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Differentiating factors in ARA Groups (Groups of High Academic Achievement) and its effects on the definition of university strategies

DOCTORAL THESIS

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ABSTRACT

This PhD thesis, which is presented in the mode of published articles, explores the differentiating factors of a High Academic Achievement Program at a public technological university in Spain and how they can affect the definition of the university strategies. The Universitat Politècnica de València (UPV), launched in the 2010-11 academic year the High Academic Achievement Groups (“Grupos de Alto Rendimiento Académico”, from now on ARA Groups), characterized by a good number of courses taught using English as a medium of instruction, a small number of students in the class, and highly qualified teachers. English taught courses are a global phenomenon, associated to improved English language and internationalization skills, but it raises concerns about learning outcomes and equity (Dearden, 2014). The purpose of this study was to assess the first promotion (2010-2014) of this program at the five university bachelor degrees of the UPV that offered it. We wanted to analyze if this action has had any impact on a set of variables related to academic outcomes, international exchange programs, and business internships of the participating students in comparison with the rest of students of these degrees and hence, on their employability upon graduation. The sample consisted in the total of 3,543 students of the five degrees offering this innovation, of which 560 belonged to the ARA Groups.

The first article “Effects of business internships on students, employers, and higher education institutions: a systematic review” (Sanahuja Vélez, G., and Ribes Giner, G., 2015) was published by the *Journal of Employment Counselling* on September 2015. Its objective was providing a systematic review of the literature on the impact of internships completed by university students. This research also aimed to analyze variables that can affect outcomes and satisfaction in the internship experience. Fifty-seven studies were included and examined. The effects and variables identified were listed and classified. The findings of this review supported the overall positive effects of business internships and confirm that they are a win-win situation for the main three stakeholders: students, employers, and higher education institutions.

The second publication consists of a Book Chapter published by Springer International Publishing on January 2017: “Intrapreneuring within a higher education institution: Introducing virtual business internships” (Sanahuja Vélez, G., Ribes Giner, G., Moya Clemente, I., 2017) in *Entrepreneurial Universities* (Peris-Ortiz, M., Alonso Gómez, J., Merigó Lindahl, J. M., and Rueda-Armengot, C., Eds.). We had previously presented a conference paper at the *XXX AEDEM International Meeting*, in Las Palmas de Gran Canarias (Spain), in June 2016: “Las nuevas tecnologías como valor añadido en la innovación de las prácticas universitarias en empresas” (Moya Clemente, I., Ribes Giner, G., Sanahuja Vélez, G., 2016), which caught the attention of

the editors of the above mentioned book and the authors were asked to write the book chapter. As a result of our previous research (Sanahuja Vélez, G., Ribes Giner, 2015), which recognized positive effects on the main three stakeholders of the business internships, we acknowledged that some authors had identified further effects in virtual internships and when applying new technologies to the internships experience (Chu et al., 2010; Franks and Oliver, 2012; McEachern, 2011), particularly referred to enhanced computer skills and learning outcomes. We therefore explored the scenario at the Universitat Politècnica de València and found out that, in the opinion of the authors it was perfect to put into practice virtual internships. As the existing conditions provided an opportunity for innovation and growth, especially by combining internationalization with virtualization of traineeships, we acted like agents of change, taking part into a commission which implemented a project of virtual internships which is a reality today.

The third publication is a “Systematic review of English Medium of Instruction (EMI) in higher education institutions. The case of a Business School”, presented as a conference at the *2nd Seminar on Learning Internationalization: English Medium of Instruction (EMI)* of the Centro de Lenguas of the Universitat Politècnica de València (March 30 and 31st, 2017) and which is currently being reviewed for its publication in its international journal. English as a medium of instruction (EMI) is a global tendency in a growing number of higher education institutions of non-English-speaking countries (Coleman, 2006; Hu and Lei, 2013). EMI is used by universities as an internationalization and marketing tool (Byun et al., 2001; Doiz et al., 2011; Hou et al. 2012). Nonetheless, various concerns have been raised, such as the possible difficulties associated to the language proficiency of students and professors, and its impact on the academic outcomes (Erling and Hilgendorf, 2006). The aim of this research was double. Firstly, we aimed at systematically reviewing the scientific literature published during the past ten years about EMI in higher education institutions. Secondly, we wanted to assess an EMI group in the Bachelor of Business of the Universitat Politècnica de València (Spain), included in a High Academic Achievement Program. For the systematic review, we examined a total of 230 studies and we included 51. Findings highlighted that EMI increased the knowledge of the English language of students and most authors concluded that learning was not hindered. As for our empirical study, we used a quantitative approach including all 541 students of the Bachelor in Business of our Business School from 2010 to 2014. The results yield that learning was not hindered and that most variables related to international exchanges were significantly higher.

The fourth research work is the article “Enhancing student internationalization and employability in a Business School”, which is presently being given full consideration for publication at the *Journal of Business Management and Business Economics*. Internationalization and employability of students are high on the agenda of higher education institutions. The

Universitat Politècnica de València launched in the 2010-11 academic year the High Academic Achievement Group for the bachelor degree in Business, which is characterized by a large number of credits taught in English. The purpose of this research was analyzing if this action had some impact on the students' participation into international programs. 541 students of the degree in Business Administration and Management during the period 2010-2014 were included in this study, 107 of them from this new group. We used a quantitative approach with descriptive and bivariate statistical analysis to compare the behavior of a set of variables related to international exchanges. The findings yield that most variables were significantly higher in the case of the English-taught students, participating about four times more into international exchanges. Previous research evidenced that employability is boosted by international experience in a globalized context (Berrell et al., 2005; Bird, 2008; Cranmer, 2006; Crossman and Clarke, 2010), through the intercultural skills development, including the knowledge of foreign languages, which are highly demanded by employers. Our results suggest that business schools could use English as Medium of Instruction to enhance their students' participation into international programs, their cross-cultural skills, and hence their employability.

The fifth article presents the core results of the empirical part of this research work and it is entitled: "Introducing a High Academic Achievement Program in a Technological University as a Social Innovation Mechanism to Enhance Graduates' Employability". This paper is currently given full consideration for publication at the journal *Technovation*. This paper explores the role of a High Academic Achievement Program (ARA Groups) in a public Spanish technological university, as a social innovation tool, aiming at creating value in terms of employability. The Universitat Politècnica de València (UPV) launched in the 2010-11 academic year the ARA Groups, characterized by a good number of courses taught in English, a small number of students in the class, and highly qualified teachers. The purpose of this research was to study if this program had any impact on the behavior of a set of variables which are considered predictors of enhanced employability, according to previous research: (a) academic performance (Baird, 1985; Baker, 2008; Campion, 1978; Campion and Brown, 1984; Cole et al., 2003; Devaraj and Babu, 2004; Ferris, 1982; Gokuladas, 2011; Hassanbeigi et al., 2011; Imose and Barber, 2015; Johansen, 2014; Kuncel et al., 2004; Kuncel et al., 2010; Roth and Bobko, 2000; Ruetzler et al., 2011; Rynes et al., 1997; Schick and Kunnecke, 1982; Thoms et al., 1999); (b) participation into exchange programs (Berrell et al., 2005; Bird, 2008; Cranmer, 2006; Crossman and Clarke, 2010), and (c) participation into business internships (Callanan and Benzing, 2004; Cook et al., 2004; Divine et al., 2007; Gault et al., 2000; Gault et al., 2010; Knouse et al., 1999; Knouse and Fontenot, 2008; Mihail, 2006; Taylor, 1988; Weible and McClure, 2011). A total of 3,543 students enrolled in the five degrees offering this innovation during the period 2010-2014, mainly engineering studies, were included in this quantitative empirical research. Findings concluded that participating

students performed higher academically and engaged more into international exchanges. The proportion of students doing business internships did not present significant differences. Our results anticipate that these graduates will have a superior reception within the labor market. This new program allows enhancing learners' capacities and it could be used as a social innovation mechanism to enhance employability of graduates equitably.

The overall conclusions of our research allow us to conclude that, from the academic point of view, the objectives of the High Academic Achievement Groups of the UPV were met, as results show that academic performance was enhanced. Our results also show that participation into exchange programs, at the School of Business Administration and Management and in the UPV as a whole, was almost four times higher in the ARA groups. Having in mind that better grades and international experience are directly linked to future employability and mobility of graduates, it is expected that these graduates will have a superior reception in the labor market. Participation into business internships was on the whole not significantly different, showing high rates of participation in both groups, which is also a good predictor of employability, as seen in our systematic review about effects of business internships. Additionally, we developed and implemented the idea of virtual internships at the UPV which will allow a whole world of new possibilities and opportunities of growth within the field of business internships, including international traineeships. Lastly, as English as a medium of Instruction (EMI) is associated with improved English skills of students, it is expected that our ARA graduates will show an improved English language level, upon finalization of their studies, which is highly attractive to employers. EMI also makes the institution more attractive to international students and allows establishing exchange partnerships with prestigious foreign institutions. As a result of our empirical research we can highlight the differentiating factors of the ARA Groups, which are: a higher academic performance of students, an enhanced participation into international programs, and an even participation into business internships, all leading to enhanced employability and mobility. We suggest that higher education institutions would be wise to have in mind these facts when defining future university strategies and to promote the High Academic Achievement groups as a valuable tool for increasing internationalization and competitiveness of the institution and the employability of students.

RESUMEN

Esta tesis doctoral, que se presenta en el formato de artículos publicados, explora los factores diferenciadores de un Programa de Alto Rendimiento Académico en una universidad politécnica pública en España y cómo pueden afectar al diseño de estrategias universitarias. La Universitat Politècnica de València (UPV) implementó en el curso 2010-11 los Grupos de Alto Rendimiento Académico (Grupos ARA), caracterizados por un alto número de asignaturas impartidas en inglés, un número pequeño de estudiantes por clase y profesores altamente calificados. El uso del inglés como medio de instrucción (EMI) es un fenómeno global, asociado a la mejora de los conocimientos del idioma inglés y de las habilidades interculturales, pero plantea algunas preocupaciones sobre los resultados sobre el aprendizaje y la equidad (Dearden, 2014). El objetivo de este estudio fue evaluar la primera promoción (2010-2014) de este programa en los cinco títulos de grado universitario de la UPV en los que se ofertaron los Grupos ARA. Queríamos analizar si esta acción ha tenido algún impacto en distintas variables relacionadas con los resultados académicos, los programas de intercambio internacional y las prácticas en empresas en los alumnos participantes, en comparación con el resto de alumnos y en consecuencia, en su empleabilidad al graduarse. La muestra consistió en un total de 3.543 estudiantes, de los cuales 560 estaban matriculados en los grupos ARA y el resto, 2.983, en los grupos regulares.

El primer artículo, titulado "Efectos de las prácticas en empresas en estudiantes, empresas e instituciones de educación superior: una revisión sistemática" (Sanahuja Vélez, G., Ribes Giner, G.), fue publicado por el *Journal of Employment Counseling* en septiembre de 2015. Su objetivo era llevar a cabo una revisión sistemática de la literatura sobre el impacto de prácticas en empresas llevadas a cabo por los estudiantes universitarios. Esta investigación también tuvo como objetivo analizar aquellas variables que pueden afectar a los resultados y a la satisfacción en la experiencia de la práctica en empresa. Se incluyeron y examinaron 57 estudios. Los efectos y variables encontrados fueron identificados y clasificados. Los resultados de esta revisión aseveran los efectos positivos globales de las prácticas empresariales y confirman que son una situación beneficiosa para las principales partes interesadas: estudiantes, empleadores e instituciones de educación superior.

La segunda publicación consta de un capítulo de libro publicado por Springer International Publishing en enero de 2017: "Intraemprendedurismo dentro de una institución de educación superior: las prácticas en empresa virtuales" en "Entrepreneurial Universities" (Peris-Ortiz, M., Alonso Gómez, J., Merigó Lindahl, J. M., and Rueda-Armengot, C., Eds.). Con anterioridad presentamos una comunicación al *Congreso Internacional XXX AEDEM*

International Meeting en Las Palmas de Gran Canaria, en junio de 2016: “Las nuevas tecnologías como valor añadido en la innovación de las prácticas universitarias en empresas” (Moya Clemente, I., Ribes Giner, G., Sanahuja Vélez, G., 2016), que llamó la atención de los editores del libro arriba mencionado, quiénes nos solicitaron nuestra participación en el mismo con la aportación de un capítulo. Como resultado de nuestra investigación anterior (Sanahuja Vélez, G., Ribes Giner, G., 2015), que identificó efectos positivos en las tres principales partes interesadas de las prácticas en empresas, nos dimos cuenta de que algunos autores habían descrito efectos adicionales en las prácticas virtuales y al aplicar nuevas tecnologías a la experiencia de la práctica, en especial, mejoras en las habilidades informáticas y de los resultados del aprendizaje (Chu et al., 2010; Franks and Oliver, 2012; McEachern, 2011). Por lo tanto, exploramos el escenario en la Universitat Politècnica de València y descubrimos que, en opinión de los autores, era perfecto para poner en marcha las prácticas en empresa virtuales. Dado que las condiciones existentes ofrecían una oportunidad de innovación y crecimiento, especialmente combinando la internacionalización con la virtualización de prácticas, actuamos como agentes de cambio, participando en una comisión que implementó un proyecto de prácticas en empresa virtuales que hoy en día es una realidad.

La tercera publicación es una "Revisión sistemática del inglés como medio de instrucción (EMI) en instituciones de educación superior. El caso de una Facultad de Administración y Dirección de Empresas", presentada como Conferencia en el 2º *Seminario de Internacionalización del Aprendizaje: Inglés como Medio de Instrucción (EMI)* del Centro de Lenguas de la Universitat Politècnica de València (30 y 31 de marzo de 2017) y actualmente en revisión para su publicación en la correspondiente revista internacional. El inglés como medio de instrucción (EMI) es una tendencia global en un número creciente de instituciones de educación superior de países donde el inglés no es la lengua principal (Coleman, 2006; Hu and Lei, 2013). EMI es utilizado por las universidades como una herramienta de internacionalización y marketing (Byun et Al., 2001; Doiz, et al., 2011; Hou et al. 2012). Sin embargo, se han planteado varias preocupaciones, como las posibles dificultades asociadas a la competencia lingüística de los estudiantes y profesores, y su impacto en los resultados académicos (Erling and Hilgendorf, 2006). El objetivo de esta investigación fue doble. En primer lugar, nuestro objetivo era revisar sistemáticamente la literatura científica publicada durante los últimos diez años acerca del EMI en las instituciones de educación superior. En segundo lugar, queríamos evaluar un grupo parcialmente impartido en inglés en el Grado de Administración y Dirección de Empresas de la Universitat Politècnica de València (España), incluido en un programa de Alto Rendimiento Académico (Grupos ARA). Para la revisión sistemática, examinamos un total de 230 estudios e incluimos 51. Los hallazgos destacan que el EMI aumentó el conocimiento de la lengua inglesa de los estudiantes y la mayoría de los autores concluyó que el aprendizaje no se veía perjudicado.

En cuanto a nuestro estudio empírico, utilizamos un enfoque cuantitativo que incluía a los 541 estudiantes del Grado de Administración y Dirección de Empresas de 2010 a 2014. Los resultados arrojan que el aprendizaje no se vio negativamente afectado y que la mayoría de las variables asociadas a los intercambios internacionales tuvieron valores significativamente mayores.

El cuarto trabajo de investigación es el artículo "Promocionar la internacionalización de los estudiantes y la empleabilidad en una escuela de negocios" (Sanahuja Vélez, G., Ribes Giner, G., Moya Clemente, I.), que actualmente se considera plenamente para su publicación en el *Journal of Business Management y Business Economics*. La internacionalización y la empleabilidad de los estudiantes son prioritarias para las instituciones de educación superior. La Universitat Politècnica de València lanzó en el curso 2010-11 el Grupo de Alto Rendimiento Académico en el Grado de Administración y Dirección de Empresas, que se caracteriza por un gran número de créditos impartidos en inglés. El propósito de esta investigación fue analizar si esta acción tuvo algún impacto en la participación de los estudiantes en los programas internacionales. 541 estudiantes del grado en Administración y Dirección de Empresas durante el período 2010-2014 fueron incluidos en este estudio, 107 de ellos de este nuevo grupo. Se utilizó un enfoque cuantitativo con análisis estadístico descriptivo y bivalente para comparar el comportamiento de un conjunto de variables relacionadas con los intercambios internacionales. Los resultados arrojan que la mayoría de las variables fueron significativamente más altas en el caso de los estudiantes en inglés, participando cuatro veces más en los intercambios internacionales. Investigaciones previas pusieron de manifiesto que la empleabilidad es impulsada por la experiencia internacional en un contexto globalizado, a través del desarrollo de competencias interculturales, incluido el conocimiento de lenguas extranjeras, que son muy demandadas por los empleadores (Berrell et al., 2005; Bird, 2008; Cranmer, 2006; Crossman and Clarke, 2010). Nuestros resultados sugieren que las escuelas de negocios podrían utilizar el inglés como medio de instrucción para mejorar la participación de sus estudiantes en programas internacionales, sus habilidades interculturales y, por lo tanto, su empleabilidad.

El quinto artículo presenta los principales resultados de la parte empírica de este trabajo de investigación y se titula: "Introducción de un Programa de Alto Rendimiento Académico en una Universidad Tecnológica como Mecanismo de Innovación Social para Mejorar la Empleabilidad de los Graduados" (Sanahuja Vélez, G., Ribes Giner, G., Moya Clemente, I.). Este artículo ha sido enviado a la revista internacional *Technovation* y en la actualidad está siendo revisado para su publicación. En este artículo se explora el papel de un programa de Alto Rendimiento Académico (Grupos ARA) en una universidad tecnológica pública española, como mecanismo de innovación social, al objeto de crear valor añadido en términos de empleabilidad. La Universitat Politècnica de València (UPV) puso en marcha en el curso académico 2010-2011,

los Grupos ARA, caracterizados por un gran número de asignaturas impartidas en inglés, un número pequeño de alumnos por clase y profesores altamente cualificados. El objetivo de esta investigación fue estudiar si este programa tuvo algún impacto en el comportamiento de un grupo de variables que están consideradas como predictores de una mejor empleabilidad, de acuerdo con la literatura científica previa: (a) el rendimiento académico (Baird, 1985, Baker, 2008; Campion, 1978, Campion and Brown, 1984; Cole et al., 2003; Devaraj and Babu, 2004; Ferris, 1982; Gokuladas, 2011; Hassanbeigi et al., 2011; Imose and Barber, 2015; Johansen, 2014; Kuncel et al., 2004; Kuncel et al., 2010; Roth and Bobko, 2000; Ruetzler et al., 2011; Rynes et al., 1997; Schick and Kunnecke, 1982; Thoms et al., 1999); (b) la participación en programas internacionales de intercambio (Berrell et al., 2005; Bird, 2008; Cranmer, 2006; Crossman and Clarke, 2010) y (c) la realización de prácticas en empresas (Callanan and Benzing, 2004; Cook et al., 2004; Divine et al., 2007; Gault et al., 2000; Gault et al., 2010; Knouse et al., 1999; Knouse and Fontenot, 2008; Mihail, 2006; Taylor, 1988; Weible and McClure, 2011). Se incluyó en este estudio empírico cuantitativo al total de 3,543 estudiantes matriculados en los cinco grados que ofrecieron esta innovación durante el periodo 2010-2014, principalmente estudios tecnológicos. Los resultados concluyeron que los estudiantes participantes en los Grupos ARA tuvieron un mejor rendimiento académico y participaron en mayor proporción en programas de intercambio internacional. La proporción de alumnos que realizaron prácticas en empresas no presentó diferencias significativas entre los dos grupos comparados. Estos resultados anticipan que estos graduados tendrán una mejor recepción en el mercado laboral. Este nuevo programa permite mejorar las capacidades de los alumnos y se podría utilizar como una herramienta de innovación social para incrementar la empleabilidad de forma equitativa.

Las conclusiones generales de nuestra investigación nos permiten concluir que, desde el punto de vista académico, se cumplieron los objetivos de los Grupos de Alto Rendimiento Académico de la UPV, ya que los resultados demuestran que el rendimiento académico de los alumnos participantes se ha mejorado. Nuestros resultados también muestran que la participación en programas de intercambio, en la Facultad de Administración y Dirección de Empresas y en la UPV en su conjunto, fue casi cuatro veces mayor en los grupos ARA. Teniendo en cuenta que el rendimiento académico y la experiencia internacional están directamente relacionados con la empleabilidad y movilidad futuras de los graduados, se espera que estos graduados tengan una mejor acogida en el mercado de trabajo. La participación en prácticas en empresas no presentó diferencias significativas, mostrando altas tasas de participación ambos grupos, lo cual es un buen predictor de empleabilidad, tal como se vio en nuestra anterior revisión sistemática sobre los efectos de las prácticas en empresas. Además, desarrollamos e implementamos la idea de las prácticas en empresas virtuales en la UPV que pueden suponer todo un mundo de nuevas posibilidades y oportunidades de crecimiento dentro del campo de las prácticas en empresas,

incluyendo las prácticas internacionales. Por último, dado que el uso del inglés como medio de instrucción (EMI) se asocia con la mejora de los conocimientos de dicho idioma por parte de los estudiantes, se espera que nuestros graduados ARA mostrarán un mayor nivel de inglés al final de sus estudios, que resulta altamente atractivo para los empleadores. EMI también hace que la institución sea más atractiva para los estudiantes internacionales y permite establecer convenios de intercambio con prestigiosas instituciones extranjeras. Como resultado de nuestra investigación empírica podemos destacar los factores diferenciadores de los Grupos ARA, que son: un mayor rendimiento académico de los estudiantes, una mayor participación en programas internacionales, además de una participación en prácticas en empresas sin diferencias significativas respecto a los demás grupos, todo lo cual conduce a una mayor empleabilidad y movilidad. Sugerimos que las instituciones de educación superior deberían tener en cuenta estos resultados al definir futuras estrategias universitarias y promover e impulsar a los grupos de Alto Rendimiento Académico como herramienta valiosa para incrementar la internacionalización, la competitividad de la institución y la empleabilidad de sus graduados.

RESUM

Esta tesi doctoral, que es presenta en la forma d'articles publicats, explora els factors diferenciadors d'un Programa d'Alt Rendiment Acadèmic en una universitat politècnica pública a Espanya i com poden afectar la definició de les estratègies universitàries. La Universitat Politècnica de València (UPV), va implementar en l'any acadèmic 2010-11 els "Grups d'Alt Rendiment Acadèmic" (Grups ARA), que es caracteritzen per un bon nombre de cursos que s'imparteixen utilitzant l'anglès com a mitjà d'instrucció (EMI), un petit nombre d'estudiants a la classe, i mestres altament qualificats. L'EMI és un fenomen global, associat a la millora dels coneixements d'anglès i de la internacionalització, però planteja preocupacions sobre els resultats de l'aprenentatge i l'equitat (Dearden, 2014). El propòsit d'aquest estudi va ser avaluar la primera promoció (2010-2014) d'aquest programa en els cinc graus universitaris de la UPV que en que s'hi va oferir. Vam voler analitzar si tenia algun impacte sobre diverses variables relacionades amb els resultats acadèmics, programes d'intercanvi internacionals i pràctiques en empreses dels 3.543 estudiants matriculats, dels quals 560 pertanyeren a eixos nous grups, i per tant en la seva futura ocupabilitat.

El primer article "Efectes de les pràctiques en empreses en els estudiants, empresaris i institucions d'educació superior: una revisió sistemàtica" (Sanahuja Vélez, G., Ribes Giner, G.), va ser publicat per la revista *Journal of Employment Counselling* al setembre de 2015. El seu objectiu era dur a terme una revisió sistemàtica de la literatura sobre l'impacte de les pràctiques en empreses realitzades pels estudiants universitaris. Esta investigació també va tenir com a objectiu analitzar les variables que poden afectar els resultats i la satisfacció en l'experiència de pràctiques. Es van incloure i van examinar cinquanta-set estudis. Es varen identificar y classificar tots els efectes i les variables. Els resultats d'esta revisió recolzen els efectes positius globals de les pràctiques en empreses i confirmen que són una situació beneficiosa per als tres principals grups d'interès: els estudiants, els empresaris i les institucions d'educació superior.

