession is not the same everywhere. Finally, dentists are in general a highly educated population, as there is often many selective examinations to enter in the dental schools, leading to a quite high socio-economic population able (and wishing) to travel more and therefore to meet other cultures.

Therefore, even if dental schools may not appear very internationalized, due to the limited recognition of the clinical diplomas between countries, the population of dental students is in general more curious, opened and connected to the international community than other categories of students on the campus. This could be observed in 2 universities that were analyzed in the first part of this series of 3 articles (Granada and Chonnam), where the scores of dentists were higher than the scores of the other general students on the campus. However, surprisingly, the contrary situation was observed in Paris University. As a quite homogeneous profession and profile, whatever the nationality, we could expect that all dental students taken into consideration in this study could have the same kind of high scores. However, we observed very different patterns depending on the school, and it can be interpreted as the impact of the national and organizational culture of each country and university on the dental students [14,15]. The exact profile of the groups of students of each school must be investigated and understood in the context of their respective university and country.

### 4.2. About the School of Dentistry at the University of Granada

The history and policies of the University of Granada general campus were already investigated and described in the first part of this series of 3 articles, and were taken into consideration when analyzing the functioning and results of the school of dentistry.

Dentistry is a relative new independent discipline in Spain. The oldest dental schools in Spain were founded recently, in 1986, as a consequence of the integration of Spain in the European Community. Previously, dental curriculum was supported in Schools of Stomatology, where MD degree was demanded to apply in. University of Granada implemented Dentistry curriculum as the first School of Dentistry in Spain, simultaneously to University Complutense in Madrid and University of Barcelona. The number of students selected per year is inferior to 80. The selection of students is very restricted, and limited through “numerus clausus” procedure, selecting traditionally one of the best groups of students, because it is quite demanded by them. Research activity is intense in this Dental School, occupying the first position in the National ranking in the last 5 years. The dental studies in Spain are a minimum of 5 years. In Spanish public Universities, the fees are not expensive (some minor administrative fees) and based on a strong entrance concourse

selection only. The first two years are dedicated mainly to Basic Sciences related to Medicine and Health. The 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> years are specific dedicated to Dentistry, mostly dedicated to clinical work.

School of Dentistry at the University of Granada, offers a limited number of positions to foreign pre-graduate students, approximately 5 % of the total applications. These positions are restricted and only can be applied for international students. These students traditionally proceed from North Africa or South America. The dental curriculum is offered exclusively in Spanish, although professors can choose to develop it in English. However in the most advances years, mainly 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup>, an intense program of exchange is offered to the students. Considering undergraduate students, besides to the Erasmus program (with prestigious European Universities), special programs are running with some countries from East Europe, Balkan countries, Mexico, South America, and others are under development with North American Universities. Regarding postgraduate students, the School has established strong relationships with foreign Universities, mainly with Spanish speaking countries, to receive students from these countries, to develop research collaboration and to exchange postgraduate students for clinical or PhD programs.

In spite of the language limitation, professors are quite demanded to establish new collaborations with foreign Universities, and some of these professors begin to develop sabbatical years in foreign contexts, something new in the strategic demanded policies of the University of Granada. In addition, the number of Granadian students leaving Spain to develop international postgraduate studies, are increasing spectacularly in the last years, mainly to North American Universities. The School of Dentistry is therefore trying to follow the strong internationalization policy of the UGR in all aspects, and this appears to promote the development of a new generation of leaders of internationalization.

All these characteristics were observed during the collection of data and were highlighted by the components of the ISALIAS FAST score. The scores observed for the dental students were among the highest scores observed in the participant dental schools, and the field observation confirmed the significant enthusiasm for international relations developed in the UGR through the many programs of exchanges. Besides this very positive attitude and policy, the national and organizational culture may explained why the scores remained far below 3 [2], and that student exchange (limited in dentistry) appeared to not be enough to promote a deeper intensive development of intercultural competences.

#### **4.3. About the Faculty of Odontology at the University of Paris**

The history and policies of the University of Paris general campus were already investigated and described in the first part of this series of 3 articles, and were taken into consideration when analyzing the functioning and results of the school of dentistry.

The 2 Paris Dental schools were historically the 2 largest dental schools in France, recruiting a total of more than 200 students per undergraduate year. The dental studies in France are a minimum of 6 years. They are free (except some minor administrative fees) and based on a strong entrance concourse selection only. The first year is a national very selective medical concourse with a strict “*numerus clausus*”. The second and third years are specific to dentistry, but without clinical activity. The 4<sup>th</sup> and 5<sup>th</sup> years are mostly dedicated to clinical work. The 6<sup>th</sup> year is dedicated to clinical work, clinical experience outside of the school and preparation of the thesis for the Doctorate in Dental Surgery (DDS). The 2 Paris dental schools are affiliated to 2 different universities: the Faculty of Odontology of Paris 5 René Descartes University, and the Faculty of Odontology of Paris 7 Denis Diderot University. The



2 universities have very similar curriculum and management, and many efforts have been done in the last years to merge them; following the movement of groupings in Paris Universities, the final merging of the 2 schools within one major Paris Dental School is now just a question of time.

