Crossing Disciplines: Interdisciplinary Practice in Higher Education

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Abstract: In this article on interdisciplinary higher education with a view to English language learning, specific education benefits are revealed, ranging from critical thinking skills and the toleration of ambiguity to the recognition of bias and the appreciation of ethical concerns. In the Bologna-inspired environment of higher education aimed at the workplace, language centres are uniquely poised to promote an interdisciplinary approach to better serve student needs. In the author's experience over two decades in Portuguese higher education, increased student interest, dedication, and enjoyment in interdisciplinary activities demonstrate the applicability of this proactive enhancement of competences where the target language is the medium of communication. Modelling the synergistic nature of the learning process exercising various knowledge systems. Best Practice is described for crossing disciplines by selecting materials, understanding their application and dealing with assessment.

Resumen: En ambientes de educación superior orientada hacia el desarrollo profesional, los centros de lenguas, sobre todo lenguas para fines específicos y CLIL, deberían fomentar un enfoque interdisciplinario. La creación de sinergias en el proceso de aprendizaje, donde la interacción de varios sistemas cognitivos es una constante, resulta en el enriquecimiento proactivo de competencias.

Abstrakt: Příspěvek se zabývá mezioborovým vyšším vzděláváním při studiu angličtiny a ukazuje jeho výhody, od schopnosti kritického myšlení a tolerance dvojznačnosti až po rozpoznání předsudků a ocenění zájmu o etické problémy. Ve vyšším vzdělávání inspirovaném Boloňským procesem jsou jazyková centra jedinečně připravena podporovat především mezioborový přístup, aby lépe sloužila potřebám studentů. Podle autorčiných dlouholetých zkušeností z portugalského vyššího vzdělávání způsob výuky, kdy je cílový jazyk prostředkem komunikace, proaktivně zvyšuje kompetence studentů a jeho použitelnost je doložena zvýšeným zájem studentů, nadšením a radostí z mezioborových aktivit. Prolínání oborů napodobuje synergickou povahu učebního procesu uplatněním různých systémů vědění.

Introduction

Having witnessed the inspiration of interdisciplinary studies in Science and the Humanities in the *opera magna* such as Needham's *Science and Civilisation in China*, published between 1954 and 2008, and Proust's *À la recherche du temps perdu*, released over 14 years beginning in 1913, academia now boasts reputable examples of interdisciplinary higher education at Duke, the Institut Nicod/Interdisciplines in Paris and the University of Southampton's College for Interdisciplinary Learning, to name but a few, thus contributing to the 'the literature on cognition and instruction [which] shows that interdisciplinary learning promotes higher order cognitive abilities' (Repko 2008: 176).

In a recent example, Yale and the National University of Singapore (NUS) commenced their joint venture as Yale-NUS College, an institution of liberal arts with an emphasis on exploring cultural differences and moving beyond rote learning and lectures. Breaking with Asian tradition, and pushing the socio-political limits of Singapore itself, in September 2013, students were exposed to a teaching strategy that asked them not only to engage in controversial classroom discussions and participate in small group seminars for each course but also to communicate beyond the classroom using Web 2.0 tools (Fischer 2013). Due to the ambiguous nature of communicating across disciplines and the recognition of the multiple intelligences involved (cf. Tait & Lyall 2007; Boix Mansilla & Gardner 2003), the school expects the students to spend more time on interdisciplinary work.

Within the European Higher Education Area, the Bologna Agreement and its effect on higher education has been explored and measured extensively for teacher training purposes and especially for languages and culture (cf. Arau Ribeiro, Brito & Árias Mendez 2008; Rodrigues, Arau Ribeiro & Brito 2015). Preparation for the professional world further validates collaborative practice through improved interdisciplinary work in higher education, despite the difficulties that may be encountered (cf. Mantilla 2009). ERASMUS+ programmes have further contributed to the crossing of borders to provide more diverse linguistic and intercultural competences, as attested by the Language Rich Europe study, among others (cf. Extra & Yağmur 2012).