La segona publicació consta d'un capítol de llibre publicat per Springer International Publishing, al gener 2017: "Intraemprendurisme dins d'una institució d'educació superior: Presentació de les pràctiques virtuals en empreses" en "*Entrepreneurial Universities*" (Peris-Ortiz, M., Alonso Gómez, J., Merigó-Lindhahl, J. M., Rueda-Armengot, C., Eds.). Amb anterioritat havíem presentat una comunicació al *Congrés Internacional XXX AEDEM*, a Les Palmes de Gran Canaria, el juny de 2016: "Las nuevas tecnologías como valor añadido en la innovación de las prácticas universitarias en empresas" (Moya Clemente, I., Ribes Giner, G., Sanahuja Vélez, G., 2016), que va cridar l'atenció dels editors del llibre dalt mencionat, que ens varen sol·licitar la nostra participació al mateix amb l'aportació d'un capítol. Com a resultat de la nostra anterior

investigació (Sanahuja Vélez, G., Ribes Giner, G., 2015), que reconeix els efectes positius en els tres principals grups d'interès de les pràctiques en empreses, ens vàrem adonar que alguns autors havien assenyalat altres efectes en les pràctiques virtuals i en l'aplicació de noves tecnologies a l'experiència de pràctiques, referits sobretot a la millora de les habilitats informàtiques i dels resultats de l'aprenentatge (Chu et al., 2010; Franks and Oliver, 2012; McEachern, 2011). Per tant, vàrem explorar l'escenari a la Universitat Politècnica de València i vam descobrir que, en opinió dels autors, era perfecte per a posar en pràctica les pràctiques en empreses virtuals. Ja que les condicions existents presentaven una oportunitat per a la innovació i el creixement, especialment mitjançant la combinació de la internacionalització amb la virtualització dels períodes de pràctiques, vàrem actuar com a agents de canvi, participant en una comissió que va posar en marxa un projecte de pràctiques virtuals que avui en dia és una realitat.

La tercera publicació és una "Revisió sistemàtica de l'Anglès com a mitjà d'instrucció (EMI) en les institucions d'educació superior. El cas d'una Escola de Negocis", presentada com conferència al 2^{on} Seminari sobre "*Learning Internationalization: English as a Medium of Instruction (EMI)*" del Centre de Llengües de la Universitat Politècnica de València (30 de març i el 31 de 2017) i actualment en revisió per a la seva publicació a la corresponent revista internacional. L'anglès com a mitjà d'instrucció (EMI) és una tendència global en un nombre cada vegada més gran d'institucions d'educació superior dels països de parla no anglesa (Coleman, 2006; Hu and Lei, 2013). EMI és utilitzat per les universitats com una eina d'internacionalització i marketing (Byun et al., 2001; Doiz et al., 2011; Hou et al., 2012). No obstant això, s'han plantejat diverses preocupacions, com ara les possibles dificultats associades a la competència lingüística dels estudiants i professors, i el seu impacte en els resultats acadèmics (Erling and Hilgendorf, 2006). L'objectiu d'aquesta investigació era doble. En primer lloc, l'objectiu va ser la revisió sistemàtica de la literatura científica publicada durant els últims deu anys sobre l'EMI en les institucions d'educació superior. En segon lloc, hem volgut avaluar un grup parcialment impartit en anglès al Grau d'Administració i Direcció d'Empreses de Universitat Politècnica de València (Espanya), inclòs en un Programa d'Alt Rendiment Acadèmic. Per a la revisió sistemàtica, es van examinar un total de 230 estudis i es van incloure 51. Els resultats posen de manifest que l'EMI va augmentar el coneixement de l'idioma anglès dels estudiants i la majoria dels autors van concloure que l'aprenentatge no es va veure obstaculitzat. Pel que fa al nostre estudi empíric, es va utilitzar un enfocament quantitatiu que inclou tots els 541 alumnes del Grau en Administració i Direcció d'Empreses de la Facultat d'Administració i Direcció d'Empreses, de 2010 a 2014. Els resultats demostren que l'aprenentatge no es va veure perjudicat i que la majoria de les variables relacionades amb els intercanvis internacionals van ser significativament més altes.

El quart treball d'investigació és l'article "Millora de la internacionalització i l'ocupabilitat dels estudiants a una Facultat de Negocis" (Sanahuja Vélez, G., Ribes Giner, G., Moya Clemente, I), que en l'actualitat ha rebut plena consideració per a la seva publicació al *Journal of Business Management and Business Economics*. La internacionalització i l'empleabilitat dels estudiants són prioritaris per les institucions d'educació superior. La Universitat Politècnica de València va posar en marxa en el curs 2010-11 els Grups d'Alt Rendiment Acadèmic per al grau en Administració i Direcció d'Empreses, que es caracteritzen per un gran nombre de crèdits impartits en anglès. El propòsit d'aquesta investigació va ser analitzar si aquesta acció va tenir algun impacte en la participació dels estudiants en els programes internacionals. 541 estudiants del Grau en Administració i Direcció d'Empreses durant el període 2010-2014 es van incloure en aquest estudi, 107 d'ells d'aquest nou grup. Es va utilitzar un enfocament quantitatiu amb anàlisis estadístics descriptiu i bivariant per comparar el comportament d'un conjunt de variables relacionades amb els intercanvis internacionals. Els resultats conclueixen que la majoria de les variables van ser significativament majors en el cas dels estudiants dels grups en anglès, participant prop de quatre vegades més en els intercanvis internacionals. Investigacions anteriors demostren que l'ocupabilitat es pot veure augmentada per l'experiència internacional en un context globalitzat, a través del desenvolupament d'habilitats interculturals, incloent-hi el coneixement d'idiomes estrangers, que són molt demandades pel mercat laboral (Berrell et al., 2005; Bird, 2008; Cranmer, 2006; Crossman and Clarke, 2010). Els nostres resultats suggereixen que les escoles de negocis poden utilitzar l'anglès com a mitjà d'instrucció per millorar la participació dels seus estudiants en programes internacionals, les seves habilitats interculturals, i per tant la seva ocupabilitat.

El cinquè article presenta els principals resultats de la part empírica d'este treball d'investigació i es titula: "Introducció d'un Programa d'Alt Rendiment Acadèmic en una Universitat Tecnològica com a Mecanisme d'Innovació Social per Millorar l'Ocupabilitat dels Graduats" (Sanahuja Vélez, G., Ribes Giner, G., Moya Clemente, I.). Este article està en l'actualitat essent revisat per a la seva publicació a la revista internacional *Technovation*. En este article s'explora el paper d'un programa d'Alt Rendiment Acadèmic (Grups ARA) en una universitat tecnològica pública espanyola, com a mecanisme d'innovació social, a fi de crear valor afegit en termes d'ocupabilitat. La Universitat Politècnica de València (UPV) posà en marxa en el curs acadèmic 2010-2011, els Grups ARA, caracteritzats per un gran nombre d'assignatures impartides en anglès, un nombre reduït d'alumnes per classe i professors altament qualificats. L'objectiu d'aquesta investigació va ser estudiar si aquest programa va tenir algun impacte en el comportament d'un grup de variables que estan considerades com predictores d'una millor ocupabilitat, d'acord amb la literatura científica prèvia: (a) el rendiment acadèmic (Baird, 1985; Baker, 2008; Campion, 1978, Campion and Brown, 1984; Cole et al., 2003; Devaraj and Babu,

2004; Ferris, 1982; Gokuladas, 2011; Hassanbeigi et al., 2011; Imose and Barber, 2015; Johansen, 2014; Kuncel et al., 2004; Kuncel et al., 2010; Roth and Bobko, 2000; Ruetzler et al., 2011; Rynes et al., 1997; Schick and Kunnecke, 1982; Thoms et al., 1999); (b) la participació en programes internacionals d'intercanvi (Berrell et al., 2005; Bird, 2008; Cranmer, 2006; Crossman and Clarke, 2010) i (c) la realització de pràctiques en empreses (Callanan and Benzing, 2004; Cook et al., 2004; Divine et al., 2007; Gault et al., 2000; Gault et al., 2010; Knouse et al., 1999; Knouse and Fontenot, 2008; Mihail, 2006; Taylor, 1988; Weible and McClure, 2011). En aquest estudi empíric quantitatiu es varen incloure el total de 3,543 estudiants matriculats en els cinc graus que van oferir aquesta innovació durant el període 2010-2014, principalment estudis d'enginyeria. Els resultats van concloure que els estudiants participants en els Grups ARA van tenir un millor rendiment acadèmic i van participar en major proporció en programes d'intercanvi internacional. La proporció d'alumnes que van realitzar pràctiques en empreses no va presentar diferències significatives. Aquests resultats anticipen que aquests graduats tindran una millor recepció al mercat laboral. Aquest nou programa permet millorar les capacitats dels alumnes i es podria utilitzar com una eina d'innovació social per incrementar l'ocupabilitat de forma equitativa.

Les conclusions generals de la nostra investigació ens permeten afirmar que, des del punt de vista acadèmic, es van complir els objectius dels Grups d'Alt Rendiment Acadèmic de la UPV, ja que els resultats demostren que el rendiment acadèmic dels alumnes participants s'ha millorat. Els nostres resultats també demostren que la participació en programes d'intercanvi, a la Facultat d'Administració i Direcció d'Empreses i en la UPV en el seu conjunt, va ser gairebé quatre vegades més gran en els grups ARA. Tenint en compte que el rendiment acadèmic i l'experiència internacional estan directament relacionats amb l'ocupabilitat i mobilitat futures dels graduats, s'espera que aquests graduats tinguin una millor acollida en el mercat de treball. La participació en pràctiques en empreses no va presentar diferències significatives, mostrant altes taxes de participació en ambdós grups, la qual cosa és un bon predictor d'ocupabilitat, tal com es va veure en la nostra anterior revisió sistemàtica sobre els efectes de les pràctiques en empreses. A més, hem desenvolupat i implementat la idea de les pràctiques en empreses virtuals a la UPV que poden suposar tot un món de noves possibilitats i oportunitats de creixement dins el camp de les pràctiques en empreses, incloent les pràctiques internacionals. Finalment, atès que fer servir l'anglès com a mitjà d'instrucció (EMI) s'associa amb la millora dels coneixements de l'idioma anglès dels estudiants, s'espera que els nostres graduats ARA mostraran un major nivell d'anglès al final dels seus estudis, cosa que resulta altament atractiva per als empresaris. EMI també fa que la institució sigui més atractiva per als estudiants internacionals i permet establir convenis d'intercanvi amb prestigioses institucions estrangeres. Com a resultat de la nostra investigació empírica podem destacar els factors diferenciadors dels Grups ARA, que són: un major rendiment acadèmic dels estudiants, una major participació en els programes internacionals, una participació

en les pràctiques en empreses sense diferències significatives respecte als altres grups, la qual cosa condueix a una major ocupabilitat i mobilitat. Suggerim que les institucions d'educació superior haurien de tenir en compte aquests fets a l'hora definir futures estratègies universitàries i promoure i impulsar als grups d'Alt Rendiment Acadèmic com a eines valuoses per a incrementar la internacionalització i la competitivitat de la institució i l'ocupabilitat dels seus graduats.

CHAPTER 1: INTRODUCTION

1. Introduction

This PhD thesis, which is presented in the format of five published articles, explores the differentiating factors of a High Academic Achievement Program at a public technological university in Spain and how they can affect the definition of university strategies. The focus of this thesis is placed on factors, such as the academic performance, the participation into international programs, and into business internships, and whereas there is an impact on them as a result of the implementation of this new program. This would provide highly valuable information when defining some of the strategies of higher education institutions, such as the improvement of the employability and the academic excellence of its graduates, as well as the internationalization and competitiveness of the institution.

One of the main objectives of higher education institutions is to ensure that graduates will be able to find a job within the chosen career (Santiago, 2009). In fact, employability of European citizens and competitiveness of the European higher education system were the main drivers behind the creation of the European Higher Education Area and the different processes of convergence in the field of higher education in the European countries, including the adoption of a system of easily readable and comparable degrees (Bologna Declaration, 1999). Nonetheless, the overall unemployment rate in Spain was 18.63% in the last quartermaster of 2016, according to the 2016 OCDE report and the unemployment rate of people aged 20-24 holding a university degree is 33.42% and for ages 25-29 it is 18.54%.

On the one hand, employability refers to an individual's capacity for obtaining and maintaining employment (Hillage and Pollard, 1998). According to previous research, there are some predictors of increased employability of students when they graduate, particularly related to their performance during the years at college and to some of the extracurricular activities completed by them. These predictors include: (a) a higher academic performance (Baird, 1985; Baker, 2008; Campion and Brown, 1984; Campion, 1978; Cole et al., 2003; Devaraj and Babu, 2004; Ferris, 1982; Gokuladas, 2011; Hassanbeigi et al., 2011; Imose and Barber, 2015; Johansen, 2014; Kuncel et al., 2004; Kuncel et al., 2010; Roth and Bobko, 2000; Ruetzler et al., 2011; Rynes et al., 1997; Schick and Kunnecke, 1982; Thoms et al., 1999); (b) the participation into an international exchange program (Berrell et al., 2005; Bird, 2008; Chan and Dimmock, 2008; Cranmer, 2006; Crossman and Clarke, 2010); and (c): the participation into business internships (Callanan and Benzing, 2004; Cook et al., 2004; Divine et al., 2007; Gault et al., 2000; Gault et al., 2010; Knouse et al., 1999; Knouse and Fontenot, 2008; Mihail, 2006; Taylor, 1988; Weible and McClure, 2011).

On the other hand, English-medium instruction (EMI) is a global trend in higher education institutions in a growing number of non-English-speaking countries worldwide, in a globalization and marketization context (Coleman, 2006; Hu and Lei, 2013). Teaching courses in English is used by universities to improve English proficiency of students (Doiz et al., 2011; Sert, 2008), to enhance their employability (Coleman, 2006) and their competitiveness (Byun et al., 2011; Coleman, 2006). It is also used as an internationalization and marketing tool to attract students (Byun et al., 2001; Doiz et al., 2011; Hou et al. 2012). According to Coleman (2006), English taught courses increases alignment with the worldwide spread of English as a global lingua franca and as the language of science. Nonetheless, various concerns have been raised in relation to this phenomenon, such as difficulties associated to the English language proficiency of students and professors (Erling and Hilgendorf, 2006) and especially about its impact on the academic results, as some critics consider that English taught courses could be hampering students' content learning. English taught courses also raise concerns about equity, as it is a growing global phenomenon, but are more present in private institutions than in public institutions in all stages of education –primary, secondary and tertiary (Dearden, 2014).

The Universitat Politècnica de València (UPV) launched in the 2010-11 academic year the High Academic Achievement Program (Grupos de Alto Rendimiento Académico, from now on ARA Groups) at five Bachelor degrees, mainly technological studies: Degree in Biotechnology, Degree in Aeronautical Engineering, Degree in Computer Engineering, Degree in Electronic and Industrial Engineering, and Degree in Business Administration and Management. These ARA Groups are characterized by a small number of students in the class, a large number of courses taught in English, and highly qualified teachers. It also includes training activities and incentives for teachers. As they are structured in small groups and students receive a more personalized teaching and mentoring. Students are carefully selected according to the scores they achieved in the exam for admittance into the university and their accredited knowledge of English language (minimum B2). Professors have to prove enough knowledge of English language (minimum B2), as well as have had several years of teaching experience and research activity.

A previous review on the literature of High Academic Programs, revealed that there were no other similar studies about any other relevant similar programs in any other regions or countries other than in the Valencian Community, in Spain, excepting for an isolated case in Mexico (Vargas et al., 2010).

Therefore, this thesis helps to fill this gap by focusing on the consequences of the implementation of the High Academic Achievement Programs by the Universitat Politècnica de València with undergraduate students, and contributes to the consequent better knowledge of them

and at the same time provides useful insights for future development and improvement in its implementation.

2. Objectives of the research

The general purpose of this thesis is determining if launching these innovative High Academic Achievement Program (ARA Groups) at five bachelor degrees of the Universitat Politècnica de València has had any impact on the participating students, in comparison with their counterpart students of the regular groups, in terms of academic performance and on its future employability.

According to previous research, higher grades, international experience, and traineeships are highly attractive to employers, and consequently constitute good predictors of employability. Therefore, our general aim was to reveal if there are any significant differences in the behavior of a set of variables related to: (a) academic performance; (b) participation into international programs, and (c) participation into business internships, when comparing the students enrolled in this program and the regular ones.

In a more concrete way, the above aim will be accomplished by fulfilling the following specific research objectives:

1) Reviewing and studying the literature related to High Academic Achievement Programs, business internships, English medium of instruction, academic performance (related to employability), and international programs (related to employability).

2) Collecting data of the students of the first promotion of the High Academic Achievement Program (2010-2014) and undertaking the necessary statistical studies, including descriptive statistics and bivariate statistics, in order to measure and quantify the possible significant differences between the two groups of students, in the behavior of a set of variables related to: (a) academic performance; (b) international programs, and (c) business internships.

3) Analyzing the results, more particularly, the academic exploitation in terms of better performance by the side of the participating students and the impact on international programs and participation into business internships, in comparison to the regular students.

4) Analyzing the possible effects of the results on employability, mobility, and skills development of graduates, as these conclusions could be of help in making university strategic decisions and in defining future actions.

This thesis is a compendium of five publications and is organized as follows: First, in this introduction Chapter, the general objectives, methodology, data of the research, and extended abstracts of the publications are presented. Next, from Chapters 2 to 6, the five published articles will be put forward. In Chapter 7, the subsequent conclusions section pulls together the main findings and contributions of the research, as well as the proposed directions for further work in the area together with the final thoughts on the value of the investigation.

The first article is included in Chapter 2, “Effects of business internships on students, employers, and higher education institutions: A systematic review” (Sanahuja Vélez, G., Ribes Giner, G.), was published by the *Journal of Employment Counselling* on September 2015. It aimed at providing a systematic review of the literature published within the past 10 years on the impact of business internships on the three agents in this partnership: students, employers, and higher education institutions. It also aimed at examining the findings and identifying if there are particular variables that could affect outcomes and participant satisfaction.

Chapter 3 contains the second publication, “Intrapreneuring within a higher education institution: Introducing virtual business internship”, which aimed at reviewing the literature published during the past ten years on the relation of business internships and new technologies and to analyze the existing conditions at the Universitat Politècnica de València. It is a book chapter published by Springer International Publishing AG on January 2017 in “*Entrepreneurial Universities*” (Peris-Ortiz, M., Alonso Gómez, J., Merigó-Lindahl, J. M., Rueda-Armengot, C., Eds.). We had previously presented a conference paper at the *XXX AEDEM International Meeting*, in Las Palmas de Gran Canarias (Spain), in June 2016: “Las nuevas tecnologías como valor añadido en la innovación de las prácticas universitarias en empresas” (Moya Clemente, I., Ribes Giner, G., Sanahuja Vélez, G., 2016), which caught the attention of the editors, and therefore the authors where asked to write a book chapter.

The third article, which is included in Chapter 4, “A systematic review of English as Medium Instruction. The case of a Business School”, was presented as a conference at the *2nd Seminar on Learning Internationalization: English Medium of Instruction (EMI)* of the Centro de Lenguas of the Universitat Politècnica de València (March 30 and 31st, 2017) and is currently being reviewed for its publication in the corresponding international journal. The aim of this research was double. Firstly, we aimed at systematically reviewing the scientific literature

published during the past ten years about English-Medium of Instruction (EMI) in higher education institutions. Secondly, we wanted to assess an EMI group in the Bachelor of Business Administration and Management, included in a High Academic Achievement Program of the Universitat Politècnica de València (Spain). We aimed at determining if EMI has had any effect on the academic outcomes of students, as well as on other variables related to the students' participation into international programs and business internships.

Chapter 5 includes the fourth article, which is currently given full consideration for publication at the *European Journal of Management and Business Economics*: “Enhancing student internationalization and employability in a Business School” (Sanahuja Vélez, G., Ribes Giner, G., Moya Clemente, I.). In this paper the aim was to assess the first class (2010-2014) of the High Academic Achievement Group of the Bachelor Degree in Business Administration and Management at the Universitat Politècnica de València, which is taught using English as a Medium of Instruction (EMI) in a great part of the courses, from an internationalization perspective. More particularly, we wanted to analyze, using an empirical quantitative research method, whether the implementation of this group has had some impact on the participation in exchange programs of its students and hence could affect their future employability by means of enhancing their intercultural skills.

The fifth and last article, which is comprised in Chapter 6 of this thesis, is entitled “Introducing a High Academic Achievement Program in a Technological University as a Social Innovation Mechanism to Enhance Graduates' Employability” (Sanahuja Vélez, G., Ribes Giner, G., Moya Clemente, I.), has been given full consideration for publication at the journal *Technovation*, a JCR indexed journal. Its objective was to determine if launching the High Academic Achievement Program in five technological degrees of the Universitat Politècnica de València (Spain) could be used as a social innovation mechanism to enhance graduates' employability. Our objective is to compare the behavior of students of this new program and the regular ones, concerning a set of particular assets such as academic performance, participation into international exchange programs, and participation into business internships, as these seem to be strongly related to enhanced employability of students upon graduation, according to the existing literature.

3. Methodology

This thesis has followed the format by compendium of publications and it includes five articles published in international academic journals. Each of them addresses a different stage of the study and, as a whole, explains the content of the thesis. In the articles, different methodologies

have been used that fit the purposes of each one of the studies. The different methodologies used are presented below.

3.1. *Literature review*

In order to contextualize the research within a theoretical framework, the necessary literature reviews were done: higher academic achievement programs, business internships, international exchange programs (related to employability), academic performance (related to employability) and English as a Medium of Instruction (EMI). The methodology used for the literature reviews was the systematic review.

In our systematic reviews, a sample of articles was identified using a personalized version of the approach developed by David and Han (2004) and later adapted by Newbert (2007). The source used was the *Web of Knowledge* and *Polibuscador* data bases. The search included articles published within the past 10 years, requiring that the selected articles contain the primary keywords in their title. Only peer-reviewed published journal articles were included. Substantively irrelevant articles were removed by requiring that the selected articles also include at least one of the following additional keywords in the full text. Only articles that appeared in journals containing multiple articles were included. All the remaining abstracts for relevant content were read. All the remaining articles were read in their entirety for substantive context and adequate content. Finally, relevant articles found as a result of a hand search were added, as well as seminal articles that did not fall within the established time frame.

The selected articles were examined and the most relevant findings were sought, listing and classifying them using the approach of Perelló-Marin and Ribes Giner (2014), which is an adaptation of Q sorting (Petter, et al., 2007).

3.2. *Quantitative empirical research*

For the quantitative empirical research, a set of variables related to five different categories were examined: 1) Academic achievement; 2) international exchange programs; 3) business internships; 4) employers' satisfaction questionnaire (business internships), and 5) students' satisfaction questionnaire (business internships). Table 1 includes all variables studies at each of the above mentioned categories.

We did a statistical descriptive analysis and a bivariate analysis. The descriptive analysis contained the basic statistics of the continuous variables: average, standard deviation, minimum,

maximum, and median, as well as the frequency distribution and percentages for the categorical variables

Table 1. Studied variables in each category

Category	Studied Variables
Academic performance	Credits approved per year; Average grade; Final Year Project grade; Graduation in 4 years. Complementary: Access to university score; Gender.
International exchange programs	Months of exchange; Average grade during exchange; Credits approved; Credits approved / per semester; % of students on international exchange programs / total students of the group.
Business internships	% of students on business internships / total students of the group.
Students' satisfaction questionnaire (business internships)	Evaluate your contribution to the company: Technical point of view; Evaluate your contribution to the company: Human point of view; Evaluate your dedication in the company to activities of: Personal initiative; Evaluate your dedication in the company to activities of: directed work; Evaluate your integration into the company: Technical point of view; Evaluate your integration into the company: Human point of view; Satisfaction with the business internship; Satisfaction with the business internship office; Did you to your final year project in the company?
Employer' satisfaction questionnaire (business internships)	Evaluation of the objectives attainment achieved by the student in his/her work.