The French national diploma of Doctor in Dental Surgery is very selective and restricted (national *concours* with a *numerus clausus*). Moreover, as the education in the French university is almost only done in French, it is therefore attracting in priority students from the French speaking countries. Therefore, the recruitment of foreign students - including Europeans - that may be interested to join these dental schools is very limited (mostly those living in France since a significant time), even if the University and city themselves are very attractive. Non-European foreign students who want to work in the European Union in general try to get a European diploma through schools in countries with more open regulations. Moreover, the national regulations of *concours* and recruitment of the faculty members being still very restricted, almost all professors and teachers are French nationals, and a majority followed all their curriculum in the school where they are teaching now.

Most of the internationalization efforts are placed in program of exchanges such as Erasmus. French students are going in priority in other North countries (North America or Nordic countries), and foreigners coming are mostly Europeans. The number of exchanges remains however very limited in comparison to the wide number of nationalities that can be found in a US campus for example. It is also considered that all foreign students have to adapt to the local mentality and patterns, and many aspects of the Anglo-Saxon approach of internationalization of higher education and research are not even considered.

All these characteristics were clearly observed during the collection of data and were highlighted by the components of the ISAIAS FAST score. The scores in the Paris dental school were clearly the lowest among the 4 participant dental schools. The scores were also clearly lower than in the general campus of Paris-Sorbonne University. It appeared as an anomaly, as dental students finishing their studies in France are supposed to be future professionals with a relatively high socio-economic level, as it was observed in the dental schools in other countries. This result could be explained by the characteristics of the Sorbonne general campus, oriented to Humanities (particularly the teaching of languages), presenting a more important population of international students, and therefore showing higher scores of intercultural development. The collection of the questionnaires in the School of Dentistry at Paris University was clearly the most difficult from all the groups. The concept of intercultural competences was sometimes not understood. This result mostly highlighted the significant isolation of this group of future dental professionals from the international communities. This homogeneous score confirmed the field observations.

#### 4.4. About the Department of Oral Surgery at University Federico II of Naples

The University of Naples “Federico II” was established in 1224 by Frederick II Hohenstaufen, King of Sicily and Holy Roman Emperor. It is the first publicly funded university in Europe. Nowadays the University offers courses and research in most academic disciplines and enroll a considerable number of students (more than 96,000) per year. The University, formerly organised in Faculties, has revised its organizational structure in order to address the complexity of the interdisciplinary relationships of the academic disciplines. The *Ateneo* is currently composed of 4 huge Schools/Faculties, each of which operates as

semi-independent body for the teaching and research management. The Department of Oral Surgery is therefore a Dental Section of the Faculty of Medicine. Internationalization is one of the important lines of development in the policy of the Federico II University, as this University wants to be recognized as a global institution. To improve its visibility, reputation and attractiveness for international students and other international and national stakeholders, the University is mostly developing international cooperation by promoting and supporting interactions with other universities and research centres throughout the world (through partnerships and conventions). Moreover, the Bologna process supporting international mobilities has been fully implemented, and Unina is exchanging significant numbers of students each year (through Erasmus program as well as other academic exchange programs).

The dental studies in Italy are a minimum of 6 years. They are free and based on a strong entrance concourse selection only. The course consists of the preparation with basic knowledge in the disciplines of biology and general medicine as well as general education, in the first 2 years. The 3th and 4th years are specific to dentistry with some clinical activity; the 5th and the 6th years are dedicated to clinical work. At the end of the course students can subscribe to specialization schools such as Orthodontics or Oral Surgery, or Master and Postgraduate Courses to deepen the preparation in all areas of dentistry.

The Italian national diploma of Doctor in Dentistry is very selective and requires to pass the national concourse of the first dental year. Each year there are some reserved seats for non european students, in order to assure a limited number of foreigners students. Traditionally, Italian universities courses are Italian language based only and is therefore mainly attracting Italian speaking students. Moreover, the national regulations of concourses and recruitment of the faculty members being still very restricting, almost all professors and teachers are Italian-born citizens and the majority of them followed their curriculum in the school where they currently teach. Most of the internationalization efforts are placed in programs of exchanges such as Erasmus. The internationalization is essentially the result of the capacities/contacts of each individual and group, and is therefore very dependent on the presence of strong personalities serving as leaders of internationalization. Only few departments support actively this opportunity after postgraduate activity with the development of international meetings. In the Dental School of “Federico II”, the access to many international journals is provided, but it is important to notice that there is no global and massive strategy of internationalization as developed in Anglo-Saxon Universities.