Thus, for the myriad reasons presented, regular exposure to interdisciplinary modules that deal with real-world problems has been the option for this English teacher in Portuguese higher education. This article, which is practical in nature, describes the key concepts involved in interdisciplinary practice for learning English, including a presentation of the creation of communities of practice to carry out interdisciplinary activities with appropriate scaffolding by fellow students and the teacher. The three examples of interdisciplinary practice, involving students of Communication, Business, Computer Science and Tourism, are accompanied by practical teaching tips for not only interdisciplinary work but also quality teaching in general.

Key concepts defined

A comparison of terminology used for related approaches and their respective actions demonstrates that a *multidisciplinary* approach reflects simultaneous activity in the two distinct areas while a *transdisciplinary* approach reflects transcendence of boundaries. Finally, an *interdisciplinary* approach would be one that reflects synthesis of the two areas (Salmons & Wilson 2009; Teinaki 2011). Correspondingly, in recognizing synthesis above transcendence, the US National Academy of Sciences proposes interdisciplinary research (IDR) as the umbrella term, which includes transdisciplinary research as a subset. Specifically, IDR is considered to be a mode of research by teams or individuals integrating

'information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice'. (National Academy of Science, National Academy of Engineering, Institute of Medicine 2005: 188)

This article takes the broadly accepted definition of interdisciplinary education as

'[t]he capacity to integrate knowledge and modes of thinking in two or more disciplines or established areas of expertise to produce a cognitive advancement – such as explaining a phenomenon, solving a problem, or creating a product'. (Boix Mansilla & Duraisingh 2007: 219)

In this sense, the interdisciplinary approach for maximum English language learning involves not just one but two applied subject areas in a proactive enhancement of the target language.

Contextualizing interdisciplinary practice

Within the classroom, the Community of Practice (Wenger 1998) describes a specific "approach to knowing and learning" where the teacher and students proactively build the learning environment. Through a coherent community of practice, students learn to rely on this forum, with a consistently supportive environment, to "share a concern or a passion for something they do and learn how to do it better as they interact regularly". This is not only a supportive context but also a construct that requires constant maintenance in which, learning from each other in previously unfamiliar areas, the students necessarily cultivate a high tolerance for ambiguity (cf. Tait & Lyall 2007).

The inclusion of global and local citizenship practices enables students to develop their knowledge/practice, via intervention and action research, to promote the common good. By applying proposed solutions to societal concerns such as equality, sustainable development, new technologies, health, poverty and/or migration, students and teachers alike can participate in the real problems of the world.

Scaffolding, the support that is progressively reduced as the language user builds a stronger foundation, finds an appropriate setting in a community of practice. The rich tradition of both cognitive and socio constructivist learning theory meet in the community of practice, where future autonomy in the foreign language is a plausible objective. Teachers who aim to scaffold within a community of practice will assume responsibility for creating sustainable learning environments that are visual, oral and kinetic. Correspondingly, the students who strive to acquire language competencies are responsible for manipulating, reconsidering, reviewing, thinking, presenting and justifying ideas as well as stretching concepts and articulating notions within dynamic activities and topics that the teacher has crafted in advance.

Methods and procedures

Effectively introducing interdisciplinary practice requires a motivating objective and related activities as well as appropriate materials that are both timely and significant. Then, to justify working other subjects into the English or ESP syllabus, the interdisciplinary approach is supported by the European key competences for lifelong learning, which include, among other skill areas, learning to learn, Mathematics and basic science & technology, ICT competence, a sense of initiative and entrepreneurship, social and civic competences as well as cultural awareness and expression. This plethora of skills means that any crossovers will promote more than one competence area and contribute to overall student competence.

Having found a given objective for an interdisciplinary activity, the proposal can be framed by accentuating the multiple functions in orientation questions (Wenger-Trayner & Wenger-Trayner 2015). Their useful and inspiring suggestions cover problem solving and reusing assets as well as programming virtual visits and requesting information. Students can also simulate ways to gain experience and discuss the developments of any situation that has been posited. Finally, they can improve their efforts at group coordination and creating synergies, map many types of knowledge and even identify gaps through relevant and inspiring opportunities to practice language within interdisciplinary studies.