Source: Own elaboration

The statistical studies were completed for the total of the five degrees as a whole and also for each of the different degrees separately, although in this doctoral thesis not all the results are displayed. The focus of the articles comprised in this thesis were the overall results and more particularly, those related to the Faculty of Business Administration and Management.

The bivariate analysis included all statistical contrasts required to measure the relationship between the performance of the variables and the condition of ARA or non-ARA student. These contrasts are carried out through parametric and nonparametric statistical techniques appropriated to each variable's characteristics.

We used Kolmogorov-Smirnov test to proof adjustment to a normal distribution of the continuous variables. The acceptance of normality of the continuous variables of the study (grades) will allow the application of parametrical type tests, whereas non acceptance of normality will determine the use of non-parametrical type tests.

Test of t Student has been used for independent samples of continuous type and normal distribution. We have used it to contrast the equality of means in independent type samples of continuous type and normal distribution.

We used Mann-Whitney test for two independent samples to test whether or not the distribution of a parameter, at least ordinal, is the same in two independent samples.

Pearson Chi² test has been used to test of association or dependency between two categorical variables, provided that the expected frequency is greater than 5 cases. Otherwise, and only for dichotomous variables, Fisher's exact test was used.

The level of significance used in the bivariate tests was generally 95% ($\alpha = 0.05$). Therefore, any value lower than 0.05 indicate a statistically significant relationship. By contrast, any value higher than 0.05 indicate the absence of such relationship. P value is, supposing that there are not differences among the groups, the probability of that the obtained results could be a random result then there will be more evidence against the null hypothesis (inexistence of differences). In some cases a level of significance of 90% was used ($\alpha = 0.1$)

4. Data of the study and its characteristics

We used an empirical quantitative approach, including the 3,543 students of the Universitat Politècnica de València (Spain) enrolled at the 5 degree programs, mainly technological, which offered the High Academic Achieving group, during the period from 2010 to 2014. 560 of them belonged to this new group, which is taught using English as a medium of instruction in a large proportion of the courses. Table 1 shows the number of students enrolled at these 5 degrees and the number of students registered at each group.

Table 1. Students' sample

UPV Degree	Total students	ARA students	Non-ARA students
Bachelor in Business Administration and Management	541	107	434
Bachelor in Biotechnology	419	135	284
Bachelor in Computer Engineering	1,477	90	1,387
Bachelor in Electronic Engineering	650	84	566
Bachelor in Aerospace Engineering	456	144	312
TOTAL	3,543	560	2,983

Source: Own elaboration

The sample data to study the variables related to the academic achievement comprised the academic data provided by the institution of the 3,543 students enrolled at the five degrees offering ARA groups (560 ARA and 2,983 non-ARA).

The sample of international exchange programs comprised records of the 290 international exchange programs done during the period (102 ARA and 187 non-ARA), corresponding to 285 students since 5 of them repeated the experience.

For the study of the business internships we had a sample of 1,284 records (corresponding to 743 students), 1,085 records (611 students) of the Non-ARA Group and 180

records (115 students) of the ARA Group, while 19 records (17 students) whose group was unknown.

We also had a sample of 553 questionnaires answered by the student after the completion of the business internship (98 ARA and 455 non-ARA) and a sample of 403 questionnaires answered by the employer (65 ARA and 338 non-ARA).

5. Abstracts of the papers

5.1. Effects of business internships on students, employers, and higher education institutions: a systematic review

The objective of this study is to provide a systematic review of the literature on the impact of internships completed by university students. This research also aims to analyze variables that can affect outcomes and satisfaction in the internship experience. Fifty-seven studies were included and examined. The effects and variables identified were listed and classified. The findings of this review support the overall positive effects of business internships and confirm that they are a win-win situation for the main 3 stakeholders: students, employers, and higher education institutions.

5.2. Intrapreneuring within a higher education institution: introducing virtual business internships

Past research on business internships recognizes positive effects on its main stakeholders: students, employers, and higher education institutions. Moreover, some authors have acknowledged further effects in virtual internships and when applying new technologies to the internship experience, particularly referred to enhanced computer skills and learning outcomes. The Faculty of Business Administration and Management of the Universitat Politècnica de València, in Spain, has experienced an outstanding increase of its internships in recent years. As employers are demanding more computer skills in a globalized and technological world, it is expected that virtual internships and the use of ICTs during the traineeship will be a tendency in higher education institutions in the future. At present, the management of internships of the two new Double Degrees in our institution (Business Administration and Management & Computer Science Engineering, and Business Administration and Management & Telecommunications Engineering), offers, in the opinion of the authors, the perfect scenario to explore the possibilities of new technologies applied to internships and to put into practice virtual internships. Recent changes in the Spanish laws and in the regulations of universities, such as the

Universitat Politècnica de València, allow business internships to take place abroad. These conditions could provide an opportunity for innovation and growth, especially by combining internationalization with virtualization of traineeships. The above mentioned initiative is a good sample of intrapreneurship within a large organization, where the employees, in this case, the authors of this text, behave like entrepreneurs, acting like agents of change.

5.3. *A systematic review on English as a medium of instruction. The case of a business school*

English as a medium of instruction (EMI) is a global tendency in a growing number of higher education institutions of non-English-speaking countries. EMI is used by universities as an internationalization and marketing tool. Nonetheless, various concerns have been raised, such as the possible difficulties associated to the language proficiency of students and professors, and its impact on the academic outcomes. The aim of this research was double. Firstly, we aimed at systematically reviewing the scientific literature published during the past ten years about EMI in higher education institutions. Secondly, we wanted to assess an EMI group in the Bachelor of Business of the Universitat Politècnica de València (Spain), included in a High Academic Achievement Program. For the systematic review, we examined a total of 230 studies and we included 51. Findings highlight that EMI increased the knowledge of the English language of students and most authors concluded that learning was not hindered. As for our empirical study, we used a quantitative approach including all 541 students of the Bachelor in Business of our Business School from 2010 to 2014. The results yield that learning was not hindered and that most variables related to international exchanges were significantly higher.

5.4. *Enhancing student internationalization and employability in a business school*

Internationalization and employability of students are high on the agenda of higher education institutions. The Universitat Politècnica de València (UPV) in Spain, launched in the 2010-11 academic year the High Academic Achievement Group for the bachelor degree in Business, which is characterized by a large number of credits taught in English. The purpose of this research was analyzing if this action had some impact on the students' participation into international programs. 541 students of the degree in Business Administration and Management during the period 2010-2014 were included in this study, 107 of them from this new group. We used a quantitative approach with descriptive and bivariate statistical analysis to compare the behavior of a set of variables related to international exchanges. The findings yield that most variables were significantly higher in the case of the English-taught students, participating about four times more into international exchanges. Previous research evidenced that employability is

boosted by international experience in a globalized context, through the intercultural skills development, including the knowledge of foreign languages, which are highly demanded by employers. Our results suggest that business schools could use English as Medium of Instruction to enhance their students' participation into international programs, their cross-cultural skills, and hence their employability.

5.5. *Introducing a High Academic Program in a technological university as a social innovation mechanism to enhance graduates' employability*

The aim of this research was to determine if launching a High Academic Achievement Program (ARA Groups) in five degrees of the Universitat Politècnica de València, a technological university in Spain, could be used as a social innovation mechanism to enhance graduates' employability. Our objective is to compare the behavior of students of this new program and the regular ones, concerning a set of particular assets such as academic performance, participation into international exchange programs, and participation into business internships, as these seem to be strongly related to enhanced employability of students upon graduation, according to the existing literature. Findings concluded that participating students performed higher academically and that engaged more into international exchanges. The proportion of students doing business internships did not present significant differences although the attained objectives during the internship were better evaluated by the side of the employer in the case of the ARA students. Our results anticipate that these graduates will have a superior reception within the labor market. This new program allows enhancing learners' capacities and it could be used as a social innovation mechanism to enhance employability of graduates in technology equitably.

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**CHAPTER 2: EFFECTS OF BUSINESS INTERNSHIPS ON STUDENTS,
EMPLOYERS, AND HIGHER EDUCATION INSTITUTIONS: A SYSTEMATIC
REVIEW**

*Sanahuja Velez, G., and Ribes Giner, G. (2015), Journal of Employment Counselling, 52 (3):
121-130*

1 Abstract

The objective of this study is to provide a systematic review of the literature on the impact of internships completed by university students. This research also aims to analyze variables that can affect outcomes and satisfaction in the internship experience. Fifty-seven studies were included and examined. The effects and variables identified were listed and classified. The findings of this review support the overall positive effects of business internships and confirm that they are a win-win situation for the main 3 stakeholders: students, employers, and higher education institutions.

2. Introduction

One of the main objectives of higher education institutions is to ensure that their students will be able to find employment within their chosen career (Santiago, 2009). Traditionally, university education focuses on teaching theoretical knowledge, but employers demand practical skills and experience (Chen, Hu, Wang, & Chen, 2011; Coco, 2000), leaving college students without work experience little chance of successfully competing for jobs. Internships are a way of addressing this obstacle (Coco, 2000). Some higher education institutions have incorporated internship programs in which students apply theoretical learning in practice before they graduate (Santiago, 2009).

The literature provides various definitions of what constitutes an intern or an internship. For example, Tovey (2001) stated that an intern is someone who is involved in part-time or full-time work experience that is related to the student's career goal or major, who may be paid or unpaid, may or may not be receiving academic credit for the internship, but who is a temporary employee. (p. 226)

According to Zopiatis (2007), "in general terms, an internship is viewed as a short term practical work experience in which students receive training and gain experience in a specific field or career area of their interest" (p. 65).

Previous research has identified three stakeholders as the beneficiaries of internships: students, employers, and higher education institutions (Coco, 2000; Divine, Linrud, Miller, & Wilson, 2007; Gault, Redington, & Schlager, 2000; Thiel & Hartley, 1997). The major role of an internship is to offer a planned transition from the classroom to the job, and it is a natural bridge between universities and the labor market (Coco, 2000). The internship experience enables students to apply classroom theory within the actual world of work and therefore bridges the gap

between theory and practice (Zopiatis, 2007). Internships provide learning opportunities for students to experience professional practice and activities related to the application of knowledge (Beggs, Ross, & Goodwin, 2008).

In recent years, several researchers have published articles examining the features and effects of internships. These studies include a research review by Knouse and Fontenot (2008) on the benefits of business college internships for students. However, there is no systematic review of the literature concerning the benefits to the three stakeholders and there is no analysis of the findings. Therefore, the purpose of this study is to provide a systematic review of the literature published within the past 10 years on the impact of business internships on the three agents in this partnership: students, employers, and higher education institutions. It also aims to examine the findings and identify if there are particular variables that may affect outcomes and participant satisfaction. Finally, this research aims to conduct a statistical meta-analysis of the results.

3. Method

We identified a sample of articles using a personalized version of the approach developed by David and Han (2004) and later adapted by Newbert (2007). First, we conducted a search using the Polibuscador database for articles published within the past 10 years (from May 2003 to May 2013), requiring that the selected articles contain at least one of the following primary keywords in their title: internship or work placement. We included only peer-reviewed published journal articles. We removed substantively irrelevant articles by requiring that the selected articles also include at least one of the following eight additional keywords in the full text: job, employment, employability, employer, career, benefit, effect, or competence. Furthermore, to ensure contextual relevance, we required that the selected articles contain at least one of the following six additional keywords in their full text: university, college, undergraduate, graduate, student, or higher education institution. We included only articles that appeared in journals containing multiple articles. We read all the remaining abstracts for relevant content, eliminating those concerning internships in medicine, teaching, and related disciplines because their nature is different from business internships. We then read all the remaining articles in their entirety for substantive context and adequate content. Finally, we added relevant articles found as a result of a hand search, as well as seminal articles that did not fall within the established time frame.

We examined the selected articles for business internship effects and for variables affecting outcomes and satisfaction. We listed and classified these effects and variables using the

approach of Perello-Marín and Ribes Giner (2014), which is an adaptation of Q sorting (Petter, Straub, & Rai, 2007).

4. Results

4.1. Identification of the studies

The screening of the articles produced by the database search (360 peer-reviewed articles) yielded 43 articles. The hand search identified five additional articles, and we added nine seminal articles. Thus, this methodology returned a final sample of 57 articles. Because we did not find any other systematic review of articles concerning the overall effects of business internships, a comparison of the sample size with other similar reviews cannot be offered.

4.2. Findings of the studies

In total, this systematic review included 57 studies. Of these, 24 were of a qualitative or narrative nature and 33 were quantitative. We carefully examined the findings of the included studies for business internship effects, as well as for variables affecting outcomes and satisfaction. The approach of Perello-Marín and Ribes Giner (2014), which is an adaptation of the Q sorting process (Petter et al., 2007), enabled the systematic listing of these effects and variables. Subsequently, we classified them under the following seven categories: (a) the effects of internships on students, (b) the effects of internships on employers, (c) the effects of internships on higher education institutions, (d) predictors of effectiveness, (e) participant satisfaction, (f) international internships, and (g) new technologies.

Because of the lack of homogeneity in relation to the information collected, issues studied, methodology, and results in the quantitative articles, it was not feasible to conduct a statistical meta-analysis. The following paragraphs offer a summary of the most notable findings.

4.2.1. The effects of internships on students

We identified three types of effects of business internships on students: (a) those related to the enhancement of employment opportunities, (b) those related to the improvement of skills and competencies, and (c) those related to the effects on career exploration. On the basis of the results of this systematic review, it can be stated that the overall effects of internships on student participants are beneficial, corroborating the findings of the earlier research review conducted by Knouse and Fontenot (2008).

Several studies have found that internships enhance the employability of students upon graduation (Callanan & Benzing, 2004; Coco, 2000; Cook, Parker, & Pettijohn, 2004; Divine et al., 2007; Gault, Leach, & Duey, 2010; Gault et al., 2000; Gryski, Johnson, & O'Toole, 1987; Knouse & Fontenot, 2008; Knouse, Tanner, & Harris, 1999; Mihail, 2006; Pianko, 1996; Taylor, 1988; Weible & McClure, 2011). Furthermore, students who complete internships report higher salaries (Coco, 2000; Gault et al., 2000, 2010; Pianko, 1996; Taylor, 1988) and higher levels of job satisfaction (Gault et al., 2000; Knouse & Fontenot, 2008; Taylor, 1988) compared with students who do not complete internships. Regarding skills and competencies, the attributes most commonly listed as being enhanced are job skills (Chen et al., 2011; Divine et al., 2007; Gault et al., 2000; Knouse & Fontenot, 2008; Mihail, 2006) and social skills (Chen et al., 2011; Gryski et al., 1987). With regard to career exploration, internships provide students with a better understanding of career paths (Coco, 2000; Gault et al., 2000), help them to develop realistic expectations (Knouse & Fontenot, 2008; Knouse et al., 1999), and reduce reality shocks (Coco, 2000; Taylor, 1988). Other effects of internships include better college performance, because interns tend to complete their degrees with higher grade point averages (Knouse et al., 1999), financial benefits (Gryski et al., 1987; Swanson & Tomkovick, 2012; Thiel & Hartley, 1997), and academic credits earned (Swanson & Tomkovick, 2012).

4.2.2. The effects of internships on employers

The major benefits of internships for employers include receiving a source of inexpensive and qualified labor (Coco, 2000; Divine et al., 2007; Gault et al., 2000; Gryski et al., 1987; Pianko, 1996), saving on recruitment costs (Coco, 2000; Divine et al., 2007; Gault et al., 2000, 2010; Pianko, 1996; Swanson & Tomkovick, 2012; Thiel & Hartley, 1997), strengthening bonds with academic institutions (Divine et al., 2007; Gault et al., 2000; Swanson & Tomkovick, 2012; Thiel & Hartley, 1997), and incorporating new ideas (Gryski et al., 1987; Swanson & Tomkovick, 2012; Thiel & Hartley, 1997).

4.2.3. The effects of internships on higher education institutions

The major benefits of internships for higher education institutions appear to be enhanced reputation and visibility (Coco, 2000; Divine et al., 2007; Gault et al., 2000; Weible, 2009; Weible & McClure, 2011). Universities can use internships as a recruitment tool to attract students (Divine et al., 2007; Gault et al., 2000, 2010; Thiel & Hartley, 1997; Weible, 2009; Weible & McClure, 2011). Feedback from employers and students can provide input for curricular assessment (Coco, 2000; Divine et al., 2007; Gryski et al., 1987; Thiel & Hartley, 1997). Closer

ties with the business community are another notable benefit (Divine et al., 2007; Gault et al., 2000; Gryski et al., 1987; Weible, 2009; Weible & McClure, 2011), and these ties can result in fund-raising opportunities (Coco, 2000; Gault et al., 2000, 2010; Thiel & Hartley, 1997; Weible & McClure, 2011).

4.2.4. Predictors of effectiveness

A number of variables are associated with the effectiveness of internships according to the studies included in this review. With regard to employers' performance, the quality of mentoring is a key predictor of success (Beard & Morton, 1998; Callanan & Benzing, 2004; Coco, 2000; Dahl, 2011; Kim, Kim, & Bzullak, 2012; Knouse & Fontenot, 2008; Narayanan, Olk, & Fukami, 2010; Rothman, 2007; van't Klooster, van Wijk, Go, & van Rekom, 2008). Evidence also suggests that challenging assignments (Coco, 2000; Cupps & Olmosk, 2008; Dahl, 2011; Rothman 2007; van't Klooster et al., 2008), ongoing feedback (Cupps & Olmosk, 2008; Dahl, 2011; Narayanan et al., 2010; Rothman, 2007), and greater autonomy during an internship (Knouse & Fontenot, 2008; Narayanan et al., 2010; Taylor, 1988) play a role in predicting effectiveness. Regarding academic supervision, the studies in our review suggest that keeping a journal enhances the beneficial effects of internships (Clark, 2003; Coco, 2000; Kim et al., 2012; Knouse & Fontenot, 2008) and that academic assignments can improve internships' educational value (Clark, 2003; Kim et al., 2012). Other predictors of effectiveness include having a dedicated instructor to supervise internships (Gryski et al., 1987; Kim et al., 2012; Narayanan et al., 2010) and establishing appropriate prerequisites (Kim et al., 2012; Knouse & Fontenot, 2008) to enhance the student internship experience. For students, the most important predictor of an effective internship is a positive attitude (Beard & Morton, 1998; Coco, 2000; Swanson & Tomkovick, 2012).

4.2.5. Participant satisfaction

According to most studies in this review, students and companies differ in terms of their expectations and perceptions of internships (Beggs et al., 2008; Knemeyer & Murphy, 2002; Swanson & Tomkovick, 2011). Above all, students expect that internships should develop job skills (Beebe, Blaylock, & Sweetser, 2009; Beggs et al., 2008; Cho, 2006; Daugherty, 2011; Knemeyer & Murphy, 2002; Swanson & Tomkovick, 2011), relation skills (Beggs et al., 2008; Cho, 2006), and technical skills (Cho, 2006; Lam & Ching, 2007). Furthermore, they believe that internships should broaden work experience (Alpert, Heaney, & Kuhn, 2009; Daugherty, 2011; Lam & Ching, 2007) and enhance job placement (Beggs et al., 2008; Cho, 2006; Knemeyer & Murphy, 2002; Lam & Ching, 2007). They also want assigned tasks to be challenging and

meaningful (D'abate, Youndt, & Wenzel, 2009; Daugherty, 2011; Paulins, 2008; Zopiatis, 2007). Students value receiving qualified supervision (D'abate et al., 2009; Daugherty, 2011; Zopiatis, 2007), having a good relationship with their supervisors (Beebe et al., 2009; Daugherty, 2011), and receiving frequent feedback (D'abate et al., 2009; Paulins, 2008). Students strongly feel that internships should provide technological training (Beggs et al., 2008; Knemeyer & Murphy, 2002) and place considerable importance on housing and compensation (Alpert et al., 2009; Beggs et al., 2008; Swanson & Tomkovick, 2011).

Employers believe that internships should develop interns' job skills (Beggs et al., 2008; Knemeyer & Murphy, 2002; Swanson & Tomkovick, 2011), relation skills (Beggs et al., 2008), and interpersonal skills (Daugherty, 2011). Employers agree with interns that internships should aid full-time hiring (Beggs et al., 2008; Knemeyer & Murphy, 2002). Employers especially value positive and responsible attitudes, professionalism (Zopiatis, 2007), and communication skills (Alpert et al., 2009) and believe that students should be willing and enthusiastic participants (Cook et al., 2004). Studies that have undertaken empirical research on the aggregate levels of participant satisfaction offer mixed results; nevertheless, most of these studies show positive evaluations of the internship experience, although they also identify areas in which improvement is still needed (Cook et al., 2004; Lam & Ching, 2007; Renganathan, Karim, & Li, 2012; Sapp & Zhang, 2009). In some cases, for example, students' expectations are not met, especially concerning opportunities for future career development within the same company (Lam & Ching, 2007). Moreover, one study (Sapp & Zhang, 2009) found that industry employers believe that interns' skills need further development. The results demonstrate that students meet employers' expectations in many areas, although areas such as taking the initiative, writing skills, and oral communication skills need additional attention.

4.2.6. International internships

In addition to the aforementioned benefits, international internships play a pivotal role in improving intercultural competencies (van't Klooster et al., 2008; Zhang, 2012; Zopiatis, 2007). Intercultural competence includes three basic aspects: intercultural communicative skills, intercultural work experience, and intercultural understanding. These three aspects appear to be improved through the experience of an international internship (Zhang, 2012).

4.2.7. New technologies

Progress in technology, including high-speed Internet connection capabilities and low-cost portable devices, has made the virtual workplace a reality, and it is a trend that is expected

to grow (Franks & Oliver, 2012). Virtual internships offer the same benefits as workplace internships, but they also offer additional benefits, such as learning how to use modern information and communication technology to perform the work and to cooperate with site supervisors and coworkers (Franks & Oliver, 2012). In addition, blogging (Chu, Chan, & Tiwari, 2010) and using social media (McEachern, 2011) are skills that students may learn during a virtual internship.

5. Discussion

The limitations of this study derive from the exclusion of nonscientific literature or studies published in different languages and the lack of a statistical meta-analysis because the measured variables were not homogeneous. This review also evidenced a lack of empirical research concerning business internships in the European context. Further research is needed, in particular to investigate the actual effects of internships based on measurable data because most studies in this review are based on participants' perceptions.

6. Conclusions

This systematic review identified 360 peer-reviewed articles, of which we included 57 as being relevant to internship program research. The selected studies support the existence of a wide variety of benefits of business internships for the three primary stakeholders: students, employers, and higher education institutions.

The majority of the qualitative studies ($n = 24$) indicated positive evaluations of the internship experience. In addition, the quantitative studies ($n = 33$) provided empirical evidence of the effectiveness of business internships in improving students' chances of employment in a career-oriented job after graduation; enhancing their job and social skills; and assisting them in deciding their career paths.

Employers gain the benefit of students' emerging skill sets at highly affordable compensation rates and save on recruitment costs because they can hire prospective workers from among their interns. They also benefit from stronger ties with the academic world. Internship programs are also beneficial to higher education institutions in that colleges and universities can attract potential students, enhance their reputation and visibility, and strengthen bonds of collaboration between the academic world and industry.

Our review identified a number of predictors of internship effectiveness, including greater autonomy during the internship, challenging assignments, students' positive attitudes, and mentoring. These variables should be taken into account when attempting to improve internship programs.

