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## Boldly going where no higher educators have gone before: a review of the 1<sup>st</sup> international conference on higher education advances, Valencia, Spain

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### Abstract

Knowledge in action is the order of the day in Universities. It is no longer enough to examine what students know, we also need to know what they can do, and how they will use their soft skills to integrate smoothly into the diverse environments of their futures. Higher educators are responding to this changing landscape by strengthening integration with industry and other community sectors, as well as finding novel ways to engage students in authentic learning. Conference attendees from over 40 countries presented innovations in i) competences and employment readiness, ii) assessment and evaluation, iii) teaching methods and technologies, and iv) student reflections and perspectives. Together, these innovations are creating new models for producing students better equipped to contribute to their community, the global economy, and the building of nations.

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### 1. Introduction

In 2015 the 1<sup>st</sup> International Conference on Higher Education Advances was hosted by Spain's Universitat Politècnica de València (UPV). The organizing committee, led by General Chair Josep Domènech intended for the

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event to be truly international, with world-wide representation. As the map of attendees (Figure 1) attests, this goal was achieved.



Figure 1. 100+ tertiary educators from over 40 countries.

The 3 day conference took place in the Faculty of Business Administration & Management on the UPV campus 24-26 June, facilitated by an organizing committee of 10, a local committee of 8, 25 external reviewers, 9 sponsors, and a program committee of 108.

## 2. Keynote Addresses

The tone of the conference was set by opening keynote speaker John Kalu Osiri from Washington State University, who situated higher education within the active process of nation building, embracing industry and government, not-for profit organisations, and the community. In the second keynote speech Ana Muñoz-Miquel from the Universitat Jaume I explored the relationship of higher education and professional practice. Finally, José V. Benlloch-Dualde of UPV narrowed our focus to sites of learning, and ways in which the needs of students' future employers could be collaboratively integrated.

## 3. Overarching themes of the conference

A word cloud of the published conference proceedings (Figure 2) provides a snapshot of concepts informing the conference discourse. Appropriately, the words 'students' and 'learning' appear most prominently. 'International' also has a strong presence. Of the other emphasized terms, it is interesting to note how many of them are verbs, or active nouns - work, teaching, research, knowledge, skills, results, development, activities, evaluation, experience, practice, process – demonstrating the dynamic nature of higher education generally, and the HEAd'15 conference in particular.

Conference organisers structured the content using 20 themes, but for the purposes of presenting a more condensed perspective of conference topics in this paper, we have coalesced the 20 themes of the conference into four overarching themes and assigned each conference paper to these categories in Table 1 below. This was a subjective and non-exclusive process; most of the conference papers addressed more than one of these areas, and were assigned by perceived emphasis.



Figure 2. Word Cloud of terms in HEAd'15 Conference Source: HEAd'15 Conference Proceedings; Word cloud generated and edited using TagCrowd - top 200 terms of >11,000 terms used > 5 times.

Of the 84 papers, more than half of the papers (47 in total) had a focus on innovative teaching and technology. Frequently that focus was paired with competences and employability (9 papers) or student reflections and perspectives (10 papers). The next most prevalent theme was student reflections and perspectives (36 papers); this subject also had a strong pairing with another category: assessment and evaluation (9 papers).

Table 1. Conference papers aligned with four synthesised themes

Competences and Employability	Assessment and Evaluation	Student Reflections / Perspectives	Innovative Teaching & Technology
30	29	36	47
148, 255, 280, 290, 294, 303, 310, 311, 324, 328, 330, 334, 340, 353, 371, 392, 410, 411, 420, 423, 425, 435, 436, 438, 442, 447, 485, 486, 491, 528	238, 299, 309, 311, 336, 340, 341, 345, 353, 360, 364, 368, 371, 373, 374, 391, 411, 414, 416, 423, 430, 442, 446, 461, 471, 483, 485, 486, 490	280, 282, 283, 299, 309, 311, 317, 330, 331, 332, 333, 336, 343, 353, 368, 371, 373, 374, 382, 391, 394, 402, 406, 411, 416, 425, 431, 438, 442, 446, 472, 483, 484, 485, 490, 491	148, 245, 255, 256, 275, 280, 282, 283, 286, 292, 295, 310, 324, 331, 332, 333, 334, 336, 343, 345, 356, 368, 389, 392, 394, 395, 396, 402, 404, 405, 406, 407, 410, 411, 413, 420, 425, 427, 430, 438, 442, 447, 448, 450, 471, 472, 487

### 3.1. Competences and employment readiness

Employment readiness and the competences required in graduates was a strong focal point of the conference, with many presenters discussing building educational bridges between the classroom and the workplace.