Assessment provides a valuable source of information for both the students and teachers involved, especially those looking to make constant improvements and fine-tune the interdisciplinary approach from activity to activity. Some researchers (cf. Vars 2002: 69) advocate using a simple comparison of entrance and exit surveys to save time, which may initially be more valuable for preparation. Nevertheless, for each of the three interdisciplinary modules to be presented, student keep self-assessment memos, written before and after, based on the following sequence of questions adapted from Repko (2008: 174).

1. What perspectives can you identify to consider these problems? After the activity, what other perspectives did you consider?

2. What do you know specifically that will make it possible to solve the various problems? After the activity, what else have you learned that will make your solutions to the various problems more multidimensional?

3. What do your colleagues in (the other area) know about (the topic)? What can you learn from them? After the activity, what did you learn from them?

The final assessment point, the production of an interdisciplinary understanding of a complex problem or intellectual question, was reflected in the tangible results of the interdisciplinary activity.

The interdisciplinary approach in practice

Three examples demonstrate interdisciplinary modules in action. Communication & Public Relations and Executive Secretarial Studies students were asked to work together to promote a cultural event, a nation-wide encounter sponsored by the British Council during the Language Rich Europe project. These students, despite initial rejection of their counterparts (the PRs especially spurned the future secretaries due to the perception that they are hierarchically less relevant) collaborated, learning from each other to gain competencies in communication and organization, and to discover more information about the speakers by gathering data and bionotes. They practiced their abilities to distinguish between reliable and other sites and sources of information as well as building promotional material, like posters, programmes and fliers, using their ICT skills and practicing constructive criticism and team work. Finally, because they were given full responsibility on campus, they immersed themselves in preparation for proper etiquette and protocol in working with distinguished guests, leading to rigorous research and stimulating debates. A clear benefit was that students broke with their initial social bias against secretaries when faced with the skills acquired from their multidisciplinary preparation, as early as the first year of university.

At the School of Tourism, Hotel Management students in collaboration with the Catering course designed and presented their ideas for communication processes to reduce loss in food spoilage and/or to better control exposure to potential food allergies. The more holistic view of the future hotel managers initially seemed to be a barrier to communication with the detailed perspective of the Catering students, focusing on the specific area of Food & Beverage. Nevertheless, the common goal of caring for their guests helped to overcome any barriers. The recourse to technology that was needed to create an appropriate communication process required both IT and written communication skills, areas in which both courses had to improve.

In an interdisciplinary activity pairing Marketing and Computer Science students, the topic was Customer Relations Management (CRM). At the time, it was a relatively new concept and Marketing professionals would need IT support to learn about their clients' habits, preferences and demographics. In clearly defined modules, the two classes respectively discovered the various aspects of CRM and data bases. In the following class jointly taught with the Computer Science teacher, the students from these two areas met in designated pairs to first teach each other about their respective know-how and then produce appropriate databases to collect the information identified as relevant for the study of a particular company or product. They reported on the challenge of making your own specialty understandable to people from other areas, especially in the case of the Computer Science students, who were surprised to find that the specific terminology and discourse used to talk about databases, for example, made communication difficult. To meet this challenge, they looked for other expressions and used more accessible language. The Marketing students discovered

that using a computer program is not at all the same as creating one; they practiced expressing their needs the data to be collected more objectively and through practical descriptions. In the end, students were particularly proud of having learned to value the other study area and for what might be expected in their future professional activity.

In each of these three examples, assessment had a subjective and an objective dimension. On the one hand, the students together "produced" an event, a database or an idea, which was evaluated objectively for its worth in the specialty area. On the other hand, in oral feedback and in written assessment for their portfolios, both before and after the interdisciplinary module, students responded in Repko's (2008) four areas, as previously cited, keenly sharing their perceived acquisition of competencies and their pleasant surprise with the multiple ways in which they felt they had grown.