Student satisfaction tends to be associated with receiving challenging assignments, compensation, and quality mentoring. High levels of satisfaction among employers are linked to high levels of student performance and positive attitudes; in fact, employers identify these qualities as key attributes in an ideal internship candidate. Our review provides mixed results concerning participant satisfaction and identifies areas that need improvement; however, overall, satisfaction surveys indicate that internships are satisfactory and beneficial experiences for all the parties involved.

On the other hand, some studies in our review noted a few areas that need improvement. For example, students tend to evaluate internships negatively when their expectations about future job opportunities within the company are not met. Companies also provide negative assessments of some of the interns' skills, such as work initiative and writing and oral communication skills.

Higher education institutions and governments would be wise to support international internship programs, because international internships enhance students' intercultural competence. Furthermore, higher education institutions and governments should explore the possibilities that new technologies can add to traditional internship programs, in particular with regard to improving computer skills and making the internship experience available to students engaged in distance learning.

Business internships should be available to the maximum number of students and should be effective. Efforts should be made to publicize the recognized benefits of business internships to the three parties involved to increase participation, and the necessary resources to implement and manage successful internship programs should be provided.

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**CHAPTER 3: INTRAPRENEURING WITHIN A HIGHER EDUCATION
INSTITUTION: INTRODUCING VIRTUAL BUSINESS INTERNSHIPS”**

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1. Abstract and keywords

Past research on business internships recognizes positive effects on its main stakeholders: students, employers, and higher education institutions. Moreover, some authors have acknowledged further effects in virtual internships and when applying new technologies to the internship experience, particularly referred to enhanced computer skills and learning outcomes. The Faculty of Business Administration and Management of the Universitat Politècnica de València, in Spain, has experienced an outstanding increase of its internships in recent years. As employers are demanding more computer skills in a globalized and technological world, it is expected that virtual internships and the use of ICTs during the traineeship will be a tendency in higher education institutions in the future. At present, the management of internships of the two new Double Degrees in our institution (Business Administration and Management & Computer Science Engineering, and Business Administration and Management & Telecommunications Engineering), offers, in the opinion of the authors, the perfect scenario to explore the possibilities of new technologies applied to internships and to put into practice virtual internships. Recent changes in the Spanish laws and in the regulations of universities, such as the Universitat Politècnica de València, allow business internships to take place abroad. These conditions could provide an opportunity for innovation and growth, especially by combining internationalization with virtualization of traineeships. The above mentioned initiative is a good sample of intrapreneurship within a large organization, where the employees, in this case, the authors of this text, behave like entrepreneurs, acting like agents of change.

Keywords: Business administration, Higher education, Internship, Intrapreneuring, Intrapreneurs, Knowledge, New technologies, Virtual Business.

2. Introduction

According to Pinchot (1984), intrapreneurs are “those who take hands-on responsibility for creating innovation of any kind, within a business”. Being an intrapreneur is considered to be positive for both intrapreneurs and large organizations. Enterprises support intrapreneurs with funding and access to corporate means, while intrapreneurs create innovation for enterprises (Pinchot, 1984). Antoncic and Hisrich (2003) defined intrapreneurship as “entrepreneurship within an existing organization”. “Intrapreneurship refers not only to new business ventures, but also to other innovative activities and orientations such as development of new products, services, technologies, administrative techniques, strategies and competitive postures” (Antoncic & Hisrich, 2003). Intrapreneurs are employees and also leaders within large organizations that

behave similar to entrepreneurs in terms of self-motivation, creativity and pro-activity (Pinchot, 1984).

In this paper, the authors acted as intrapreneurs, searching for opportunities within the field of the business internships management within a large organization, the Universitat Politècnica de València, and shaped them into a high-potential innovation

Past research on business traineeships has recognized beneficial effects on its three main agents: students, employers, and higher education institutions (Coco, 2000; Divine, Linrud, Miller, & Wilson, 2007; Gault, Redington, & Schlager, 2000; Thiel & Hartley, 1997). A systematic review of the literature about business internships and their impact on their stakeholders by Sanahuja Vélez & Ribes Giner (2015) listed good number of beneficial effects and indicated that they are a win-win situation. Evidence proves the efficacy of business traineeships done by university students in increasing their employability (Callanan & Benzing, 2004; Cook, Parker, & Pettijohn, 2004; Divine, et al., 2007; Gault, Leach, & Duey, 2010; Gault, et al., 2000; Knouse & Fontenot, 2008; Knouse, Tanner, & Harris, 1999; Mihail, 2006; Taylor, 1988; Weible & McClure, 2011). Also, the enhancement of skills is highlighted as another important positive effect on students (Beard & Morton, 1999; Chen, 2011; Cook, et al. 2004; Divine et al., 2007; Gault, et al. 2000; Green, Graybeal, & Madison, 2011; Gryski, Johnson, & O'Toole, 1987; Knouse & Fontenot, 2008; Knouse, et al., 1999; Mihail, 2006; Scholz, 2003; Taylor, 1988; Theil & Hartley, 1997).

Advances in technology, including high speed internet connections and low-cost portable devices, have made the virtual workplace a reality which is expected to develop (Franks & Oliver, 2012). The work market presents an increasing trend to telecommuting, distant work or telework. "Telecommuting" is a work agreement in which employees do not travel to a central place of work. "Telework" refers to all types of technology-assisted work conducted outside of a centrally sited work space (comprising work undertaken at home, outside calls, etc.). In the same way, institutions of higher education are beginning to spot the value of virtual internship as effective experiential learning opportunities to acquire professional skills and competencies (Franks & Oliver, 2012).

The purpose of this research was to examine the literature published during the past ten years on the relation of business internships and new technologies. Our aim was also to analyze the current state at the Universitat Politècnica de València in order to determine if the existing conditions would allow an opportunity for innovation and growth in this field. Undertaking this

research in order to spot the convenience of suggesting a project of virtual internships to the large higher education institution to which we belong, is a good example of intrapreneurship.

3. Method

3.1. Literature search and identification of studies

Using the systematic review on the effects of business internships published by Sanahuja Velez & Ribes Giner (2015), we identified a sample of studies relating ITCs and business internships, published during the past ten years. We scanned the selected articles in search of interactions and effects of the ITCs on business internships. We enumerated these effects using the method of Perello & Ribes (2014), which is a version of the Q sorting (Petter, Straub & Rai, 2007).

3.2. Data gathering and analysis of the present conditions

We obtained the statistical figures about business internships through the official sources of the Universitat Politècnica de València. We checked the Spanish legislation which regulates the business internships (“Real Decreto 592/2014 de 11 de julio, por el que se regulan las prácticas académicas externas de los estudiantes universitarios”), and the internal regulations of the Universitat Politècnica de València (“Reglamento sobre Prácticas en Empresas e Instituciones de los Estudiantes de la Universitat Politècnica de València”, approved by the Universitat Politècnica de València on the 28th of May of 2015) to picture and analyze the legal background.

4. Results

4.1. Business internships and their relation to new technologies

The literature review returned a total of five papers relevant to business internships and ICTs. Two studies were of quantitative and three were qualitative. The findings related to new technologies found were listed and can be found in Table 1.

With the rapid growth of the number of on-line enrollments in universities, educators have the challenge of guaranteeing that work placement experiences are offered to distant students. Institutions of higher education are beginning to recognize the value of virtual internships as valid experiential learning as well as a good chance to acquire professional skills

and competences (Franks & Oliver, 2012). Some institutions are therefore integrating in their programs on-line virtual internships and thus allowing distant students to attain industry-relevant experience (Conroy & Khan, 2008; Franks & Oliver, 2012).

Table 1. Business internships and their relation to new technologies
(Qualitative studies in regular characters - Quantitative studies in italic characters)

Findings	Authors
1. Virtual internships increase computer and ITCs skills.	Franks & Oliver (2012); Mihail (2006)
2. Virtual internships enhance independent and critical thinking. Other skills learned or developed include: project management, independent work, research skills, virtual presentations, teamwork.	Franks & Oliver (2012)
3. Virtual internships provide new knowledge and skills through social negotiation with both the faculty internship supervisor and the company supervisor (social learning theory).	Franks & Oliver (2012)
4. Blogging can improve knowledge construction, reflection, learning, and communication of emotions.	<i>Chu & Chan (2010); Chu, Kwan, & Warning (2012)</i>
5. Additional learning from social networking: managing a social media site, writing in a digital environment, learn to transfer social media personal skills to professional settings.	McEachern (2011)
6. Virtual traineeships enable distance students to obtain industry appropriate experience.	Conroy & Khan (2008); Franks & Oliver (2012)

Source: Own elaboration

On the one hand, according to past research, virtual internships offer the same benefits as place-based work placement, but they offer supplementary benefits as well, such as learning to use modern information and communication technology to perform their work and to cooperate with their site supervisor and co-workers (Franks & Oliver, 2012). Virtual traineeships enhance computer and ITCs skills (Mihail, 2006; Franks & Oliver, 2012) and some other skills are also improved through virtual internships, such as working independently and critical thinking (Franks & Oliver, 2010).

On the other hand, blogging has been endorsed as a suitable tool for learning during traineeship due to its associated utility in collaborative learning, reflection, communication, and social support (Chu, Chan, & Tiwari, 2010). The term “blog” is an abbreviated form of “web log”, which is a web-based diary, offered in reverse sequential order that consists of a person’s ideas published on the web for multiple viewers in a flexible way (Flatley, 2005). Some articles presented evidence to support the use of blogging during the traineeship and computer-based tools for learning and teaching, and that blogs may be a suitable learning platform that interns should engage in throughout their professional learning (Chu, et al., 2010; Chu, Kwan, & Warning, 2012).

Finally, as social networking becomes gradually more popular as a communication tool for business and organizations, it is also essential that students learn to transfer personal social networking skills to professional situations. A study (McEachern, 2011) proved that this can be achieved through a Facebook Internship, experiencing a social network in the organizational context.

4.2. *Business internships at the Faculty of Business Administration and Management of the Universitat Politècnica de València*

The Faculty of Business Administration and Management of the Universitat Politècnica de València in Spain has a consolidated program of business internships. This institution is aware of the beneficial impact of business internships and therefore devotes many energies and means to the management, growth, and improvement of the business traineeships. The outcome is that an increasing number of students has been able to undertake a work placement during their studies in this faculty of business during the past years, as table 2 shows.

Table 2.- No of Internships at the Faculty of Business Administration and Management of the UPV(2008-2015)

Year	No. Internships at the Faculty of Business Administration and Management	No. Employers	No. Internships at the Universitat Politècnica de València
2008	398	139	7,345
2009	419	132	6,179
2010	448	156	6,010
2011	420	181	5,755
2012	559	201	5,816
2013	556	223	6,570
2014	625	280	6,911
2015	634	284	7,856

Source: own elaboration using the official data provided by the Universitat Politècnica de València

In addition to the traditional Bachelor and Master Degrees in the field of business administration and management, the faculty has launched two Double Degrees: Business Administration and Management + Computer Science Engineering, and Business Administration and Management + Telecommunications Engineering. These two double degrees will provide the labor market with graduates strong in business and management skills but also with a solid knowledge of ICTs, and they are expected to be highly demanded.

Also, this faculty offers a mode of teaching in some courses known as “flipped teaching”, in which one of the features is that part of the theoretic classes are taught through the support of high quality audiovisual materials, instead of in person.

The Universidad Politècnica de València is currently analyzing the situation and is aiming at launching a project in which virtual internships will be possible. We expect to provide

empirical data of the first experiences in short as it will be paramount to assess this first experiences from the point of view of the satisfaction of participants and of the learning outcomes.

5. Conclusions

Intrapreneurs are employees who work within large organizations and behave like entrepreneurs, by acting as agents of change. The authors of this text highlighted, through previous scientific literature, that new technologies can enhance the traditional internship programs, in particular computer skills improvement and making the internship experience available to more students and companies, including distance students.

First of all, ICTs could enable the realization of virtual internships or telecommuted internships, which could make possible the internship experience to students and companies with difficulties of compatibility of space and in which on-line work would more efficient and recommended. Therefore there is the possibility of increasing the number of business internships and to expand their beneficial effects to a larger number of students and companies.

Secondly, the use of new technologies applied to business internships improves computer skills of its participants, as some authors have stressed in their researches. Also, the use of computer tools and social networks can enhance the overall learning outcomes of the internship experience.

We believe that higher education institutions and administrations would be astute to stimulate virtual internship programs as a way of multiplying the valuable effects internships have on students in various spheres, especially on employability. This employability heightening is achieved through the ITCs competences that can be acquired, which are highly demanded by the work market.

Moreover, the possibility of undertaking a virtual internship in an international scope, could even add further beneficial effects to the work placement, as international internships have a lot to offer, particularly in terms of foreign languages improvement and intercultural skills enhancement. Virtual internships in a foreign country could also enable working in a different country without having to travel and this could be especially significant in moments or fields with difficulties, when it is problematic to find placements for all students. Also, companies in the foreign markets could benefit from experience, by hiring qualified employees among the Spanish students at a reasonable price.

If higher education institutions are committed to the employability of its university graduates, they should make business internships accessible to the maximum possible number of students and manage effective and adequate internship programs. They should also pay attention to the problems that can make students opt out of the valuable internship experience and accept the challenge of supporting students finding placements that will contribute positively to their career progress. One way could be, in the opinion of the authors, by being active in promoting virtual traineeships for its students, as well as attracting international virtual traineeships. Given that the Spanish law and that the regulations of the Universitat Politècnica de València allow internships in a foreign company and also bearing in mind the existing situation and conditions of the considered institution, the authors think that there is a space for innovation and growth in this field.

This idea of innovating within the business internship field at the Universitat Politècnica de València can be acknowledged as intrapreneuring. Following the goals of the organization, which is to enhance employability through making the internship available to the maximum possible number of students, we propose to transform our idea into a profitable project, while operating within the organizational environment and using the corporate resources.

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**CHAPTER 4: A SYSTEMATIC REVIEW ON ENGLISH AS MEDIUM OF
INSTRUCTION: THE CASE OF A BUSINESS SCHOOL**

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1. Abstract and keywords

English as a medium of instruction (EMI) is a global tendency in a growing number of higher education institutions of non-English-speaking countries. EMI is used by universities as an internationalization and marketing tool. Nonetheless, various concerns have been raised, such as the possible difficulties associated to the language proficiency of students and professors, and its impact on the academic outcomes. The aim of this research was double. Firstly, we aimed at systematically reviewing the scientific literature published during the past ten years about EMI in higher education institutions. Secondly, we wanted to assess an EMI group in the Bachelor of Business of the Universitat Politècnica de València (Spain), included in a High Academic Achievement Program. For the systematic review, we examined a total of 230 studies and we included 51. Findings highlight that EMI increased the knowledge of the English language of students and most authors concluded that learning was not hindered. As for our empirical study, we used a quantitative approach including all 541 students of the Bachelor in Business of our Business School from 2010 to 2014. The results yield that learning was not hindered and that most variables related to international exchanges were significantly higher.

Keywords: English-medium instruction; EMI; internationalization; higher education institutions; systematic review; business studies.

2. Introduction

English-medium instruction (EMI) is a global trend in higher education institutions in a growing number of non-English-speaking countries worldwide, in a globalization and marketization context (Coleman, 2006; Hu & Lei, 2013). EMI is used by universities to improve English proficiency of students (Doiz, Lasagabaster, & Sierra, 2011; Sert, 2008), to enhance their employability (Coleman, 2006) and their competitiveness (Byun et Al., 2011; Coleman, 2006). EMI is also used as an internationalization and marketing tool to attract students (Byun et Al., 2001; Doiz, Lasagabaster, & Sierra, 2011; Hou et Al. 2012). According to Coleman (2006), EMI increases alignment with the worldwide spread of English as a global lingua franca and as the language of science.

According to the report “English as a medium of instruction – a growing global phenomenon” (Dearden, 2014), EMI is defined by: “The use of English language to teach academic subjects in countries or jurisdictions where the first language (L1) of the majority of the population is not English.”

According to this report, it is vital to provide a conceptual separation between EMI and content and language integrated learning (CLIL). While CLIL is contextually located (with its origins in the European ideal of plurilingual competence for EU citizens), EMI has no particular contextual origin. While CLIL does not indicate which second language (L2) academic subjects are to be taught, EMI stipulates that the language of teaching is English. Whereas CLIL has a solid objective of increasing both content and language as affirmed in its designation, EMI does not (essentially) has that objective.

Nonetheless, various concerns have been raised in relation to EMI, such as difficulties associated to the English language proficiency of students and professors (Erling & Hilgendorf, 2006) and especially about its impact on the academic results, as some critics consider that EMI could be hampering students' content learning.

The Universitat Politècnica de València (UPV), in Spain, launched in the 2010-11 academic year the High Academic Performance Groups (Grupos de Alto Rendimiento Académico, from now on ARA Groups) for the Bachelor in Business Administration and Management of its Business School. This program, implemented in collaboration with the Department of Education, Training and Employment of the Generalitat Valenciana (the regional Government), aimed at strengthening the potential of the brightest students. It is characterized by a small number of students in the class, a large number of credits taught in English, and highly qualified teachers. It also includes training activities and incentives for teachers. The five degrees at the UPV which offered the ARA groups are the following: Degree in Business Administration and Management, Degree in Biotechnology, Degree in Aeronautical Engineering, Degree in Computer Engineering, and Degree in Electronic and Industrial Engineering.

A literature review of the scientific literature in relation to high academic performance programs carried out prior to the start of the study revealed the absence of similar studies published in scientific indexed journals. By contrast, the scientific literature on English as a medium of instruction or teaching in non-English speaking countries is wide. Nevertheless, we did not find a systematic review about English as a medium of instruction.

The aim of this research was double. Firstly, we aimed at systematically reviewing the scientific literature published during the past ten years about English-Medium of Instruction (EMI) in higher education institutions. Secondly, we wanted to assess an EMI group in the Bachelor of Business Administration and Management, included in a High Academic Achievement Program of the Universitat Politècnica de València (Spain). We aimed at determining if EMI has had any effect on the academic outcomes of students, as well as on other

variables related to the students' participation into international programs and business internships.

3. Method

3.1. Systematic review

We did a literature search and selection of studies about English Medium of Instruction (EMI) in the research literature and a sample of articles was identified using a personalized version of the approach developed by David & Han (2004) and later adapted by Newbert (2007), through the following criteria:

1. Search the “Web of Knowledge” database for articles published within the past ten years (from 2007 to 2016);
2. Articles had to contain the primary keywords in their title: (English) AND (medium OR language) AND (instruct*);
3. Search for peer reviewed published journal articles;
4. Selecting articles that appear in journals with multiple articles;
5. Reading all remaining abstracts for pertinent content;
6. Reading all remaining articles for adequate content;
7. Adding articles found as result of a hand search;
8. Adding articles which did not meet the criteria but were considered seminal.

The selected articles were examined for English Medium of Instruction (EMI) programs within the university context and its effects, as well as for variables affecting outcomes and satisfaction. These were listed and classified using the approach of Perelló & Ribes (2014), which is an adaptation of Q sorting (Petter, Straub, & Rai, 2007).

3.2. The case of a Business School

We used a quantitative approach, including the 541 students of the Bachelor Degree in Business Administration and Management at the Business School of the Universitat Politècnica de València (Spain), during the period from 2010 to 2014. 107 of them belonged to the High Academic Achieving program, which is taught using EMI in a large proportion of the courses. We examined a set of variables related to five different categories: 1) Academic achievement; 2) International exchanges; 3) Business internships; 4) Employers' satisfaction questionnaire (business internships), and 5) Students' satisfaction questionnaire (business internships).

We did a statistical descriptive analysis and a bivariate analysis, which included all statistical contrasts required to measure the relationship between the performance of the variables and the condition of ARA or non ARA student. These contrasts are carried out through parametric and nonparametric statistical techniques appropriated to each variable's characteristics. We used Kolmogorov-Smirnov test to proof adjustment to a normal distribution of the continuous variables. Test of t Student has been used for independent samples of continuous type and normal distribution. We used Mann-Whitney test for two independent samples to test whether or not the distribution of a parameter, at least ordinal, is the same in two independent samples. Pearson Chi² test has been used to test of association or dependency between two categorical variables, provided that the expected frequency is greater than 5 cases. Otherwise, and only for dichotomous variables, Fisher's exact test was used. The level of significance used in all bivariate tests was 10% ($\alpha = 0.1$).

4. Results

4.1. Results of the review

4.1.1. Identification of studies

Identified papers in data base search (250) were screened against the established inclusion criteria, yielding 44 papers. One additional paper was identified through hand search and 6 additional seminal papers were added yielding a final sample of 51 papers.

Table 1 shows all the studies included and outlines selected characteristics. Out of the 51 included papers, 43 were empirical (16 were quantitative, 15 quantitative, and 12 mixed qualitative and quantitative methods) and 8 were more descriptive or think pieces. Geographically, the countries of origin of the papers were varied. Among them, South Korea outstands, with 12 articles. Other countries with a noteworthy representation were China, Spain, Taiwan, Japan, and Denmark.