**Linking coursework with external organisations and entrepreneurship** – Students are learning required skills directly by engaging in industry-informed education in the classroom, and practice-based education in the workplace. For example, Fernández et al (#370) surveyed chemical companies in Spain to identify the specific type of training that they require for students who might later be employed by them. Pinazo-Dallenbach and Tutistar-Rosero described a proposal to implement a compulsory entrepreneurship module in El Salvador higher education (#148). On-site internships are being examined in many disciplines, from media education (Karmasin et al, #303) to science economy (Kulpa-Puczyńska, #435) with a high level of student satisfaction (Alemany-Costa and Perramon-Tornil, #484).

**Transversal or ‘soft skills’** - Likely as a result of the Bologna Process and its identification of ‘soft skills’ as a key to graduate employability (Viles et al, #353; González-Gómez et al, #311; Tiseira et al, #391), evaluating students’ soft skill competences had a high profile at the conference. Martínez-Casas et al (#486) examined ways to quantify students’ capacities in problem solving, communication and applying knowledge in practice. Sonseca et al (#485) developed thorough tables not only of the range of students’ communication skills, but also the measures for assessing students’ degrees of achievement of those skills.

Defining the landscape of soft skills seems to still be a work in progress, and no conference paper attempting to do so. A potential solution employed here is to use the 2009 MODES soft skills map derived by the Education Audiovisual and Culture Executive Agency (EACEA) in consultation with universities and industry. A search of relevant terms in the conference proceedings (Figure 3) mapped against the clustered MODES listings shows that conference attendees are engaging robustly with several of the identified soft skills areas but that there is still a great deal of territory to explore.

Social		Methodological		Personal	
Conflict management	-	Adaptability to Changes	-	Life balance	-
Negotiation	-	Results orientation	-	Culture adaptability	-
Contact Network	~	Management Skills	-	Tolerance to Stress	-
Customer/User Orientation	~	Analysis Skills	~	Self-awareness	-
Leadership	+	Continuous improvement	~	Learning Skills	~
Communication	+	Decision Making	+	Commitment	+
Teamwork	+	Creativity/Innovation	+	Professional ethics	+

Figure 3. Profile of MODES soft skills in conference discourse [low: - moderate: ~ high: +]

**Real world social/ethical issues** - Educators are driving societal mores such as solidarity, social commitment, altruistic actions, and social support into the curricula. Presenters demonstrated a range of diverse student projects into which these values are being integrated. They include measuring student volunteer work (Lázaro Guillamón et al #338), engaging students in contributions to preserving endangered wildlife (Gorga and Jur, #350) and marine habitats (Mioni and Merlino, #292), and building privacy and security into personal information (Lozano and Trillo-Lado, #420).

### 3.2. Assessment and evaluation

**Evaluating what students can do** – Identifying the extent to which students can turn their knowledge into action may be a difficult exercise but educators at the conference are finding ways to tackle it. Martínez-Casas et al (#486) took the approach of building learning outcomes paired with achievement levels to define their students’ problem

solving competences. At the UPV (Spain) Sonseca et al have created thoroughly explicated outcomes grids against which students are measured (#485). Von Eije and Jaklofsky (#360) from the University of Groningen, Netherlands presented a methodology for empirically considering intended vs. achieved learning outcomes.

**Transparent and thorough rubrics** –With the increasing focus on specific skills, including industry-ready skills and soft skills, the role of the rubric in education is becoming ever-more prominent. A well-built rubric, transparent to the student, provides a ‘feed-forward’ effect in which students have an understanding of what they are meant to achieve and why in advance (Cox et al, #414), facilitating increased success. Constructing rubrics in this way can also provide a basis for engaging students in the peer evaluation process, leading to students gaining an increased understanding of extant academic standards in their peer groups (Caldwell and Gedeon, #441).

### 3.3. Innovative teaching methods and technologies

**Project/microproject based learning (PBL)** - Many universities are instituting a range of real-world project based learning programs (PBL). Cabedo et al (#442) showed that student interest is aroused more by project based learning (in materials science) than traditional teaching methods, and that PBL encourages the growth of transversal skills. The University of Helsinki (Finland) and the University of La Rioja (Spain) are offering students industry-driven microprojects (Fernández-Ceniceros et al, #336). At the University of Applied Sciences (Germany), highly motivated students are offered elective interdisciplinary project labs (Bailleu et al, #343), in which students influence the content of projects and request relevant lectures on demand, and professors influence the use of scientific methods. These PBL offerings are popular with students, who learn teamwork, produce demonstrators for subsequent students, and have even developed industrial products.