Discussion of best practices for interdisciplinary activities

A number of suggestions from a linguistic and didactic perspective are well taken for this absorbing approach. In contrast with traditional classroom activity, interdisciplinary work gives students from different areas the opportunity to work together on relevant and attractive professional topics. Although eventually met with enthusiasm, rejection in the face of change is both common and predictable. The teacher's confidence and interest can impact this initial reaction and influence a positive change.

Teachers who train themselves regularly to be behavioural experts know the importance of listening carefully and respecting the pace of the classroom. Their ability to identify timely and significant topics clearly influences the students' immediate and medium-term reaction and enthusiasm. Clues for appropriate topics can be identified within a community of practice, where barriers to interaction are at a minimum and where students and teachers alike can express their interests and motivations. The selection and proposal of challenging crossroads makes learning possible for a greater number of students since there are several possible angles involved and a greater diversity of strengths to be applied. The language level of the material also determines whether it will be approachable based on prior knowledge, another key strength of successful scaffolding.

Understanding the interconnectedness of language and culture (Arau Ribeiro 2009), will ensure the inclusion of both 'high' and 'low' culture and a regular enhancement of intercultural knowledge, especially via pragmatics. Note that working with Hofstede's controversial cultural dimensions and considerations for intercultural strategy and for promoting change leads to disagreement that can stimulate passionate debate.

Learning more about semiotics enables language teachers to orient students as they make fuller use of images and visual representation to prepare their reports or presentations. However, since many language teachers are from the areas of Letters and the Humanities, their respective levels of knowledge in the pure sciences may be lagging or even lacking. Getting informed, especially in a new area, can be daunting; nevertheless, interesting topics abound and, as teachers, who better to be engaged in lifelong learning? Given that many teachers come to the profession not only because of a vocation but also for their joy of learning, reading and watching documentaries in new areas will be a pleasant challenge (cf. ASAPscience at http://asapscience.tumblr.com/). Even the *Arts & Letters Daily* site (http://www.aldaily.com/), which formerly used the slogan 'Food for the mind', offers a veritable smorgasbord of culled treasures from the finest journalists and often bridges the gap to the sciences.

Including ICT (or simply IT) in activities with students is essential since contemporary employment competencies include computer skills and English. Given that, the first ever EU *Digital Action Day* was celebrated in Brussels on 29 September 2015, honouring 'Every European Digital, Every Sector Digital'. Thus, despite the conflicting tendency, online research *in class* can be actively encouraged and validated, making those erstwhile annoying mobile devices valuable teaching tools rather than distractions.

Some of the key objectives that can motivate the relentless drive to create these relevant projects with students begin with the letter E: entertain, engage, enthuse, inspired by the widespread alternative meaning of the E in the acronym for TEDtalks – *Edutainment*. Other positive activities for promoting solid pedagogy include the objectives to *exchange, empower, extend, enhance* and *enrich*, for example, in the area of ICT, given the prefix in *e-learning* (cf. NAACE 2007: 10).

Conclusions

In working with an interdisciplinary approach, a number of inherent dangers may arise. Although the foreign language class taught interdisciplinarily may be perceived as a "threat" to subject teachers, the principal aim is a palette of relevancy within which to practice communication. As seen in the three cases presented, the more involvement the students have with other skill set areas, the more optimum participation can be expected in their professional and personal future. The traditional learning setting, based on the segregation of study areas, makes interdisciplinary practice especially attractive to students who know very little about other areas and are curious to learn more from each other through this interaction. Students found their interdisciplinary practice in English fruitful and worthwhile but the agility of the teacher is constant and the preparation time required is significant.

Most of all, in the attempt to make learning both interesting and appealing, teachers will need to remain humble and open to learning, particularly since interdisciplinary studies imply working across other domains. Students may actually know more than the teacher, be it in terms of form, function, meaning or context, which serves very clearly to reinforce the sense of *community* in the Community of Practice, one in which everyone learns.

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Bionote

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