Table 1. Studies included in the systematic review

N.	Authors	Year	Study title	Magazine	Country
<i>Data base search</i>					
1	Barrios, López-Gutiérrez, & Lechuga	2016	Facing challenges in English Medium Instruction through engaging in an innovation project	Procedia – Social and Behavioral Sciences	Spain
2	Basibek, Dolmaci, Cengiz, Bür, Dilek, & Kara	2013	Lecturers’ perceptions of English Medium Instruction at Engineering Departments of Higher Education: A study on partial English medium instruction at some state universities in Turkey	Procedia – Social and Behavioral Sciences	Turkey
3	Belhiah & Elhami	2015	English as a medium of instruction in the Gulf: When students and teachers speak	Language Policy	Saudi Arabia
4	Botha	2013	English-medium instruction at a university in Macau: Policy and realities	World Englishes	Macau
5	Bradford	2016	Toward a Typology of Implementation Challenges Facing English-Medium Instruction in Higher Education: Evidence from Japan	Journal of Studies in International Education	Japan
6	Chang, Kim, & Lee	2013	Identification of essential English productive skills for English-medium instruction course: A syllabus analysis	English Teaching	South Korea
7	Choi	2012	English as an instructional medium in Korean higher education: Focusing on the perspectives of professors	English Language & Literature Teaching	South Korea
8	Costa & Coleman	2012	A survey of English-Medium instruction in Italian higher education	International Journal of Bilingual Education and Bilingualism	Italy
9	Cristea	2016	How to improve my teaching style? Teaching business law through English-medium instruction. Graduate and undergraduate student’s point of view.	Journal of Educational Sciences & Psychology	Romania
10	Dafouz & Camacho-Miñano	2016	Exploring the impact of English-medium instruction on university student academic achievement: The case of accounting	English for Specific Purposes	Spain

N.	Authors	Year	Study title	Magazine	Country
11	Doiz, Lasagabaster, & Sierra	2011	Internationalization, multilingualism and English-medium instruction	World Englishes	Spain
12	Hahl, Järvinen, & Juuti	2014	Accommodating to English-medium instruction in teacher education in Finland	International Journal of Applied Linguistics	Finland
13	He & Chiang	2016	Challenges to English-medium instruction (EMI) for international students in China: A learners' perspective	English Today	China
14	Hengsadeekul, Hengsadeekul, Raviunder, & Kaewkuekool	2010	English as medium of instruction in Thai universities: A review of literature	Selected Topics in Education and Educational Technology	Thailand
15	Hou, Morse, Chiang, & Chen	2012	Challenges to quality of English medium instruction degree programs I Taiwanese universities and the role of local accreditors: a perspective on non-English-speaking Asian country	Asia Pacific Education Review	Taiwan
16	Hu & Lei	2013	English-medium instruction in Chinese higher education: a case study	Higher Education	China
17	Hu, Li, & Lei	2014	English-medium instruction at a Chinese University: rhetoric and reality	Language Policy	China
18	Huang	2015	Exploring and assessing effectiveness of English medium instruction courses: the students' perspectives	Procedia – Social and Behavioral Sciences	Taiwan
19	Huang & Singh	2014	Critical perspectives on testing teaching: reframing teacher education for English medium instruction	Asia-Pacific Journal of Teacher Education	Taiwan
20	Jensen & Thogersen	2011	Danish university lecturers' attitudes towards English as the medium of instruction	Iberica	Denmark
21	Jiménez Muñoz	2016	Content and Language: the impact of Pedagogical Designs on Academic Performance within Tertiary English as a Medium of Instruction	Porta Linguarum	Spain
22	Joe & Lee	2013	Does English-Medium Instruction Benefit Students in EFL Context? A case Study of Medical Students in Korea	The Asia-Pacific Education Researcher	South Korea

N.	Authors	Year	Study title	Magazine	Country
23	Kedzierski	2016	English as a medium of instruction in East Asia's higher education sector: a critical realist cultural political economy analysis of underlying logics	Comparative Education	East Asia
24	Kim	2015	English-medium instruction: Perceptions of university students of different academic years and lectures	Studies in English Education	South Korea
25	Kim	2009	English medium instruction in higher education: Does it promote cultural correction or cultural continuity?	English Language & Literature Training	South Korea
26	Kim	2011	Korean professor and student perceptions of the efficacy of English-medium instruction	Linguistic Research	South Korea
27	Kim & Sohn	2009	Expert system to evaluate English medium instruction in Korean Universities	Expert Systems with Applications	South Korea
28	Kim, Son, & Sohn	2009	Conjoint analysis of enhanced English Medium Instruction for college students	Expert Systems with Applications	South Korea
29	Kim, Tatar, & Choi	2014	Emerging culture of English-medium instruction in Korea: experiences of Korean and international students	Language and Intercultural Communication	South Korea
30	Klapwijk & Van der Walt	2016	English-Plus Multilingualism as the New Linguistic Capital? Implications of University students' attitudes towards languages of instruction in a multilingual environment	Journal of Language, Identity & Education	South Africa
31	Ko & Wei	2014	A comparative study on college English-medium instruction policy between China and Korea	Korean Journal of Comparative Education	South Korea and China
32	Lasagabaster	2015	The relationship between motivation, gender, L1 and possible selves in English-medium instruction	International Journal of Multilingualism	Spain
33	Lee	2014	Why students don't participate in English Medium Instruction classes in a Korean university: A case study	English Teaching	South Korea

N.	Authors	Year	Study title	Magazine	Country
34	Lei & Hu	2014	Is English-medium instruction effective in improving Chinese undergraduate student's English competence	International Review of Applied Linguistics in Language Teaching	China
35	Lueg & Lueg	2015	Why do students choose English as a Medium of Instruction? A Bourdieusian perspective on the study strategies on non-native English speakers	Academy of Management Learning & Education	Denmark
36	Manjet	2016	Academic listening practices among international graduate students in English as Medium of Instruction	Pertanika Journal of Social Science and Humanities	Malaysia
37	Nguyen, Hamid, & Moni	2016	English-medium instruction and self-governance in higher education: the journey of a Vietnamese university through the institutional autonomy regime	Higher Education	Vietnam
38	Park	2013	Issues and challenges in offering English-medium instruction: A close examination of the classroom experiences of professors	Studies in English Language & Literature	South Korea
39	Salomone	2016	The rise of global English	Language Problems & Language Planning	USA
40	Suliman & Tadros	2011	Nursing students coping with English as a foreign language medium of instruction	Nurse Education Today	Saudi Arabia
41	Toh	2016	Extrapolating from and inquiry into curricular issues concerning the adoption of English as Medium of Instruction in a Japanese university situation	Latin American Journal of Content & Language Integrated LACLIL	Japan
42	Torres-Olave	2012	Imaginative geographies: identity, difference, and English as the language of instruction in a Mexican university program	Higher Education	Mexico
43	Werther, Denver, Jensen, & Mees	2014	Using English as a medium of instruction at university level in Denmark: the lecturer's perspective	Journal of Multilingual and Multicultural Development	Denmark
44	Zaaba, Aning, Gunggut, Ramadan, & Umemoto	2010	English as a medium of instruction in the public higher education institution: A case study of language-Education Policy in Malaysia	Selected Topics in Education and Educational Technology	Malaysia

<i>Hand search</i>					
1	Chen	2014	Proficiency as a factor in English-Medium Instruction online tutoring	English Language Teaching	Taiwan
<i>Seminal studies</i>					
1	Airey & Linder	2006	Language and the experience of learning university physics in Sweden	European Journal of Physics	Sweden
2	Byun et Al.	2011	English-medium teaching in Korean higher education: Policy debates and reality	Higher Education	South Korea
3	Coleman	2006	English-medium teaching in European Higher-Education	Open research Online	Europe
4	Erling & Hilgendorf	2006	Language policies in the context of German higher education	Language Policy	Germany
5	Sert	2008	The language of instruction dilemma in the Turkish context	An international Journal of Educational Technology and Applied Linguistics	Turkey
6	Tsuneyoshi	2005	Internationalization strategies in Japan	Journal of Research in International Education	Japan

4.1.2. Findings of the systematic review

Effects of EMI on students: Most studies agreed that EMI increases English language skills of students (Belhiah & Elhami, 2015; Byun et Al., 2011; Doiz, Lasagabaster, & Sierra, 2011; Kim, 2011; Sert, 2008). As for the impact on students' academic outcomes, the majority of papers concluded that EMI does not hinder them (Airey & Linder, 2006; Byun et Al., 2011; Dafouz & Camacho-Miñano, 2016; Joe & Lee, 2013), while fewer studies concluded that EMI hampered students' content learning (Bradford, 2016; Kim, 2011; Sert, 2008).

It was also found that EMI facilitates the students' participation into exchanges (Coleman, 2006; Doiz, Lasagabaster, & Sierra, 2011), helps students prepare for future business careers or academic pursuits (Byun et Al., 2011; Doiz, Lasagabaster, & Sierra, 2011), facilitates access to postgraduate degrees abroad (Doiz, Lasagabaster, & Sierra, 2011), and increases employment of domestic graduates (Coleman, 2006).

On a different level, EMI produces stress on students (Lei & Hu, 2014; Suliman & Tadros, 2011), increased workload because of the language change, and cultural challenges (Bradford, 2016). A good number of papers researched the effects that EMI has on the identity of students, finding that it produces identity issues (Bradford, 2016; Hengsadeeikul et Al., 2010; Torres-Olave, 2011).

Since EMI makes students face language and instruction problems (He & Chiang, 2016; Manjet, 2016), they used strategies to cope with these difficulties (Airey & Lindey, 2006; Botha, 2013; Hahl, Järvinen, & Juuti, 2016; Manjet, 2016; Suliman & Tadros, 2011). These strategies included avoiding asking or answering questions and reduced interaction (Airey & Lindey, 2006; Suliman & Tadros, 2011), resorting to one's first language (Botha, 2013; Hahl, Järvinen, & Juuti, 2016; Suliman & Tadros, 2011), and focusing on notetaking (Airey & Linder, 2006).

Effects of EMI on Faculty: According to Byun et Al. (2011), EMI boosts language skills and the confidence of professors. It facilitates the teachers' participation into exchange programs (Doiz, Lasagabaster, & Sierra, 2011), promotes greater staff mobility and idea exchanges (Byun et Al., 2011; Coleman, 2006), and entails better access to teaching and research materials (Coleman, 2006).

EMI course preparation requires extra load of work and more complications (Doiz, Lasagabaster, & Sierra, 2011). Some teachers compensated their lack of fluency and terminology with well-prepared slides (Hahl, Järvinen, & Juuti, 2016).

Effects of EMI on higher education institutions: EMI is an effective tool for internationalization (Byun et Al., 2011; Coleman, 2006; Hou et Al., 2012) and increases university competitiveness (Byun et Al., 2011; Coleman, 2006). EMI attracts international students (Byun et Al., 2011; Doiz, Lasagabaster, & Sierra, 2011; Nguyen, Hamid, & Moni, 2016; Hou et Al., 2012) and allows institutions to attract and employ visiting academics from abroad, specially qualified native-English-speaking scholars (Byun et Al., 2011; Doiz, Lasagabaster, & Sierra, 2011; Nguyen, Hamid, & Moni, 2016).

EMI stimulates international exposure of the students (Hou et Al., 2012) and can be a stepping stone to launch partnerships with foreign institutions (Nguyen, Hamid, & Moni, 2016).

Effects of EMI on society: EMI provides the domestic labor market with graduates having a higher level of internationally-oriented skills (Byun et al., 2011). Nonetheless, some of the included studies in China found that it functions to perpetuate educational inequalities, by making it a service to the privileged, the rich, and the elite (Hu & Lei, 2013; Hu, Li & Lei, 2012, Lueg & Lueg, 2015). It was also found that, in China, business students from the lowest stratum self-select against EMI due to a pronounced fear of failure despite their awareness that EMI leads to higher employability (Lueg & Lueg, 2015). Another research concluded that it gives place to geography of difference: constructing “us” and “them” (Torres-Olave, 2011). Global English is having an intense effect on language rights, and it raises equity concerns across education (Salomone, 2015). In a multilingual context, with a minority language, universities need to articulate a clear language policy whose primary goal is to find a balance with the co-official languages (Doiz, Lasagabaster, & Sierra, 2011; Salomone, 2015).

Variables affecting effectiveness of EMI: The impact of English proficiency of students on academic learning and achievement is high, according to the majority of researchers (Erling & Hilgendorf, 2006; Kim, Tatar, & Choi, 2014; Kim, 2011; Nguyen, Hamid, & Moni, 2016), although, according to Joe & Lee (2013), students’ general English proficiency was not related to their lecture comprehension. English lack of proficiency in students produces learning difficulties and stress (Huang, 2015) and therefore, opportunities for appropriate language training do also affect outcomes (Byun et Al., 2011; Erling & Hilgendorf, 2006; Tsuneyoshi, 2005). Stating clearly the level of English proficiency required of students for certain EMI courses (Byun et Al., 2011) and teacher training (Nguyen, Hamid, & Moni, 2016) can affect success.

The most cited variable affecting effectiveness of EMI was the faculty language skills (Bradford, 2016; Erling & Hilgendorf, 2006; Hahl, Järvinen, & Juuti, 2016; He & Chiang, 2016;

Kim, 2011; Hou et Al., 2012) and quality (Hou et Al., 2012). In contrast to the international students in the English-speaking countries, in China for instance, the language difficulties were attributed to the Chinese instructors (He & Chiang, 2016).

The level of support from the university, the perception of the program within the mission of the university (Hou et Al., 2012; Doiz, Lasagabaster, & Sierra, 2011), and the program coherence and expansion (Bradford, 2016; Doiz, Lasagabaster, & Sierra, 2011) are also key factors. The academic community needs to be more supportive about the presence of English medium teaching at universities (Doiz, Lasagabaster, & Sierra, 2011). Attitude, competence, goal attainment and performance were rated by a panel of experts as most important to the effective EMI (Huang & Singh, 2014). Attitude to EMI policy, experience with EMI teaching, student evaluation and support are also relevant to effectiveness of EMI (Werther et Al., 2014). The size of the institution was also found a chief factor, as larger size institutions tend to have fewer obstacles to developing EMI (Hou et Al., 2012). If the program is open to international and to domestic students, this leads to better intercultural learning than a segregation policy (Hou et Al., 2012).

The human and financial support (Bradford, 2016; Byun et Al., 2011; Erling & Hilgendorf, 2006; Hou et Al., 2012), and a suitable compensation system for EMI instructors (Tsuneyoshi, 2005) do also have an impact on the success of the program.

Participant satisfaction: On the one hand, research about student satisfaction towards EMI offers mixed results. Whereas students were not positive towards EMI in some researches (Joe & Lee, 2013; Kim, 2015; Kim, Son, & Sohn, 2009), general satisfaction with EMI was positive (Byun et Al., 2011; Cristea, 2016; Lee, 2014). Students with higher English language learning or experience were more likely to report their EMI courses as satisfactory (Lee, 2014). A study in Korea revealed self-perceived lack of knowledge and understanding of subject content, lack of English language skills, and lack of motivation (Lee, 2014). According to Kim, Son & Sohn (2009), small class size and classes for cultural studies are preferred by EMI students. Also, the whole contents of EMI classes need to be offered in English for students' higher satisfaction (Kim, Son, & Sohn, 2009; Kim & Sohn, 2009), and the offered courses should reflect students' preferences rather than the professors' choices (Kim, Son, & Sohn, 2009). The factor which has the most effective direct effect on the student's satisfaction is suitability (suitable professor, subject and class size) according to Kim & Sohn (2009).

On the other hand, professors did not generally hold positive opinions about EMI effectiveness (Kim, 2015). A survey in Denmark (Werther et Al., 2014) concluded teaching in

English is more of a problem than most teachers dare openly to admit. In this study teachers indicated that more systematic planning is needed. Another study in Turkey (Basibek et Al., 2013) concluded that lecturers in partial EMI programs consider that they are less capable of performing their teaching obligations or may feel teaching to be more difficult. A research in South Korea concluded that professors perceive the EMI policy positively expecting to be favorable for both students and institutions but they recognize that EMI will lower the standard of the academic experience of students (Choi, 2012). Another study in South Korea (Park, 2013) evidenced that professors had mixed feelings about their experiences of teaching EMI. While a few were positive about offering EMI because it stimulated students' participation in class, other assessed their experience negatively because it required them to concentrate on improving students' English skills.

4.2. *The case of a Business School*

4.2.1. Academic performance

The sample included the 541 students of the degree in Business Administration and Management (107 ARA and 434 non ARA).

Table 2 shows the results for the descriptive statistics and bivariate analysis of the academic performance variables.

Table 2. Academic performance

Variable	ARA value	Non ARA value	Bivariate Analysis
Credits approved / year	53.173	54.913	0.299 (M-W)
Average mark	6.831	6.827	0.536 (M-W)
University access score	8.142	7.668	0.000 (M-W)
Final Year Project mark	9.000	8.639	0.816 (M-W)
Gender (% of women)	42.1%	49.5%	0.165 (Chi ²)
Graduates in 4 years	17.1%	14.0%	0.738 (Chi ²)

The only variable which presented statistically significant differences was the score with which students entered in the university.

4.2.2. International programs

The sample comprised records of the 99 exchanges done during the period (56 Non ARA and 43 ARA).

Table 3 shows the results of the descriptive statistics and bivariate analysis of the international exchanges variables.

Table 3. International Exchanges

Variable	ARA value	Non ARA value	Bivariate Analysis
Months of exchange	7.88	6.95	0.025 (M-W)
Average mark during exchange	7.61	7.77	0.566 (t student)
Approved credits	39.57	32.05	0.021 (t student)
Approved credits / semester	22.73	20.29	0.129 (t student)
% of students undertaking exchanges	40.19%	12.90	0.000 (Chi²)

Several variables related to international exchanges presented statistically significant differences between the two groups. EMI students did more months of exchange, they approved more credits and they participated about four times more into exchange programs.

4.2.3. Business internships

We had a sample of 231 cases (33 ARA and 198 Non ARA).

Table 4 shows the results of the descriptive statistics and bivariate analysis of the internships variables.

Table 4. Business Internships

Variable	ARA value	Non ARA value	Bivariate Analysis
N. of days of business internships	63.42	60.7	0.421 (M-W)
N. of total hours of business internships	292.61	298.25	0.631 (M-W)
N. of hours of business internships/day	4.37	5.35	0.067 (M-W)
Salary / month	406.45	396.52	0.436 (M-W)
Salary / hour	4.09	3.75	0.088 (M-W)
% of students doing business internships	30.84%	45.62%	0.006 (M-W)

Source: Own elaboration

The percentage of students doing business internships and the number of hours per day was significantly lower in the case of the ARA students. By contrast, the salary per hour was significantly higher in the ARA students.

4.2.4. Students' satisfaction questionnaire (business internships)

We had a sample of 151 answered questionnaires (24 ARA and 127 non ARA).

Table 5 shows the results of the bivariate analysis of the internships student questionnaire.

Table 5. Business Internships satisfaction
Students' questionnaire

Variable	Bivariate Analysis
Contribution to the company: technical	0.017 (Chi²)
Contribution to the company: human	0.385 (Chi ²)
Dedication: personal initiative	0.988 (Chi ²)
Dedication: directed work	0.497 (Chi ²)
Integration: technical	0.288 (Chi ²)
Integration: human	0.270 (Chi ²)
Did you do your final year project in the company?	0.724 (Chi ²)
Do you think you will be hired by the company	0.171 (Chi ²)
Satisfaction with the business internship	0.759 (Chi ²)
Satisfaction with the business internship office	0.276 (Chi ²)

Source: Own elaboration

The only variable which presented significant differences was the evaluation of the students of their technical contribution to the company.

4.2.5. Employers' satisfaction questionnaire (business internships)

Concerning the employers' opinion about the traineeships, we had a sample of 151 answered questionnaires (23 ARA and 128 non ARA).

Table 7 shows the results of the bivariate analysis of the internships student questionnaire.

The only variable which presented significant differences was the evaluation of the employers of the students' dedication: personal initiative, which was higher in the case of the ARA students.

Table 7. Business Internships satisfaction
Employers' questionnaire

Variable	Bivariate Analysis
Students' dedication evaluation: personal initiative	0.075 (Chi²)
Students' dedication evaluation: directed work	0.118 (Chi ²)
Initial training: technical knowledge	0.247 (Chi ²)
Initial training: personal skills	0.493 (Chi ²)
Integration: technical	0.493 (Chi ²)
Integration: human	0.270 (Chi ²)
Evaluation of the objectives attained by the student	0.473 (Chi ²)
Would you hire the student?	0.554 (Chi ²)
Satisfaction with the business internship	0.757 (Chi ²)
Satisfaction with the business internship office	0.652 (Chi ²)

Source (own elaboration)

5. Discussion

Concerning our first objective of doing a systematic review about the English-medium instruction in higher education, as we did not find other similar reviews, a comparison in the size of the sample with other study cannot be offered. Limitations of this review derivate from not including grey literature and studies in other languages.

As for our second objective, the case of a Business School, our results about the impact of EMI on academic content learning corroborate the findings of Airey & Linder (2006), Byun et Al. (2011), Dafouz & Camacho-Miñano (2016) and Joe & Lee (2013), as we found that business content learning was not hindered. Our results do also support previous research related to enhanced international programs participation (Coleman, 2006; Doiz, Lasagabaster, & Sierra, 2011), as it resulted that our EMI students participated in a much higher proportion into exchanges. This outcome is paramount, as the relationship between participation into exchanges and employability it has been extensively evidenced (Berrell et Al., 2005, Crossman & Clarke, 2010). In their research, Crossman & Clarke (2010) found strong relations between international experience and employability, given the outcomes linked with the shaping of networks, chances for experiential learning, language attainment and the development of soft skills related to intercultural abilities.

Our study also concluded that the percentage of students doing business internships and the number of hours per day of internships was lower in the EMI group. In our case this result has a natural justification, as usually internships and exchange programs take place simultaneously during the last year, and therefore some students have to choose between one and the other. EMI students, with a more international vocation, are more likely to engage in an exchange program (which can also include an international business internship) rather than in a national internship. Nonetheless, the increase of exchanges in the EMI group (about 4 times more) is much greater than the decrease of internships, for which we believe the effect on employability, is compensated and still favorable to EMI students. Nevertheless, the salary per hour was higher in the EMI students, as well as the students' evaluation of their technical contribution and the employers' evaluation of the students' personal initiative.

6. Conclusions

Concerning our first objective, this systematic review included 51 papers published during the past 10 years relevant to EMI in higher education. The findings are abundant and varied. The most remarkable are that EMI increases the English language skills of students,

enhances the student participation into exchange programs, and most authors agreed that academic learning is not hindered. Nevertheless, a smaller number of authors concluded that EMI hampers content learning. This review has also listed a good number of variables that can affect the effectiveness of EMI, such as the English knowledge of professors and students, and the support of the institution. It also collected information of several satisfaction surveys, showing that results were mixed and that students' were generally more satisfied with EMI than professors.

As for our second objective, the case in a Business School, we used a quantitative approach that included the 541 students enrolled at the Bachelor in Business from 2010 to 2014. This degree offers a high academic performance program where English is used to teach in a great part of the courses. We used descriptive statistics and bivariate analysis to compare the EMI and the non EMI groups and we did not find any statistically significant differences in the academic performance. In our case, EMI did not have any negative impact on the business content learning. Our results also showed that most variables related to international exchanges were significantly higher. Additionally, some variables related to traineeships, such as the salary per hour and the students' evaluation of their technical contribution, as well as the employers' evaluation of the personal initiative were higher in the case of EMI students.

The results of our systematic review and empirical study are relevant to business schools, higher education institutions, to tertiary education and employment authorities, as well as for students and employers. Given English's progressive dominance as a lingua franca, the extension of EMI at universities world-wide is an inevitable process that is likely to continue well into the future. This research and its findings will therefore be a valuable contribution to its effective implementation.

On the one hand, we contribute to better understand EMI through an exhaustive review of all the relevant literature published in recent years, screening and listing in a systematic way all the possible effects on the different stakeholders, as well as the variables affecting effectiveness and satisfaction. On the other hand, we contribute to the empirical research about EMI with the results in a Business School, reporting that learning did not suffer as a consequence of using EMI. Additionally, if we consider the greater participation into exchanges abroad that we found in the EMI group, it is expected that these graduates will have a superior reception within the labor market. The reason behind this is the enhancement of intercultural competences achieved during the international exchange programs, including the language improvement, which are very attractive to employers. This enhanced employability is also supported by the evidence that EMI students received a higher salary per hour and had better evaluations of their technical skills during their traineeships.

Higher education institutions can use the EMI programs to enhance academic excellence and potentially attract qualified students. They can also use them as a strategy to increase employability of graduates, having in mind that it is expected that the employability of EMI students will be boosted, while maintaining the quality and the quantity of the academic content learning.

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**CHAPTER 5: ENHANCING STUDENT INTERNATIONALIZATION AND
EMPLOYABILITY IN A BUSINESS SCHOOL**

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1. Abstract and keywords

Internationalization and employability of students are high on the agenda of higher education institutions. A European University (the name is omitted in the review process in order to keep it anonymous) launched in the 2010-11 academic year the High Academic Achievement Group for the bachelor degree in Business, which is characterized by a large number of credits taught in English. The purpose of this research was analyzing if this action had some impact on the students' participation into international programs. 541 students of the degree in Business Administration and Management during the period 2010-2014 were included in this study, 107 of them from this new group. We used a quantitative approach with descriptive and bivariate statistical analysis to compare the behavior of a set of variables related to international exchanges. The findings yield that most variables were significantly higher in the case of the English-taught students, participating about four times more into international exchanges. Previous research evidenced that employability is boosted by international experience in a globalized context, through the intercultural skills development, including the knowledge of foreign languages, which are highly demanded by employers. Our results suggest that business schools could use English as Medium of Instruction to enhance their students' participation into international programs, their cross-cultural skills, and hence their employability.

Keywords: Human resources management, internationalization, employability, intercultural skills, business studies.

JEL CODES: I23, M16, M54.

2. Introduction

Employability is defined as having the abilities and skills to find an employment, continue in employment or acquire new employment when necessary (Hillage and Pollard, 1998; Rothwell and Arnold; Thijssen et al., 2008). Employability skills have been defined as a "set of achievements –skills, understandings and personal attributes- that makes graduates more likely to obtain a work and be successful in their selected careers' (Yorke, 2006). "Soft" or "transferable" skills relate to generic personal and interpersonal qualities which are independent of the field of study. Knight and Yorke (2003), describe employability as a blend of understanding, skillful performs, efficacy principles (or legitimate self-confidence) and reflectiveness (or metacognition).

The globalization tendency has converted this into an interdependent and interconnected world, in which real or virtual relations are the everyday norm for individuals from diverse cultural circumstances (Chen, 2010). Intercultural communication capability, or the ability to cooperate appropriately and effectively with people of different cultural circumstances, is thus a necessity at current times (Zhang, 2012) and will be increasingly more required by employers within the business context, as internationalization grows.