All these characteristics were clearly observed during the collection of data and were highlighted by the components of the ISAIAS FAST score. With an intermediate score, this group of students appeared quite motivated for internationalization, with an easy-going attitude and a wish to travel and exchange. But the group appeared also understanding very well the limitation of their environment in this process of internationalization. This very homogeneous and mild score confirmed the field observations.

#### **4.5. About the School of Dentistry at Chonnam National University**

The history and policies of the Chonnam National University general campus were already investigated and described in the first part of this series of 3 articles, and were taken into consideration when analyzing the functioning and results of the school of dentistry.

The CNU School of Dentistry is one of the 11 dental schools in Korea, recruiting 70 students every year. The school is perceived as the best in Honam area of Korea, and most of local general practitioners refer patients to the CNU dental hospital. As CNU dental school is

a graduate school, students have various academic backgrounds and practical abilities before entering the school. Students are tested by a national exam for dental school admission. The dental studies in the CNU Dental School are paid and are a minimum of 4 years. Students study basic dental sciences during the first year. From the second year, students study clinical knowledge with clinical training. In the last year of study, students actively experience clinical practice in the CNU dental hospital. In the Korean environment, CNU School of Dentistry is well known and appreciated to offer students one of the best environments to experience clinical work including orthodontic and surgical cases before they graduate.

Foreign students are very rare in the dental school, as there is a national admission exam for dental school in Korean and all classes of these studies are done in Korean. However, the CNU dental school is trying to promote its internationalization through various centralized strategies, particularly at the post-graduate and research level. There are some basic research graduate students from abroad (mostly from the Asian area), who are not dental students. Some graduated foreign dentists come also to this school for clinical training. CNU Professors make efforts to have lectures and voluntary service in other countries (particularly in some Asian countries), in order to give a positive publicity to the CNU dental school. Also, an international symposium is periodically held in the school so that professors and students have interaction with some renowned foreign Scholars. Moreover, there used to be a foreign professor (not ethnically Korean) in CNU dental school, what was never seen in any other Korean dental schools. Finally, each year, students are sent in foreign universities for field study, and in rare cases, PhD students are sent abroad to prepare a double degree. Therefore, from a Korean customs standpoint, CNU could be considered as an active dental school to promote internationalization, to fulfill the requirements of internationalization promoted by the Korean Ministry. However, the cultural and language barriers remain major obstacles for the development of more initiatives. Despite these efforts, CNU remains completely centered on a strict collectivist and hierarchic Confucian Korean organizational culture, what blocks the development of personal initiative of real autonomous leaders of internationalization.

All these characteristics have been clearly observed during the collection of data and were clearly highlighted by the components of the ISAIAS FAST score. This group of students showed the highest total score among the participant universities, as a natural consequence of the general hierarchic policy of CNU and the Korean Ministry towards internationalization [13,16]. This group also showed higher scores than other students on the general campus, what appeared as a marker of the socio-economic status of the future dental professionals. In Korean society, the possibility to travel abroad and to be connected to foreigners is perceived very positively in a social hierarchy, and therefore dental students have even more reasons and opportunities to develop their intercultural competences, even if the dental school itself does not offer so many opportunities. Even with this relatively positive result, the field observations confirmed the significant difficulties of communication of the students. The national and organizational culture of CNU (hierarchic Confucian culture, very marked in Korea) can explain why the scores remained far below 3, despite the positive attitude of the dental students [13,17]. More efforts and new strategies will be needed to promote a deeper and more efficient development of intercultural competences.

## 5. Conclusion

In this second article, the ISAIAS FAST mixed methodology has been applied to a very specialized academic environment, the dental schools. The FAST scores were calculated in groups of dental students of these 4 universities, correlated with field observations, and the results corresponded to the general profiles of internationalization of these institutions. This second step of the study allowed highlighting the similarities and the major specificities of these specialized dental entities in the more general environment of the University. The final step of this 3-part study was the evaluation of the FAST scores of more specialized groups of stakeholders in the dental implant and biomaterial research and education groups, in order to evaluate and understand how the local leaderships are impacting the level of internationalization of education and research in this specialized fields, and how to improve the interactions of these entities with international partners.

### Disclosure of interests

The authors have no conflict of interest to report.

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### Author Contributions

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