**Software learning tools** - New discipline-specific software teaching tools were demonstrated by several presenters. At the University Jaume (Spain), Barreda Tarrazona et al (#406) created an online platform for students to adjust economic levers in a virtual economy, astonishing their students by making visible to them how their online game play actually created the equilibrium predicted by their formulas. Also in Spain, at the Universidade da Coruña, González-Coma et al (#404) created a Matlab tool that visualises the reach of antenna arrays. The students use the software to move back and forth between the math and an image of the coverage of their array so they can check their designs (Figure 4).

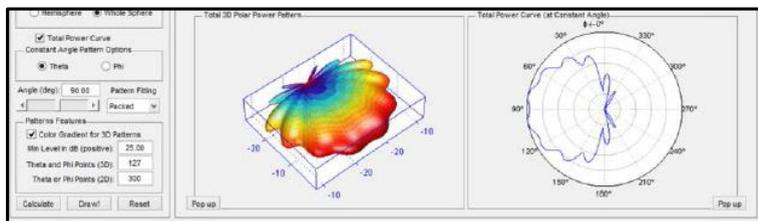


Figure 4. Antenna array visualisation software using Matlab. Universidade de Coruña.

### 3.4. Student reflections and perspectives

**Students are asked to not just learn, but to reflect on that learning** - Students are being asked what qualities an assessor should possess (objectivity, transparency, impartiality, etc.). In teamwork, they are asked to reflect on their contributions and those of their team members. In one paper, students were asked to monitor their own learning, allowing them to perceive discrepancies between their goals and what was actually being taught. This empowered students to exercise control over their goals, plans and operations (Goulão and Menedez, #416).

**Student perceptions** - Self assessment and self-reflections were a recurrent theme in many papers. If students felt that their performance was not accurately assessed, their motivation and commitment diminished, which leads to poorer outcomes. However, if they feel informed, and have their expectations adjusted to reasonable levels, their success rates increase (Preciado et al, #483). This is a tricky one, especially with undergraduates who tend to assess

their own capabilities in terms of employment skills in varying degrees of inaccuracy, sometimes over rating and sometimes under rating.

**Student satisfaction with alternative teaching models** - Many of the innovations in teaching have student satisfaction measurements attached. Not surprisingly, students appear to express very good levels of satisfaction with these alternate teaching methods. However, some issues arise. Educators from Pompeu Fabra University noted that students can find it difficult to marry up the theory taught in class with the reality of a practicum (Alemany-Costa and Perramon-Tornil, #484). In project-based learning, the ‘free-rider’ syndrome where a group member does not pull their weight has to be forestalled with the use of peer-enforced contracts (Reilly, #345; Gorga and Jur, #350). And the right balance needs to be achieved between the needs of the employer and the formative needs of the student.

#### 4. Other issues

**Social and cultural factors** - As Osiri alluded to in his keynote, when he noted that cultures with low tolerance for ambiguity find it difficult to embrace online education, so social and cultural issues can have impacts on efforts to improve upon student outcomes. Family educational backgrounds can have an influence on Chinese students entering the workforce (Yue, #290). Some countries find that they have more systemic problems, such as El Salvador’s generally outdated higher education system (Pinazo-Dallenbach, #148).

**Student services and support** - While the conference focused in the main on academic matters, it is worth noting that many of the innovations described in this conference have implications for the university non-academic university staff and university processes. In a few papers this aspect of innovating higher education was discussed directly. For example Kulpa-Puczyńska (Cardinal Stefan Wyszyński University in Warsaw) noted that internal coordination and dynamic academic policy are key to the success of their program (#435). In Australia, Deakin University is actively promoting new pedagogies across colleges, including creating roaming resources (Casey and Craig, #368). Finland’s Mikkeli University is examining the value of industry certifications for students (Koivisto, #382). And some universities are innovating their student support and services strategies as well, such as the University of Salamanca who found that running a Facebook ad campaign to recruit students resulted in a high level of exposure for a low financial cost (Luhuerta-Otero and Cordero-Gutiérrez, #282).

#### 5. Conclusion

Together, the inaugural higher education advances conference tells a story of a global trajectory of strengthening interconnectedness of universities with external sectors. Conference presenters showed that this trajectory is leading to authentic learning offerings for students and the facilitation of soft skills development. Students simultaneously have increasingly high levels of satisfaction with their learning, and stronger cases to put in finding entry level roles in their future careers. Together, these novel approaches are creating new models for producing students better equipped to contribute to the community, the economy, and the building of nations.

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