Intercultural competence is the set of knowledge and skills that allows effectively interacting and working with people from other ethnic, religious, cultural, national, and geographic groups. It is the crucial acceptance of people who are different to oneself outside one's own culture, the capability to collaborate with them in a really constructive manner which is free of negative attitude (Schmid, 2009).

On the one hand, from the higher education institutions perspective, one of their essential objectives is to ensure that their graduates will be able to find employment within their chosen career (Santiago, 2009), and therefore should be taking the necessary steps to provide the labor market with graduates with the soft skills demanded by employers and human resources managers, among them, the intercultural competence.

On the other hand, from the business point of view, in complex and dynamic environments like nowadays', effective management of human capital is progressively significant, being the basis for much of the sustainable competitive advantage of a corporation (Barney, 1991; Wernerfelt, 1984). Previous empirical research evidenced that high performance strategic human resources management practices, including a selective staff selection, has an influence on the progress and motivation of personnel, with improved firm performance (Aragón Sánchez et al., 2015; Jackson et al., 2014; Jiang et al., 2013). Given both the growing globalization of organizations, due to economic, political and market force expansion, and the rise in workforce variety, organizational strategies that focus on developing employees who are effective in cross cultural work settings are increasingly in high demand (Ang and Inkpen, 2006). In addition to globalization, the labor force has also become gradually diverse in terms of race, ethnicity and nationality even within an organization situated in its home nation (Cox, 1991). This workforce diversity highlights the importance of developing employees' intercultural skills, even if they are not given international tasks.

A public European University (the name is omitted in the review process in order to keep it anonymous), launched in the 2010-11 academic year the High Academic Achievement Groups (Grupos de Alto Rendimiento Académico, ARA Groups, for its acronym in Spanish), in

collaboration with the Department of Education, Training and Employment of the Regional Government (the name is omitted in the review process in order to keep it anonymous).

This program, aimed at strengthening the potential of the brightest students, is characterized by a small number of students in the class, a large number of credits taught in English, and highly qualified teachers. It also includes training activities and incentives for teachers.

The five degrees at this university which offer the ARA groups are the following: Degree in Business Administration and Management, Degree in Biotechnology, Degree in Aeronautical Engineering, Degree in Computer Engineering and Degree in Electronic and Industrial Engineering.

Previous research about English as medium of instruction (EMI) highlighted that the knowledge of English was improved as one of the most evidenced effects on students (Belhiah and Elhami, 2015; Byun et al., 2011; Doiz, et al., 2011; Kim, 2011; Sert, 2008). It was also found that it facilitates the students' participation into international exchange programs (Coleman, 2006; Doiz, et al., 2011). As for the academic content learning, the literature review offered mixed results. Although most studies found that the quantity and quality of learning was maintained (Airey and Linder, 2006; Byun et Al., 2011; Dafouz and Camacho-Miñano, 2016; Joe and Lee, 2013), some other studies concluded that learning could be hindered (Bradford, 2016; Kim, 2011; Sert, 2008).

Additionally, several studies have found strong connections between the participation into international exchange programs and students' employability (Berrell et al., 2005; Crossman and Clarke, 2010).

In the case of business schools, preparing students today to become global managers in the future requires a curriculum that provides the skills and learning experiences appropriate to working in varied, intercultural sceneries (Berrell et al., 2005). These skills, which include intercultural skills, including knowledge of foreign languages, and adaptability to other settings, can be enhanced during an international experience (Cranmer, 2006).

The purpose of this study was to assess the first class (2010-2014) of the High Academic Achievement Group of the Bachelor Degree in Business Administration and Management a European University (the name is omitted in the review process in order to keep it anonymous), which is taught using English as a Medium of Instruction (EMI) in a great part of the courses,

from an internationalization perspective. More particularly, we wanted to analyze, using an empirical quantitative research method, whether the implementation of this group has had some impact on the participation in exchange programs of its students and hence could affect their future employability by means of enhancing their intercultural skills.

3. Literature review

A literature review of the scientific literature in relation to high academic performance programs carried out before to the start of the study revealed the nonexistence of studies conducted and published in scientific indexed journals related to similar actions or groups of high academic achievement in higher education institutions.

By contrast, the scientific literature on English as a medium of instruction or teaching (EMI) in non-English speaking countries is wide. After conducting a thorough literature review the findings were varied, being most of them generally positive, although some weaknesses were also found.

EMI is often used by higher education institutions to help attract more international students (Byun et al., 2011; Doiz et al., 2011; Nguyen et al., 2016; Yung et al., 2012). It is a tool for internationalization and competitiveness (Byun et al., 2011; Coleman, 2006; Yung et al., 2012), and allows hiring foreign teachers (Byun et al., 2011; Doiz et al., 2011; Nguyen, et al., 2016). It increases the employability of its graduates in a globalized world and increases alignment with the global tendency of the spread of English as a lingua franca (Coleman, 2006).

According to Yung et al. (2012), teaching in English enables the application of university policies; it stimulates international exposure of students, internationalization at home, and enhances the status of the institution. In addition, universities offering English-taught courses can send its professors to partner institutions to learn content and pedagogy from an international viewpoint. It can also be a starting point to establish exchange agreements with foreign higher education institutions (Nguyen et al., 2016). In fact, as Coleman (2006) indicated in his survey, in most studies exploring the reasons for moving to English -taught courses, the initial incentive classically emerges from the wish to participate into higher education exchange programs (Ammon and McConnell, 2002; Hellekjaer and Westergaard, 2003; Kurtan, 2004; Lehtikoinen; 2004; Maiworm and Wächter, 2002; Marsh and Laitinen, 2005; Räisänen 2000; Tella, 1999). Specially, in those countries where the national languages(s) are little imparted elsewhere, bilateral exchange programs are only possible if teaching is delivered through an international language, most commonly English (Coleman, 2006).

As for the effects of EMI on students, some authors have found evidence that increases the English language skills (Belhiah and Elhami, 2015); Byun et al., 2011; Doiz, et al., 2011; Kim, 2011; Sert, 2008). As regards the impact on learning of the contents, the results are mixed, although most authors conclude that learning was not hindered (Airey and Linder, 2006; Byun et al., 2011; Dafouz and Camacho-Miñano, 2016; Joe and Lee, 2013). However, according to the studies of Sert (2008) and Kim (2011), the learning content itself was adversely affected in the quantity or quality.

EMI facilitates teachers' participation in exchanges programs (Doiz et al., 2011) and promotes greater staff mobility and idea exchanges within the globalized academic world (Byun et al., 2011; Coleman, 2006).

On the one hand, as for the relationship between EMI and participation of students into international programs, scientific evidence is scarce. Doiz et al. (2011) found out, in their qualitative approach, that the participants in their study thought that it facilitates students their participation in exchange programs and continuing studies abroad. According to their study, it also helps students prepare for future academic or professional future challenges. But this conclusion was based on personal perceptions and not contrasted with a quantitative empirical method.

On the other hand, various studies have researched the relationship between the international experience and employability, and they reflect that employability of students who have done an international exchange is boosted (Berrell et al., 2005; Crossman and Clarke, 2010) as it is considered as a good indicator of the intercultural competences of a person (Cranmer, 2006) and especially those more directly related to the language knowledge (Bird, 2008).

Moreover, Parey and Waldinger (2010) identified a casual effect of undergraduate student mobility on later international labor migration. Students who studied under the Erasmus framework abroad were more likely to work abroad later on, about 6% percentage points more, for which their international mobility is boosted and hence their employability.

Within the international exchange programs, international traineeships or international business internships deserve a special mention. In addition to the beneficial effects which have been identified in the case of national work placements, such as employment enhancement, international internships have an additional effect, which is improving intercultural competences of its participants, as some authors have stressed in their researches (van't Klooster et al., 2008;

Zhang, 2012; Zopiatis, 2007). According to Zhang (2012), intercultural competence appears to be improved in its three basic facts through the experience of a work placement abroad: intercultural communicative abilities, intercultural working practice, and intercultural understanding. International internships produce superior learning outcomes than study exchanges and national internships in terms of foreign language skills, self-efficacy and intercultural competencies (Stronkhorst, 2005).

From the literature review it can be stated that this relation exists and that employers do have into account previous international experiences. The participation into international exchange programs is an effective way of attaining a set of skills which are very attractive to the employers, in a context of internationalization and globalization, such as the intercultural abilities, including the knowledge of different languages. These are considered a good indicator of the competences of a person for adapting to different intercultural environments (Cranmer, 2006). Therefore, it is the responsibility of the higher education institutions to enable that their graduates incorporate these competences through an international exchange or internship in a different country (Chan and Dimmock, 2008; Cranmer, 2006), since the increasing globalization and internationalization has heightened the need for business graduates with the ability to operate in culturally diverse contexts.

4. Research Hypothesis

On the one hand, as seen in the literature review, scientific evidence on the relationship between English as a medium of instruction and participation of students into international programs is scarce. Nevertheless Doiz et al., (2011) found out, in their qualitative research, that the partakers in their study thought that EMI facilitates students their participation in exchange programs and continuing studies abroad. According to their paper, it also aids students prepare for future academic or professional future challenges. But this assumption was based on personal opinions and not contrasted with a quantitative empirical method.

On the other hand, the agreement that regulates the ARA groups states that students wishing to enroll in the ARA Groups will need to prove that their knowledge of English language is at least equivalent to a B2 level of the European reference framework, before starting their degree or before the end of the first year. Thus, students of this group have better English language skills than the regular ones. Moreover, according to the various calls for participating into international exchange programs, English skills are required for participating in them, especially in a foreign university where courses are taught in English, which is the majority. This English knowledge requirement is mandatory both by the home and the host university. We do also have

to bear in mind that, as previously suggested by the existing literature, there is also enough evidence that EMI increases the English language skills (Belhiah and Elhami, 2015; Byun et al. 2011; Doiz et al., 2011; Kim, 2011; Sert, 2008). We therefore could anticipate that students from the ARA group, who have better English skills, will be more motivated, will be have more probabilities of being selected as exchange students, and of succeeding academically abroad.

Based on the reasoning above, it is expected that students of the ARA group will have a higher participation rate into international exchange programs. Therefore, the following hypotheses are proposed:

Hypothesis 1. There is a relationship between the participation into the ARA group and number of months spent under an international exchange program by undergraduate business students.

Hypothesis 2. There is a relationship between the participation into the ARA group and the average score achieved during an international exchange program by undergraduate business students.

Hypothesis 3. There is a relationship between the participation into the ARA group and the number of credits approved during an international exchange program by undergraduate business students.

Hypothesis 4. There is a relationship between the participation into the ARA group and the number of months spent under an international exchange program by undergraduate business students.

Hypothesis 5. There is a relationship between the participation into the ARA group and the participation into an international exchange program by undergraduate business students.

5. Methodology

All 541 students of the Bachelor Degree in Business Administration and Management during the period (2010-2014) were included, 107 of them belonging to the ARA group. We analyzed the following variables related to the participation into exchange programs as outgoing students: 1) Months of academic exchange; 2) Average score during the academic exchange; 3) Credits approved during the academic exchange; 4) Credits approved during the exchange, per semester, and 5) % of students participating into academic exchanges.

The international exchange programs sample includes records of the 99 exchanges done during the period by the 541 students of the Degree in Business Administration and Management (56 were Non ARA and 43 were ARA).

Descriptive analysis contains the basic statistics of continuous variables: average, standard deviation, minimum, maximum and median; and frequency distribution and percentages for categorical variables.

Bivariate analysis covers all statistical contrasts required to assess the relationship between the performance of the variables and the condition of ARA or non ARA student. These contrasts are carried out through parametric and nonparametric statistical techniques appropriated to each variable's characteristics.

Kolmogorov-Smirnov test has been used to proof adjustment to a normal distribution of the continuous variables of the study. Acceptance of normality allows the application of parametric tests; while no acceptance determined using nonparametric tests.

Test of t Student has been used for independent samples to test the equality of means in independent samples of continuous type and normal distribution.

Mann-Whitney test has been used for two independent samples to test whether or not the distribution of a parameter, at least ordinal, is the same in two independent samples.

Chi² Pearson test has been used as a test of association or dependency between two categorical variables, when expected frequency of the cells in the contingency tables is higher than 5 cases. On the contrary, and only for dichotomous variables, exact Fisher test will be used.

The level of significance used in all bivariate analyzes was 5% ($\alpha = 0.05$).

6. Results

Table 1 includes all the descriptive statistical data for each of the variables related to international exchange programs that were studied.

The mean value for the months spent under an exchange was higher in the case of the ARA students (7.88 vs. 6.95). The credits approved under an exchange were also higher in the

ARA students (39.57 vs. 32.05), as well as the credits per semester approved under an exchange (22.72 vs. 20.29).

**Table 1 - International Programs Variables – Descriptive Statistic Results
(Non-ARA – ARA)**

Variable	Group	N	Mean	Standard Deviation	Max.	Median	Min.
Months of exchange	Non-ARA	56	6.95	2.04	10.00	5.00	5.00
	ARA	43	7.88	1.82	9.00	9.00	5.00
Average mark	Non-ARA	38	7.77	1.03	9.70	7.95	5.70
	ARA	29	7.61	1.22	9.80	7.40	5.70
Credits approved	Non-ARA	38	32.05	14.02	60.00	36.00	9.00
	ARA	29	39.57	11.12	58.50	39.00	19.50
Credits / semester	Non-ARA	38	20.29	6.62	39.00	20.25	5.25
	ARA	29	22.73	6.19	39.00	21.75	11.25

Source: Own elaboration

Table 2 shows the incidence of the participation into international exchange programs of the two different groups. Findings yield that the incidence is higher in the case of the English taught group (40.19%), than in the regular groups (12.90%).

**Table 2 - Incidence of international exchanges
(Non-ARA – ARA)**

% of students into international exchange programs	Valid N	%
% of students into international exchanges / Total students (ARA)	43	40,19%
% of students into international exchanges / Total students (Non- ARA)	56	12,90%

Source: Own elaboration

In order to find out if the differences observed in the values of the exchange programs variables were statistically significant, we performed the necessary bivariate statistical contrasts.

In the next paragraphs, the results concerning the variables of international exchanges are presented. Sample includes 99 records (56 non-ARA and 43 ARA). Before beginning the bivariate statistical tests it is necessary to determine whether parametric or nonparametric tests will be used depending on if the academic variables adjust to a normal distribution or not in the ARA and non-ARA groups. After applying Kolmogorov-Smirnov test, where a p-value higher than 0.05 indicates normality in the distribution, we conclude that, excepting in the number of months, the rest of variables are normally distributed, in the ARA and non-ARA group, for which parametric tests will be applied in all variables excepting the number of months.

Results of the Kolmogorov-Smirnov test are shown in table 3.

**Table 3 – Kolmogorov-Smirnov Test (normality test)
(ARA – non ARA students)**

Variable	Group	Kolmogorov-Smirnov		
		Statistic	gl	Sig.
Months of exchange	Non-ARA	0.348	56	0.000
	ARA	0.452	43	0.000
Average mark	Non-ARA	0.110	38	0.544
	ARA	0.122	29	0.235
Credits approved	Non-ARA	0.137	38	0.092
	ARA	0.176	29	0.148
Credits / semester	Non-ARA	0.128	38	0.312
	ARA	0.182	29	0.242

Source: Own elaboration

P values >0.05 indicate normality in the distribution

Results of the bivariate analysis are shown in Table 4. These are the p-values corresponding to the comparison of the distributions. P-values smaller than 0.05 indicate that the differences are statistically significant.

**Table 4 - Studied Variables and Results of the bivariate analysis
(ARA – non ARA students)**

International Academic Exchange Variables	Bivariate Analysis	P value
Months of academic exchange	Mann-Whitney	0.025
Average score during the academic exchange	t Student	0.566
Credits approved during the academic exchange	t Student	0.021
Credits approved during the exchange per semester	t Student	0.129
% of students participating into academic exchanges	Chi ² Pearson	0.000

Source: Own elaboration

P values <0.05 indicate statistically significant differences

Data provided in Table 4 yield a number of months spent under an exchange program abroad significantly greater in ARA students ($p = 0.025$ (Mann-Whitney)) which allow to accept Hypothesis 1. There are differences in the participation into exchange programs between students or the ARA group and the regular ones. In average, the months under an exchange are a 13% greater in the case of the ARA students.

As for Hypothesis 2, we need to analyze the result of the bivariate analysis of the variable average score during the academic exchange. The p-value is 0.566 which indicates that there are not statistically significant differences between the ARA and the non-ARA students concerning the academic marks obtained during an exchange abroad. Therefore, the result obtained does not allow to accept Hypothesis 2 and we reject it.

The number of credits approved during the exchange was also significantly higher in the case of our EMI students ($p=0.021$ (t Student)) and this allow as to accept Hypothesis 3 which

stated that there were differences between the ARA and non-ARA students in the credits approved during the exchange.

Nevertheless, the number of credits approved during the exchange per semester did not show significant differences between the two groups of students ($p=0.129$ (t Student)), for which we reject Hypothesis 4 which stated that there were differences between the ARA and non-ARA students in the credits approved per semester during the exchange.

Concerning the percentage of students engaged in international exchange programs over the total number of students, the p-value of the Chi² test is lower than 0.05 ($p=0.000$) which indicated that they are significantly different: in the ARA group the incidence of exchanges is more than triple than in the rest of students. This result leads us to accept Hypothesis 5 which stated that there were differences between the ARA and non-ARA students in the proportion of students doing exchange programs abroad.

7. Discussion and conclusions

The results of this empirical research corroborate, with its quantitative approach, the results of the scientific research that until now has been done about the effects of English-medium of instruction, particularly about its relationship with the participation into international exchange programs.

We cannot compare our results with other research about High Academic Achievement groups, as there were not scientific papers that did similar studies. Nevertheless, if we contrast the results we obtained with those studies that researched about the English as a medium of instruction, given that the High Academic Achievement groups at a European University (the name is omitted in the review process in order to keep it anonymous) instructed in English into a big extent, we find that results of previous research are supported by our study.

In particular, our results confirm the research previously done by Doiz et al. (2011) in which it was concluded that, among other facts, EMI facilitates students their participation in exchange programs and continuing studies abroad. Whereas their conclusions were based on the perceptions of a qualitative approach, our conclusions are in line with them, from an empirical quantitative perspective. We have confirmed that students who followed an English taught program, participated more into international program, as the incidence of students participating into exchanges is almost more than triple in our ARA group than in the rest. The academic

performance of these students was also better, as they number of approved credits during the exchange period was also significantly higher.

As seen in the literature review, several studies have researched the relationship between the international experience and employability, and they reflect that employability of students who have done an international exchange is increased (Berrell et al., 2005; Crossman and Clarke, 2010) as it is considered as a good indicator of the intercultural competences of a person and especially those more directly related to the language knowledge (Bird, 2008).

In their qualitative study, Crossman and Clarke (2010), found that all stakeholders identified strong associations between international experience and employability, given outcomes linked with the forging of networks, chances for experiential learning, language gaining and the improvement of soft skills related to intercultural competences. The findings of their research suggested that, from a stakeholder standpoint, there are clear connections made between perceived outcomes of international experience and graduate employability. The international experience gained by means of the participation into an exchange program seems to support the improvement of cultural understanding and adaptableness as well as augmenting graduate attractiveness in a globalized and internationalized labor market, which are paramount in defining individual employability.

In this quantitative research (N=541) we studied the impact that a new group of High Academic Achievement Groups (ARA), where the majority of courses are instructed using English as a medium of Instruction (EMI), has on different variables related to international exchange programs in a degree of Business Administration and Management.

The most remarkable findings were that, in the international programs sphere, the number of months spent under an exchange program abroad was significantly greater in the EMI group and that they approved a significantly higher number of credits during their exchange period. As for the incidence of international programs, the proportion of students who participated into an exchange was almost four times higher among students of the English taught group.

The results of our research study are relevant to higher education institutions and authorities within the field of higher education and employment, as well as for students and employers. Considering the greater participation as outgoing exchange students abroad that we empirically found among the students enrolled at the English-medium instruction group, in comparison with those enrolled at the regular ones, it is expected that these graduates will have a superior reception within the labor market. Having in mind that we expect that employability of

these students will be boosted by the enhancement of intercultural competences achieved during the international exchange program, including the language improvement, EMI could be used as a strategy to increase not only the internationalization but also the employability of business students upon graduation.

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**CHAPTER 6: INTRODUCING A HIGH ACADEMIC PERFORMANCE PROGRAM IN A
TECHNOLOGICAL UNIVERSITY AS A SOCIAL INNOVATION MECHANISM TO
ENHANCE GRADUATES' EMPLOYABILITY**

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1. Abstract and keywords

The aim of this research was to determine if launching a High Academic Achievement Program (ARA Groups) in five degrees of the Universitat Politècnica de València, a technological university in Spain, could be used as a social innovation mechanism to enhance graduates' employability. Our objective is to compare the behavior of students of this new program and the regular ones, concerning a set of particular assets such as academic performance, participation into international exchange programs, and participation into business internships, as these seem to be strongly related to enhanced employability of students upon graduation, according to the existing literature. Findings concluded that participating students performed higher academically and that engaged more into international exchanges. The proportion of students doing business internships did not present significant differences although the attained objectives during the internship were better evaluated by the side of the employer in the case of the ARA students. Our results anticipate that these graduates will have a superior reception within the labor market. This new program allows enhancing learners' capacities and it could be used as a social innovation mechanism to enhance employability of graduates in technology equitably.

Keywords: Social innovation, employability, academic performance, international exchange programs, business internships, technological studies.

2. Introduction

The Universitat Politècnica de València (UPV) launched in the 2010-11 academic year the High Academic Achievement Program (Grupos de Alto Rendimiento Académico, from now on ARA Groups) at five Bachelor degrees, mainly technological studies: Degree in Biotechnology, Degree in Aeronautical Engineering, Degree in Computer Engineering, Degree in Electronic and Industrial Engineering, and Degree in Business Administration and Management. These ARA Groups are characterized by a small number of students in the class, a large number of courses taught in English, and highly qualified teachers. It also includes training activities and incentives for teachers. As they are structured in small groups and students receive a more personalized teaching and mentoring. Students are carefully selected according to the scores they achieved in the exam for admittance into the university and their accredited knowledge of English language (minimum B2). Professors have to prove enough knowledge of English language (minimum B2), as well as have had several years of teaching experience and research activity.

The overall unemployment rate in Spain was 18.63% in the last quartermaster of 2016, according to the 2016 OCDE report. The unemployment rate of people aged 20-24 holding a

university degree is 33.42% and for ages 25-29 it is 18.54%. This unemployment rate is more dramatic in the case of young women aged 20-24 with university studies (36.13%) in comparison with men (29.59%), according to data from the “Instituto Nacional de Estadística” of Spain. Having in mind the context of high unemployment of young graduates in Europe, and more particularly in Spain, we support that these ARA Groups could be a mechanism of social innovation, according to the definition of Phills et al. (2008) of social innovation: “A novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals”.

Firstly, the ARA Groups are a novel solution, as we have not found any other relevant similar program promoted by public universities or governments in any other regions or countries other than in the Valencian Community, in Spain, excepting for an isolated case in Mexico (Vargas et al., 2010). And secondly, it would be truly social since it would benefit to the public or society as a whole, as youth unemployment is one of the most vexing social problems of our times in Europe, particularly in Spain (Caliendo and Schmidl, 2015) and remains the main challenge in the employment domain at European and global level (Oeij and van der Torre, 2015). Social innovation can be used to combat unemployment (Oeij and van der Torre, 2015) in fact, the European Commission has its own funding instrument, the Programme for Employment and Social Innovation (EaSI), which supports the development of innovative social policies to promote employment and which includes the field of training and education, among other. The reason behind our statement is that the possible beneficial effects of this innovation are not only accessible to an elite, such in the case of regular degrees taught in English, which are a growing global phenomenon, but are more present in private institutions than in public institutions in all stages of education –primary, secondary and tertiary (Dearden, 2014). As these ARA groups are implemented in a public technological university, access to them and its possible beneficial effects is not determined by the students’ purchasing power.

Employability refers to an individual’s capacity for obtaining and maintaining employment (Hillage and Pollard, 1998). It has been defined by Little (2004) as a set of achievements, understandings, and personal attributes that make individuals more likely to gain employment and be successful in the chosen occupations. Employability skills denote characters that may make an individual attractive to potential employers (Bridgstock, 2009). There has been substantial interest in employability enhancement in recent years, a subject which has become particularly relevant in the context of the adverse employment conditions currently affecting many Western economies (Rothwell et al., 2009).

According to previous research, there are some predictors of increased employability of students when they graduate, particularly related to their performance during the years at college and to some of the extracurricular activities completed by them. These predictors include: (a) a higher academic performance (Baird, 1985, Baker, 2008; Campion and Brown, 1984; Campion, 1978, Cole et al., 2003; Devaraj and Babu, 2004; Ferris, 1982; Gokuladas, 2011; Hassanbeigi et al., 2011; Imose and Barber, 2015; Johansen, 2014; Kuncel et al., 2004; Kuncel et al., 2010; Roth and Bobko, 2000; Ruetzler et al., 2011; Rynes et al., 1997; Schick and Kunnecke, 1982; Thoms et al., 1999); (b) the participation into an international exchange program (Berrell et Al., 2005; Bird, 2008; Chan and Dimmock, 2008; Cranmer, 2006; Crossman and Clarke, 2010); and (c): the participation into business internships (Callanan and Benzing, 2004; Cook et al., 2004; Divine et al., 2007; Gault et al., 2000; Gault et al., 2010; Knouse et al., 1999; Knouse and Fontenot, 2008; Mihail, 2006; Taylor, 1988; Weible and McClure, 2011).

The aim of this research was to determine if launching the High Academic Achievement Program in five technological degrees of the Universitat Politècnica de València (Spain) could be used as a social innovation mechanism to enhance graduates' employability. Our objective is to compare the behavior of students of this new program and the regular ones, concerning a set of particular assets such as academic performance, participation into international exchange programs, and participation into business internships, as these seem to be strongly related to enhanced employability of students upon graduation, according to the existing literature.

The paper is organized as follows: first, a theoretical background is presented, including the above mentioned predictors of employability of graduates in technological universities, particularly (a) academic performance (b) participation into international exchange programs, and (c) participation into business internships, as these are the three main vertebral axes in which our research is based. Second, the methodology is explained. Following, the data collection and the results of the statistical tests are presented. The subsequent discussion section pulls together the main findings and contributions from the research. Finally, in the conclusion section, directions for further work in the area are proposed and final thoughts on the value of the investigation are put forth.

3. Theoretical framework

3.1. Academic performance as predictor of employability

It is usually believed that those who attained superior success in their academic endeavors own greater knowledge and thus accomplish more effectively in a work setting (Ferris,

1982). Some studies have demonstrated that better grades in college is likely to result in high performance in the professional world (Schick and Kunnecke, 1982) linked to the recognition by many employers that academic achievements are key predictors of job performance because abilities to perform a job, like intelligence, motivation, etc., were also present in grades (Baird, 1985; Campion, 1978). Gokuladas (2011) showed in an empirical study, that academic variable GPA (Grade Point Average) has significant effect in enhancing employability of engineering graduates. When hiring new college graduates for engineering positions, managers in the high-tech industries frequently give substantial weight to the candidate's academic background (Shick and Kunnecke, 1982).

Some big companies consider average marks a key factor for the screening of job candidates in their selection process (Roth and Bobko, 2000). Grades, in particular the average mark, have been used by higher education institutions and corporations to compare job candidates (Johansen, 2014) and scan for their acceptance in universities (Baker, 2008). The average mark is considered an academic testimonial in relation to the labor market and, more specifically, in terms of the first selection decisions for entry-level job applicants (Campion and Brown, 1994; Rynes et al., 1997; Thoms et al., 1999). As indicated by McKinney et al. (2003), the use of average marks in screening is possibly higher at a starting phase than later, when other sources of information are weighted. Furthermore, résumés of job applicants with high scores get better evaluations than those with low scores (Hassanbeigi et al., 2011; Thoms et al., 1999), which increase the probabilities of being called for a job interview (Thoms et al., 1999).

Research to date has examined the influence of academic performance in employability and future job performance yielding mixed results. Some researchers have diminished the relevance of academic performance in forecasting employability achievements (Cohen, 1984; Hoyt, 1965; Samson et al., 1984). But the majority of authors agree that graduates with higher grades have more chances of career rewards in terms of employment and salary, at least at the moment of graduation according to their results (McKinney et al., 2003; Roth and Clarke, 1998; Ruetzler et al., 2011) who found that academic records impact positively not only the starting salary but also the salary earned by industry professionals. These results show that the level of academic results at university generates an ongoing long-term effect in the labor market.

The measurement of academic performance can be used to save money and time to assess aspirants' mental ability and motivation, being habitually used as a substitution for those competencies (Imose and Barber, 2015). As Kuncel et al. (2004) presented through their meta-analysis of cognitive ability examinations, GPA is considered a substitution of cognitive ability which is seen as a predictor of the shift to the labor market, as well as a predictor of the quality of

job achievement. Predominantly, cognitive ability at university does not differ from cognitive ability at the place of work and it is positively correlated to the assessment of employees' potential and creativity at work (Kuncel et al., 2004; Kuncel et al., 2010). Additionally, business managers have been emphasizing the significance of academic grades as a predictor of job performance since good grades are an indicator of communication and mathematical skills (Campion and Brown, 1994), and are also an indication of intelligence, motivation and other skills required for a work position (Baird, 1985; Roth and Bobko, 2000). Moreover, academic performance at college is positively related to performance at the workplace (Devaraj and Babu, 2004) and to supervisors' evaluation of employees' job performance (Roth et al., 1996).

These results show that altogether academic performance is a good prognosticator of future employability and an adequate measure to predict job performance (Cole et al., 2003). Regardless of the common use of academic results in the selection practice, this variable has been combined with others to assess the detailed features of the applicants (Felson, 2001; Imose and Barber, 2015; Roth and Bobko, 2000). For instance, Felson (2001) underlined the importance of academic records combined with other skills in the selection of business professionals. Therefore, it is clear from previous research that academic performance is generally evaluated for entry-level jobs, usually through the average mark, though it is not the only selection criterion.

3.2. *Participation into international exchange programs as predictor of employability*

The relationship between participation into exchanges and employability has been extensively evidenced (Berrell et Al., 2005, Crossman and Clarke, 2010). In their research, Crossman and Clarke (2010) found strong relations between international experience and enhanced employability, given the outcomes linked with the shaping of networks, chances for experiential learning, language attainment and the development of soft skills related to intercultural abilities. Having had an international experience is considered as a good indicator of the intercultural competences of a person (Cranmer, 2006) and especially those more directly related to the language knowledge (Bird, 2008).

Moreover, Parey and Waldinger (2010) identified a casual effect of undergraduate student mobility on later international labor migration. Students who studied under the Erasmus framework abroad were more likely to work abroad later on, about 6% percentage points more, for which their international mobility is boosted and hence their employability.

From previous scientific literature it can be stated that employers do have into account previous international experiences. The participation into international exchange programs is an

effective way of attaining a set of skills which are very attractive to the employers, in a context of internationalization and globalization, such as the intercultural abilities, including the knowledge of different languages. Therefore, it is the responsibility of the higher education institutions to enable that their graduates incorporate these competences through an international exchange or internship in a different country (Chan and Dimmock, 2008; Cranmer, 2006), since the increasing globalization and internationalization has heightened the need for graduates with the ability to operate in culturally diverse contexts.

3.3. *Participation into business internships as predictor of employability*

As Sanahuja Vélez and Ribes Giner (2015) highlighted in their systematic review about the impact of business internships on their stakeholders, several studies have concluded that internships play an essential role in enhancing the preparation and career success in entry-level job market (Callanan and Benzing, 2004; Cook et al., 2004; Divine et al., 2007; Gault et al., 2000; Gault et al., 2010; Knouse and Fontenot, 2008; Knouse et al., 1999; Mihail, 2006; Taylor, 1988; Weible and McClure, 2011). In addition, undergraduates with internship experience reported higher salaries (Coco, 2000; Gault et al., 2000; Gault et al., 2010; Pianko, 1996; Taylor, 1988;), higher levels of job satisfaction (Gault et al., 2000; Knouse and Fontenot, 2008; Taylor, 1988) and obtained their first job more rapidly than non-interns (Coco, 2000; Gault et al., 2000; Gault et al., 2010; Pianko, 1996; Taylor, 1988).

One of the most noteworthy empirical studies (Gault et al., 2000) reported significant superior levels of extrinsic success in interns than in non-interns, including starting salaries averaging around 10% higher, having received job offers around ten weeks sooner, higher levels of job satisfaction, and faster promotion rates.

The conclusion of an internship proved to be, by correlation analysis, the most significant variable in terms of influence on the ability to attain a career-oriented position upon graduation, as it was found that a difference from 17% of non-interns having a job upon graduation to 58% in the case of having completed an internship (Callanan and Benzing, 2004).

It should be highlighted that there is a high rate of job securing through an internship, as many authors have stressed (Coco, 2000; Gault et al., 2000; Gault et al., 2010; Gryski et al., 1978; Knouse and Fontenot, 2008; Mihail, 2006; Pianko, 1996; Taylor, 1988; Weible and McClure, 2011). More concretely, Weible and McClure (2011) found that almost 40% of the internships resulted in fulltime opportunities after graduation.

As seen in the examined literature, authors generally affirmed that practical field experience made students more employable but, most importantly, these positive perceptions were confirmed by quantifiable marketability as the majority of empirical papers reported that students having completed an internship had better employment rates upon graduation.

4. Research Hypothesis

To meet the aims of this study, our main research question is whether the High Academic Achievement Group could be used as a social innovation tool to enhance the employability of students in a technological university.

Therefore, based on the above theoretical framework and aiming to clarify our main research question, we propose the following research hypotheses.

In the first place, earlier research found strong connections between higher academic performance and heightened employability (Baird, 1985, Baker, 2008; Campion, 1978, Cole et al., 2003; Campion and Brown, 1984; Devaraj and Babu, 2004; Ferris, 1982; Gokuladas, 2011; Hassanbeigi et al., 2011; Imose and Barber, 2015; Johansen, 2014; Kuncel et al., 2004; Kuncel et al., 2010; Roth and Bobko, 2000; Ruetzler et al., 2011; Rynes et al., 1997; Schick and Kunnecke, 1982; Thoms et al., 1999). Consequently the first hypothesis is whether there were any differences on the academic achievement among students of the ARA Groups and regular students:

Hypothesis 1. There is a relationship between the affiliation to the ARA group and the academic performance of the students.

Secondly, previous empirical research found that participation into international programs is positively related to graduate employability (Berrell et Al., 2005; Bird, 2008; Chan and Dimmock, 2008; Cranmer, 2006; Crossman and Clarke, 2010). Thus, the second hypothesis is whether there were any significant differences in the participation into international exchange programs among students of the ARA Groups and regular students:

Hypothesis 2. There is a relationship between the affiliation to the ARA group and the participation of students into international exchange programs.

Moreover, we are interested in finding out whether any differences exist in the extent to which students participate in business internships, as earlier research demonstrated a positive relation between traineeships and employment upon graduation (Callanan and Benzing, 2004;

Cook et al., 2004; Divine et al., 2007; Gault et al., 2000; Gault et al., 2010; Knouse et al., 1999; Knouse and Fontenot, 2008; Mihail, 2006; Taylor, 1988; Weible and McClure, 2011). Therefore we propose the following additional research hypothesis which aims at clarifying whether there were any significant differences in the participation into business internships among students of the ARA Groups and regular students:

Hypothesis 3. There is a relationship between the affiliation to the ARA group and the participation of students into business internships.

Lastly, it is important to know how students and employers perceive the business internship done because it provides an insight on how the labor market would receive these students when they graduate. According to Gault et al. (2010) the perception of the employer about the performance of students during the business internship experience is directly related to the willingness of re-hiring the student after its completion and therefore to employability. In fact, previous researchers highlighted that employers think that business internships should aid companies to full-time hiring (Beggs, et al., 2008; Knemeyer and Murphy, 2002). In addition, several studies proved that companies use the internship experience to evaluate the student's work and to cultivate potential long term employees, saving recruitment costs (Coco, 2000; Divine et al., 2007; Gault et al., 2000; Gault et al., 2010; Pianko, 1996; Swanson and Tomkovick, 2011; Thiel and Hartley, 1997) and to hiring a "known quantity" who needs less on-the job training to become productive in the organization (Divine et al., 2007; Pianko, 1996). Students' perceptions about the internship experience are also relevant to students' employability, as Michail (2006) highlighted in his qualitative research: students' positive feelings and perceptions were backed up by measurable employability enhancement. Actually, in seven out of nine traineeships in the private sector, there were reported job openings upon graduation by the host companies. This leads to the last research hypothesis.

Hypothesis 4. There is a relationship between the affiliation to the ARA group and the evaluation of the business internship by the side of the student and the employer.

5. Methodology

We used an empirical quantitative approach, including the 3,543 students of the Universitat Politècnica de València (Spain) enrolled at the 5 degree programs, mainly technological, which offered the High Academic Achieving group, during the period from 2010 to 2014. 560 of them belonged to this new group, which is taught using English as a medium of

instruction in a large proportion of the courses. Table 1 shows the number of students enrolled at these 5 degrees and the number of students registered at each group.

Table 1. Students' sample

UPV Degree	Total students	ARA students	Non-ARA students
Bachelor in Business Administration and Management	541	107	434
Bachelor in Biotechnology	419	135	284
Bachelor in Computer Engineering	1,477	90	1,387
Bachelor in Electronic Engineering	650	84	566
Bachelor in Aerospace Engineering	456	144	312
TOTAL	3,543	560	2,983

Source: Own elaboration

We examined a set of variables related to five different categories in order to contrast the 4 research hypotheses: 1) Academic achievement; 2) international exchange programs; 3) business internships; 4) employers' satisfaction questionnaire (business internships), and students' satisfaction questionnaire (business internships). Table 2 includes all variables studied at each of the above mentioned categories.

Table 2. Studied variables in each category

Category	Studied Variables
Academic performance	Credits approved per year; Average grade; Final Year Project grade; Graduation in 4 years. Complementary: Access to university score; Gender.
International exchange programs	Months of exchange; Average grade during exchange; Credits approved; Credits approved / per semester; % of students on international exchange programs / total students of the group.
Business internships	% of students on business internships / total students of the group.
Students' satisfaction questionnaire (business internships)	Evaluate your contribution to the company: Technical point of view; Evaluate your contribution to the company: Human point of view; Evaluate your dedication in the company to activities of: Personal initiative; Evaluate your dedication in the company to activities of: directed work; Evaluate your integration into the company: Technical point of view; Evaluate your integration into the company: Human point of view Satisfaction with the business internship; Satisfaction with the business internship office; Did you to your final year project in the company?
Employer' satisfaction questionnaire (business internships)	Evaluation of the objectives attainment achieved by the student in his/her work.

Source: Own elaboration

We did a statistical descriptive analysis and a bivariate analysis. The descriptive analysis contained the basic statistics of the continuous variables: average, standard deviation, minimum, maximum, and median, as well as the frequency distribution and percentages for the categorical variables.

The bivariate analysis included all statistical contrasts required to measure the relationship between the performance of the variables and the condition of ARA or non-ARA student. These contrasts are carried out through parametric and nonparametric statistical techniques appropriated to each variable's characteristics.

We used Kolmogorov-Smirnov test to proof adjustment to a normal distribution of the continuous variables. The acceptance of normality of the continuous variables of the study (grades) will allow the application of parametrical type tests, whereas non acceptance of normality will determine the use of non-parametrical type tests.

Test of t Student has been used for independent samples of continuous type and normal distribution. We have used it to contrast the equality of means in independent type samples of continuous type and normal distribution.

We used Mann-Whitney test for two independent samples to test whether or not the distribution of a parameter, at least ordinal, is the same in two independent samples.

Pearson Chi² test has been used to test of association or dependency between two categorical variables, provided that the expected frequency is greater than 5 cases. Otherwise, and only for dichotomous variables, Fisher's exact test was used.

The level of significance used in the bivariate tests was generally 95% ($\alpha = 0.05$). Therefore, any value lower than 0.05 indicate a statistically significant relationship. By contrast, any value higher than 0.05 indicate the absence of such relationship. P value is, supposing that there are not differences among the groups, the probability of that the obtained results could be a random result then there will be more evidence against the null hypothesis (inexistence of differences). In some cases a level of significance of 90% was used ($\alpha = 0.1$)

6. Results of the research

6.1. Academic performance and gender

The sample included the 3,543 students enrolled at the five degrees offering ARA groups (560 ARA and 2983 non-ARA).

Table 4 displays the results for the descriptive statistics of the academic performance variables for both groups of students, showing that academically, the ARA students performed better in some of the studied variables: they had higher average records (7.207 vs. 6.762) and they accessed the university with higher scores (11.267 vs. 9.286). By contrast they had lower scores in the Final Year Project (8.933 vs. 9.109) and approved less credits per year (67.970 vs. 71.160).

Table 4. Academic Performance Variables – Descriptive Statistic

Variable	Group	N	Mean	Standard Deviation	Max.	Median	Min.
Credits approved/year	Non-ARA	2,983	71.160	41.543	243.000	61.500	0.000
	ARA	560	67.970	18.980	240.000	71.750	0.000
Average grade	Non-ARA	2,980	6.762	1.087	9.900	6.700	0.000
	ARA	560	7.207	0.975	9.800	7.100	0.000
Access to university score	Non-ARA	2,532	9.286	2.162	14.000	9.000	5.000
	ARA	546	11.267	1.661	13.854	11.751	5.000
Final Year Project Mark	Non-ARA	384	9.109	0.996	10.000	9.500	5.000
	ARA	27	8.933	0.912	10.000	9.000	7.000

Source: Own elaboration

Table 5 shows the gender data and if the student graduated in the four expected years.

The proportion of women in the ARA group is about 9 percentage points higher in the ARA group than in the non-ARA. The proportion of students who completed studies in four years is three times higher in the case of the ARA students.

Table 5 – Gender and graduation

		Group					
		Total		Non-ARA		ARA	
		Count	%	Count	%	Count	%
Gender	Total	3543	100	2983	100	560	100
	Male	2711	76,5	2324	77,9	387	69,1
	Female	832	23,5	659	22,1	173	30,9
Graduation in 4 years	Total	3543	100	2983	100	560	100
	N.A.	3043	85,9	2525	84,6	518	92,5
	No	458	12,9	425	14,2	33	5,9
	Yes	42	1,2	33	1,1	9	1,6

Source: Own elaboration

In order to know if the observed differences are statistically significant, next we performed a bivariate statistical study. Before undertaking the statistical contrasts, it is necessary to determine if parametric or non-parametric tests will be used. If the data are normally distributed in the ARA and non-ARA groups, parametric tests will be used; if the data are not normally distributed, non-parametric tests will be used. After applying the Kolmogorov-Smirnov test, where a p-value higher than 0.05 indicates normality in the distribution, it is concluded that none of the parameters are normally distributed in none of the groups, for which non-parametric test will be, as well as it is indicated by the p-values lower than 0.05 of the Shapiro-Wilks in at least one of the two groups for each parameter.

In table number 6, results of the bivariate analysis are presented. P-values lower than 0.05 evidence statistical significance for a confidence level of 95%. Results show that two variables related to academic performance presented statistically significant differences in favor of the ARA students: they had higher average grades and the score with which they entered at the

university was higher. By contrast they approved less credits per year. Also, the ARA Group had more women and a larger proportion of students graduated in four years.

Table 6. Academic Performance – Bivariate Analysis

Variable	Bivariate Analysis	p-value
Credits approved / year	Mann-Whitney	0.000
Average grade	Mann-Whitney	0.000
Final Year Project Mark	Chi ²	0.158
Graduation in 4 years	Chi²	0.000
Access to university score	Mann-Whitney	0.000
Gender	Chi²	0.000

Source: Own elaboration

Data provided in Table 6 yield a number of credits approved per year ($p=0.000$ (Mann-Whitney)) significantly lower and average grades ($p=0.000$ (Mann-Whitney)) significantly higher among ARA students. They also graduated in four years more than their counterparts of the non-ARA groups ($p=0.000$ (Chi²)). Three out of the four main variables related to academic achievement performed differently among the two groups of students. These results lead us to partially accept Hypothesis 1, as we found that there is a relationship between the affiliation to the ARA group and the academic performance of the students. Although the results are mixed, generally, ARA students had an improved academic performance.

6.2 *International exchange programs*

As for Hypothesis 2, we need to analyze the result of the descriptive statistics and bivariate analysis of the variables of international exchange programs.

The sample comprised records of the 290 international exchange programs done during the period (187 Non-ARA, 102 ARA, and 1 unknown), corresponding to 285 students, since 5 of them repeated the experience.

Table 7 includes all the descriptive statistical data and for each of the variables related to international exchange programs which were studied.

The mean value for the months spent under an exchange was higher in the case of the ARA students (7.92 vs. 7.30), as well as the credits approved under an exchange (42.69 vs. 37.36), and the credits approved per semester under an exchange (24.34 vs. 22.01). The average grades

achieved during the exchange, by contrast, was higher in the case of the non-ARA students (8.02 vs. 7.91).

Table 7. International exchange programs

Variable	Group	Valid N	Mean	Standard deviation	Max	Median	Min
Months of exchange	Non-ARA	187	7.30	1.99	10.00	9.00	5.00
	ARA	102	7.92	1.79	10.00	9.00	5.00
Average grade	Non-ARA	132	8.02	1.19	10.00	8.00	5.54
	ARA	48	7.91	1.17	9.90	7.90	5.70
Approved credits	Non-ARA	132	37.36	16.98	61.50	36.00	4.50
	ARA	48	42.69	13.33	63.00	39.00	19.50
Approved credits per semester	Non-ARA	131	22.01	9.61	60.00	21.75	4.50
	ARA	48	24.34	6.08	39.00	24.75	9.57

Source: Own elaboration

Table 8 shows the incidence of the participation into international exchange programs of the two different groups. Findings yield that the incidence is higher in the case of the English taught group (18.2%), than in the regular groups (5.3%).

Table 8. Incidence of international exchange programs

	N	%
% of students that do an international exchange program in the ARA group	102	18.2
% of students that do an international exchange program in the non-ARA group	187	5.3

Source: Own elaboration

In order to find out if the differences observed in the values of the exchange programs variables were statistically significant, we performed the necessary bivariate statistical contrasts.

Before beginning the bivariate statistical tests it is necessary to determine whether parametric or nonparametric tests will be used depending on if the academic variables adjust to a normal distribution or not in the ARA and non-ARA groups. After application of the Kolmogorov-Smirnov, where a p-value higher than 0.05 indicates normality in the distribution, it is concluded that none of the parameters are normally distributed in both groups (ARA and non-ARA), for which nonparametric tests will be used as indicated by the p-values lower than 0.05 of the Shapiro-Wilks test on at least one of the two groups for each parameter.

Table 9 shows the outcomes of the nonparametric tests on the exchange programs data. These results yield a number of months spent under an exchange significantly greater in the ARA students ($p=0.011$ (Mann-Whitney)) for a significance level of 95% ($\alpha=0.05$) about 8% greater. The credit load approved during the exchange was also significantly higher in these students ($p=0.065$ (Mann-Whitney)), and the number of credits approved semesterly ($p=0.089$ (Mann-Whitney)), for a significance level of 90% ($\alpha=0.1$) The average mark did not present significant differences ($p=0.572$ (Mann-Whitney)).

Table 9. International exchange programs – Bivariate analysis

Variable	Test	p-value
Months of exchange	Mann-Whitney	0.011
Average grade	Mann-Whitney	0.572
Approved credits	Mann-Whitney	0.065
Approved credits per semester	Mann-Whitney	0.089

Source: Own elaboration

Concerning the percentage of students engaged in international exchange programs over the total number of students, the p-value of the Chi² test is lower than 0.05 (0.000) which indicated that they are significantly different for a level of significance of 95% ($\alpha=0.05$): in the ARA group the incidence of exchanges is almost four times more than in the rest of students.

Four out of five of the studied variables concerning exchange programs present statistically significant differences among the ARA students and the rest of students, and this allows us to partially accept Hypothesis 2: There is a relationship between the affiliation to the ARA group and the participation into exchange programs; in particular, most variables relative to international programs were higher in the case of the ARA students.

6.3. *Business internships*

Table 10 shows the incidence of the participation into business internships of the two different groups. Findings yield that the incidence is higher in the case of the ARA group (32.14%), than in the regular groups (30.62%).

Table 10. Incidence of business internships

	N	%
% of students that do a business internship in the ARA group	180	32.14
% of students that do a business internships in the non-ARA group	1085	30.62

Source: Own elaboration

In order to find out if the differences observed in the values of the traineeship variables were statistically significant, we performed the necessary bivariate statistical contrasts.

Concerning the percentage of students engaged in business internships over the total number of students, the p-value of the Chi² test is higher than 0.1 (0.469) which indicated that they are significantly even: the proportion os students doing business internships is the same in both groups.

Based on our results, we can conclude that Hypothesis 3, which proposes that there are differences between the ARA and non-ARA students in reference to the percentage of business internships done by students, is not supported.

6.4. Satisfaction questionnaire (business internships)

6.4.1. Students' evaluation

We had a sample of 553 answered questionnaires (98 ARA and 455 non-ARA). In Table 11 the results of the students' satisfaction questionnaire are displayed.

Table 11. Business Internships satisfaction – Students' questionnaire answers

	Group						
		Total		Non-ARA		ARA	
Evaluate your contribution to the company: Technical point of view.	Total	553	100.0%	455	100.0%	98	100.0%
	<=2	289	52.3%	254	55.8%	35	35.7%
	3	264	47.7%	201	44.2%	63	64.3%
Evaluate your contribution to the company: Human point of view.	Total	553	100.0%	455	100.0%	98	100.0%
	<=2	191	34.5%	161	35.4%	30	30.6%
	3	362	65.5%	294	64.6%	68	69.4%
Evaluate your dedication in the company to activities of: Personal initiative.	Total	553	100.0%	455	100.0%	98	100.0%
	<=2	291	52.6%	240	52.7%	51	52.0%
	3	262	47.4%	215	47.3%	47	48.0%
Evaluate your dedication in the company to activities of: Directed work.	Total	553	100.0%	455	100.0%	98	100.0%
	<=2	255	46.1%	228	50.1%	27	27.6%
	3	298	53.9%	227	49.9%	71	72.4%
Evaluate your integration into the company: Technical point of view	Total	553	100.0%	455	100.0%	98	100.0%
	<=2	294	53.2%	251	55.2%	43	43.9%
	3	259	46.8%	204	44.8%	55	56.1%
Evaluate your integration into the company: Human point of view	Total	553	100.0%	455	100.0%	98	100.0%
	<=2	173	31.3%	146	32.1%	27	27.6%
	3	380	68.7%	309	67.9%	71	72.4%
Satisfaction with the business internship	Total	553	100.0%	455	100.0%	98	100.0%
	<=2	148	26.8%	133	29.2%	15	15.3%
	3	405	73.2%	322	70.8%	83	84.7%
Satisfaction with the business internship office	Total	553	100.0%	455	100.0%	98	100.0%
	<=2	304	55.0%	242	53.2%	62	63.3%
	3	249	45.0%	213	46.8%	36	36.7%
Did you to your final year project in the company?	Total	553	100.0%	455	100.0%	98	100.0%
	<=2	506	91.5%	413	90.8%	93	94.9%
	3	47	8.5%	43	9.2%	5	5.1%

Source: own elaboration

Table 12 shows the results of the bivariate analysis of the student satisfaction questionnaire done after the completion of the business internship.

The results displayed in Table 12 yield that several answers of the students to the questionnaire presented statistically significant differences: students of the ARA considered that their technical contribution to the company was higher, as well as their dedication to directed work, their technical integration, and their satisfaction with the business internship, for level of

confidence of 95%. By contrast, the results of the test show that they were significantly less satisfied with the business internships office, for a level of confidence of 90% in comparison with their counterparts.

Table 12. Business Internships satisfaction – Students’ questionnaire – Bivariate Analysis

Variable	Bivariate analysis	p-value
Evaluate your contribution to the company: Technical point of view.	Chi ²	0.000
Evaluate your contribution to the company: Human point of view.	Chi ²	0.367
Evaluate your dedication in the company to activities of: Personal initiative.	Chi ²	0.899
Evaluate your dedication in the company to activities of: Directed work.	Chi ²	0.000
Evaluate your integration into the company: Technical point of view	Chi ²	0.042
Evaluate your integration into the company: Human point of view	Chi ²	0.380
Satisfaction with the business internship	Chi ²	0.005
Satisfaction with the business internship office	Chi ²	0.069
Did you to your final year project in the company?	Chi ²	0.184

Source: Own elaboration

6.4.2. Employers’ evaluation

Concerning the employers’ opinion about the traineeships, we had a sample of 403 answered questionnaires (65 ARA and 338 non-ARA).

After the completion of the business internship, we did a questionnaire to the employer in which they were asked to evaluate the attainment of work objectives achieved by the student during the business internship.

In Table 13 the results of this questionnaire can be found:

Table 13. Business Internships satisfaction – Employers’ questionnaire

	Group						
		Total		Non-ARA		ARA	
Evaluation of the objectives attainment achieved by the student in his/her work	Total	403	100.0%	338	100.0%	65	100.0%
	<=2	119	29.5%	108	32.0%	11	16.9%
	3	284	70.5%	230	68.5%	54	83.1%

Source: Own elaboration

Table 14 shows the results of the bivariate analysis of the internships student questionnaire.

Table 14. Business Internships satisfaction – Employers’ questionnaire

Variable	Bivariate analysis	p-value
Evaluation of the objectives attainment achieved by the student in his/her work	Chi ²	0.015

Source: Own elaboration

The employers considered that ARA student attained the objectives of the business internship better than the non-ARA, as there are significant differences for a confidence level of 95%.

The results in this section evidence that part of the answers of the students to the satisfaction questionnaire done after the completion of the business internships are significantly different and the sole question of the employers' questionnaire present statistically significant differences, suggestion that the affiliation to the ARA group is important in this case. This lends to partially accept Hypothesis which stated that there is a relationship between the affiliation to the ARA group and the evaluation of the business internship by the side of the students and the employers. Namely, out of the nine analyzed questions, in the case of the student questionnaire, significant results were found in five of them. By the side of the employer, the sole question had statistically significant differences. Moreover, it is a rather meaningful question, as the employer is evaluating better the objectives attained during the business internship in the case of the ARA students, and therefore will be taken into account in the discussion section.

7. Discussion

The results of our quantitative research yielded that the implementation of a High Academic Achievement Group (ARA Groups) in five technological degrees of the Universitat Politècnica de València had an overall positive effect on the academic performance of students and it also boosted their participation into international exchange programs. Concerning the completion of business internships, there were no differences in the proportion of students who did traineeships among both groups. As for the students' evaluation of the business internships through the satisfaction questionnaire, most items scored significantly higher in the case of the ARA students. Lastly, the employers' satisfaction questionnaire answered after the completion of the business internships evidenced that the students' objectives attainment was significantly better evaluated in the case of the students of the ARA groups.

On the one hand, as for comparing our results with previous research, a systematic literature review of the scientific literature in relation to high academic performance programs or actions carried out prior to the start of the study revealed the existence of one sole paper or similar studies published in scientific indexed journals (Vargas et al., 2010). As the variables studied in this qualitative research were not comparable to those in our quantitative research, we cannot offer a comparison of the results.

On the other hand, the results of our research allow us to confirm that the implementation of these ARA groups will have an overall positive effect on the employability of students upon graduation, as higher grades, participation into international exchange programs and into business internships are associated to better chances of being hired.

First, students enrolled at the ARA groups achieved a higher academic performance. Two variables related to academic performance presented statistically significant differences in favor of the ARA students: they had higher average grades and a larger proportion of students graduated in four years, although they approved a number of credits per year significantly lower. This outcome is paramount, as the relationship between higher grades at university are positively related to future employability of graduates, as it has been widely evidenced by previous research (Baird, 1985, Baker, 2008; Campion, 1978, Campion and Brown, 1984; Cole et al., 2003; Devaraj and Babu, 2004; Ferris, 1982; Gokuladas, 2011; Hassanbeigi et al., 2011; Imose and Barber, 2015; Johansen, 2014; Kuncel et al., 2004; Kuncel et al., 2010; Roth and Bobko, 2000; Ruetzler et al., 2011; Rynes et al., 1997; Schick and Kunnecke, 1982; Thoms et al., 1999).

Second, we have confirmed that students who followed these new implemented ARA courses participated more into international programs, as the incidence of students who went abroad under an exchange is more than triple in our ARA group than in the rest. Additionally, the academic performance of these students when they were abroad was better, as the number of approved credits during the exchange period was also significantly higher. This outcome is relevant, as the relationship between participation into exchanges and employability has been extensively evidenced (Berrell et Al., 2005, Bird, 2008, Cranmer, 2006, Crossman and Clarke, 2010), as having had an international experience is considered as a good indicator of the intercultural competences of a person and specially those more directly related to the language knowledge (Bird 2008).

Third, our study also concluded that, although usually internships and exchange programs take place simultaneously during the last year, it is important to highlight that the percentage of students doing business internships is not significantly different, for which the proportion of students doing traineeships is the same in both groups. This is paramount as past research has evidenced that the completion of business internships enhances employment upon graduation of students. As Sanahuja Vélez and Ribes Giner (2015) highlighted in their systematic review about the impact of business internships on their stakeholders, several studies have concluded that internships play an essential role in enhancing the preparation and career success in entry-level job market (Callanan and Benzing, 2004; Cook et al., 2004; Divine et al., 2007;

Gault et al., 2000; Gault et al., 2010; Knouse and Fontenot, 2008; Knouse et al., 1999; Mihail, 2006; Taylor, 1988; Weible and McClure, 2011).

Introducing these pioneering and innovative ARA Groups in a public technological university will enable participating students to benefit from the positive effects on employability associated to higher academic performance, participation into international exchange programs and participation into business internships as it has been evidenced by this empirical research. Additionally, participating students of the public sector will benefit from the traditional positive effects associated to English taught courses, which are usually more accessible to the elite through selective private institutions, such as are the improvement of intercultural skills, especially the knowledge of English language. We believe it constitutes an instrument for social innovation, as we are making it available to the best students, independently of their economic background.

Additionally, we found that there was a higher rate of woman in the ARA than in the non-ARA groups. This is also paramount since the bachelor degrees included in this study fall into the technological field, where there is an overall higher presence of male students. Having in mind that these graduates are expected to have a better employability and that unemployment severely affects young graduates, but affects women more dramatically, especially in this fields, this is could also be used as an instrument to palliate the gender differences.

For all the above mentioned, improved academic performance, enhanced participation into international exchange programs, high participation into business internships, good evaluation by the side of the student and employer, and the natural English language improvement associated to the English taught courses, we strongly believe this program will have a positive impact on the employment of the participating students and therefore it could be used as a potent tool of social innovation.

Universities willing to have a significant profile as leaders towards positive social impact could consider the implementation of such High Academic Achievement programs using English as medium of instruction with the objective of enhancing the employment skills and mobility of their graduates in an equitable way. By making accessible to all students of the public sector, independently of their socio-economic background, they would contribute to palliate the possible inequalities associated to the conventional English taught courses, more traditionally offered in private institutions. The evidence from the data collected in a previous survey suggests that there is more English in private education than in public education at all stages (primary, secondary and tertiary) and that the private sector will continue to drive the push for English taught courses for some years to come (Dearden, 2014). Public higher education institutions should also

make the necessary efforts to publicize the benefits and effects of such programs and provide a better orientation in order to engage students from all economic strata.

Existing studies show that social innovation is not undertaken in isolation by lone entrepreneurs, but rather it is shaped by a wide range of organizations and institutions that influence developments in certain areas to meet a social need or to promote social development (Phillips et al., 2015). On the basis of all the above exposed, it is suggested that public higher education institutions can act as social agents of change, jointly with the authorities in charge of tertiary education, addressing social issues, in this case the high youth unemployment rate among graduates. By implementing such programs, they are enhancing graduates 'skills of students from all economic backgrounds, including their intercultural abilities and knowledge of English language and at the same time increasing the quality of the academic learning, for which it is expected that they will be more employable and mobile within the labor market.

8. Conclusions

In this empirical research we used a quantitative approach to find out if the implementation of a High Academic Achievement Program (ARA Groups) in a Spanish technological university has had any impact on the academic performance, international programs and business internships participation, and therefore could affect the employability of students. As youth employment is nowadays an issue in European economies and particularly in Spain, the authors contemplate that such program could be used as a social innovation tool to enhance employability of graduates in an equitable manner.

This study included the 3,543 students enrolled at the five different technological degrees that offered ARA Groups in The Universitat Politècnica de València, from 2010 to 2014, belonging 560 of them to these groups.

We used descriptive statistics and bivariate analysis to compare the ARA and the non-ARA groups and we found that, from the point of view of academic performance, the expectations of this innovative action were met, as the results of this research show that students who participated in it achieved significantly higher average grades. It was also found a significant higher number of students who graduated in 4 years. In the international exchanges sphere it was found a number of months spent under an exchange program abroad significantly greater and that students approved more credits during the academic exchange period. These students participated in a much higher extent into international exchanges than their counterparts, about four times more. Concerning the proportion of students doing business internships, no significant differences

were found. Nevertheless, the objectives attainment was better evaluated by the employer in the case of the ARA students, as well as most items of the students' questionnaire done after the business internship.

The results of this study are relevant to higher education institutions and authorities within the field of higher education and employment, as well as for students, employers, and society, for several reasons.

Firstly, the results of our empirical quantitative research brings light to the investigation of high academic achievement programs or actions, as a systematic review conducted prior to our research concluded that there was a lack of relevant research related to this field.

Secondly, our study contributes to the research of student employability. Our results have demonstrated that this particular innovation in teaching leads to higher academic performance and increased participation into international exchange programs, and that students still participate into business internships in the same proportion. As seen in the existing literature, these three variables are considered good predictors of employability, for which is expected that these students will have a superior reception in the labor market once they graduate.

Higher grades are very valued by employers and are commonly used as key indicators in the selection processes to screen resumes of job applicants. They are considered good indicators of the knowledge, intelligence and other skills such as writing and they seem to have a continuing beneficial effect in the professional live. Greater participation into exchanges abroad also boost employability of students. The reason behind this is the enhancement of intercultural competences achieved during the international exchange programs, including the language improvement, which are very attractive to employers. As for business internships, scientific literature has widely evidenced that its completion is related to an enhanced employability of students upon graduation. This enhanced employability is also supported by the evidence that ARA students received a significantly better evaluation of the objectives attainment after the completion of a business internship.

For all the above mentioned, improved academic performance, enhanced participation into international exchange programs, high participation into business internships, good evaluation by the side of the employer, and the natural English language improvement associated to the English taught courses, we strongly believe this program will have a positive impact on the employment of the participating students and therefore it could be used as a potent tool of social innovation.

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CHAPTER 7: CONCLUSIONS

1. Conclusions

This PhD thesis, which has been presented in the mode of five publications, had the general purpose of determining if launching a High Academic Achievement Program (ARA Groups), where English is used in a good number of courses, at the Universitat Politècnica de València (UPV), had any impact on the participating students, in comparison with their counterpart students of the regular groups, in terms of academic performance and in its future employability.

With this general aim, the first part of the thesis was focused on the necessary literature reviews in order to contextualize the research. Therefore systematic reviews were carried out on High Academic Achievement Programs, business internships, and English Medium of Instruction (EMI), as well as literature reviews on academic performance and international programs as predictors of employability.

These literature reviews evidenced, on the one hand, the lack of studies related to high academic achievement or similar programs and, on the other hand, that there are strong links between higher academic performance, participation into international programs, and having done business internships, with enhanced employability upon graduation. As for English as Medium of Instruction, the systematic review concluded that it boosted the English knowledge of students and their employability, and the results about the learning outcomes were mixed, although the majority of studies concluded that academic learning was not hindered.

Next, the empirical part of the research was carried out, following a quantitative approach. The data of the total of 3,453 students of the five degrees which offered the High Academic Achievement Groups at the UPV was collected. The period included the years from 2010 to 2014 and embraces the first promotion of the ARA Groups, which comprised 560 participating students. The necessary statistical studies, including descriptive statistics and bivariate statistics, were done. The behavior of a set of variables related to: (a) academic performance; (b) international programs, and (c) business internships, was quantified and measured, and the students of the ARA Group were compared to the regular ones in search of significant differences. The statistical study was completed for the total of the five degrees, and for each degree individually, although in this thesis the attention is focused on the overall results and on the results at the Faculty of Business Administration and Management, in particular.

As for the overall results of this quantitative empirical research, it can be highlighted that, from the point of view of academic performance, the objectives and expectations of this

innovative action were met, as results show that students of the ARA Groups performed academically significantly higher, comparing them with the regular students. It was also found a significant higher number of students who graduated in 4 years. In the international exchanges sphere it was found a number of months spent under an exchange program abroad significantly greater and that students approved more credits during the academic exchange period. These ARA students participated in a much higher extent into international exchanges than their counterparts, about four times more. Concerning the proportion of students doing business internships, no significant differences were found. Nevertheless, the objectives attainment was better evaluated by the employer in the case of the ARA students, as well as most items of the students' questionnaire done after the business internship.

According to previous research, higher grades, international experience, and traineeships are highly attractive to employers, and consequently constitute good predictors of employability. Higher grades are very valued by employers and are commonly used as key indicators in the selection processes to screen resumes of job applicants. Greater participation into exchanges abroad also boosts employability of students as the enhancement of intercultural competences achieved during the international exchange programs is very attractive to employers. As for business internships, scientific literature has widely evidenced that its completion is related to an enhanced employability of students upon graduation.

For all the above mentioned differentiating factors identified in the quantitative research: improved academic performance, enhanced participation into international exchange programs, high and even participation into business internships, good evaluation by the side of the employer, in addition to the natural improvement of English language associated to English taught courses, it is expected that this program will have a positive impact on the employment of the ARA students.

The general conclusions of our research are therefore that this program meets its expectations in terms of improved academic performance and additionally, will have a positive impact on the employability of the participating students. These could be taken into account when defining future strategies of higher education institutions, especially those more related to employability, internationalization, and competitiveness.

The results of this study are relevant to higher education institutions and authorities within the field of higher education and employment, as well as for students, employers, and society, for several reasons.

Firstly, the results of our empirical quantitative research brings light to the investigation of high academic achievement programs or actions, as a systematic review conducted prior to our research concluded that there was a lack of relevant research related to this field.

Secondly, the results of this research are also relevant to the field of English as a Medium of Instruction (EMI), as our ARA groups are partially taught in English. We corroborate authors who previously concluded that EMI does not hinder content learning and that boosts participation into international programs.

Third, our study contributes to the research of student employability. Our results have demonstrated that this particular innovation in teaching leads to higher academic performance, increased participation into international exchange programs, and that students participate into business internships in the same proportion. As seen in the existing literature, these three variables are considered good predictors of employability, for which is expected that these students will have a superior reception in the labor market once they graduate.

We suggest that higher education institutions would be wise to have in mind these facts when defining future university strategies and to promote and boost the High Academic Achievement groups as valuable tools for increasing internationalization and competitiveness of the institution and employability of its graduates.

2. Limitations

The limitations of this thesis, as for the literature reviews included, derive from the exclusion of nonscientific literature or studies published in different languages and the lack of a statistical meta-analysis because the measured variables were not homogeneous.

Concerning the quantitative part of the research, limitations include not having access to real employment data of the students upon graduation.

3. Directions for future research

Concerning the overall objective of our research, future investigations would include exploiting the existing data, separately for each of the degrees included in this study. This would allow to identify in which degrees the results were better and maybe implementing particular improvement measures.

Since the data comprised in this study included only the first promotion of the ARA Groups (2010-2014), it would be meaningful to undertake a follow up research, including the students who followed those included here. With a larger sample the results would be more consistent and the trend in the outcomes could be studied in order to implement improvement measures.

Lastly, further research is needed, in particular to investigate the actual effects of the implementation of this innovation, based on measurable employment data of graduates after completion of the studies, so as to contrast our results, to enrich the analysis and improve the repercussions of this research.

APPENDIXES



Effects of business internships on students, employers, and higher education institutions: a systematic review

Gisela Sanahuja Vélez and Gabriela Ribes Giner

The objective of this study is to provide a systematic review of the literature on the impact of internships completed by university students. This research also aims to analyze variables that can affect outcomes and satisfaction in the internship experience. Fifty-seven studies were included and examined. The effects and variables identified were listed and classified. The findings of this review support the overall positive effects of business internships and confirm that they are a win-win situation for the main 3 stakeholders: students, employers, and higher education institutions.

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One of the main objectives of higher education institutions is to ensure that their students will be able to find employment within their chosen career (Santiago, 2009). Traditionally, university education focuses on teaching theoretical knowledge, but employers demand practical skills and experience (Chen, Hu, Wang, & Chen, 2011; Coco, 2000), leaving college students without work experience little chance of successfully competing for jobs. Internships are a way of addressing this obstacle (Coco, 2000). Some higher education institutions have incorporated internship programs in which students apply theoretical learning in practice before they graduate (Santiago, 2009).

The literature provides various definitions of what constitutes an intern or an internship. For example, Tovey (2001) stated that

an intern is someone who is involved in part-time or full-time work experience that is related to the student's career goal or major, who may be paid or unpaid, may or may not be receiving academic credit for the internship, but who is a temporary employee. (p. 226)

According to Zopiatis (2007), "in general terms, an internship is viewed as a short-term practical work experience in which students receive training and gain experience in a specific field or career area of their interest" (p. 65).

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Innovation, Technology, and Knowledge Management

Marta Peris-Ortiz
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José M. Merigó-Lindahl
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Entrepreneurial Universities

Exploring the Academic and Innovative
Dimensions of Entrepreneurship in
Higher Education

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Chapter 18

Intrapreneuring Within a Higher Education Institution: Introducing Virtual Business Internships

Gisela Sanahuja Vélez, Gabriela Ribes Giner, and Ismael Moya Clemente

Abstract Past research on business internships recognizes positive effects on its main stakeholders: students, employers, and higher education institutions. Moreover, some authors have acknowledged further effects in virtual internships and when applying new technologies to the internship experience, particularly referred to enhanced computer skills and learning outcomes. The Faculty of Business Administration and Management of the Universitat Politècnica de València, in Spain, has experienced an outstanding increase of its internships in recent years. As employers are demanding more computer skills in a globalized and technological world, it is expected that virtual internships and the use of ICTs during the traineeship will be a tendency in higher education institutions in the future. At present, the management of internships of the two new Double Degrees in our institution (Business Administration and Management+Computer Science Engineering, and Business Administration and Management+Telecommunications Engineering), offers, in the opinion of the authors, the perfect scenario to explore the possibilities of new technologies applied to internships and to put into practice virtual internships. Recent changes in the Spanish laws and in the regulations of universities, such as the Universitat Politècnica de València, allow business internships to take place abroad. These conditions could provide an opportunity for innovation and growth, especially by combining internationalization with virtualization of traineeships. The above mentioned initiative is a good sample of intrapreneurship within a large organization, where the employees, in this case, the authors of this text, behave like entrepreneurs, acting like agents of change.

Keywords Business administration • Higher education • Internship • Intrapreneuring • Intrapreneurs • Knowledge • New technologies • Virtual business

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