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Mediterranean Knowledge Institutions: Inspired by the Past, Anticipating the Future

This anniversary issue pays tribute to the institutions that produce and disseminate knowledge and reflects on their role in fulfilling the potential of individuals and societies in the Euro-Mediterranean region. It offers an appreciation of the historical significance of universities, libraries and academies in the region and celebrates the dynamic diversity of their contemporary counterparts in responding to a challenging modern-day environment.

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L'objectif de la revue internationale d'études Euro-Méditerranéennes est de promouvoir le dialogue interculturel et les échanges entre les sociétés, développer les ressources humaines et assurer une compréhension mutuelle de qualité au sein de la région euro-méditerranéenne.

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Preface

The information age, with the advent of the Internet, broadband connections and advances in computing technologies, triggered changes in higher education, teaching and learning environments. Consequently, we witnessed the introduction of online education, virtual learning platforms and Massive Online Open Courses (MOOCs). One of the greatest achievements was providing access to formal and non-formal education to an ever-increasing number of learners.

With the more recent advent of the scientific concepts of cyber-physical systems and cognitive computing, including artificial intelligence and signal processing, and the emergence of the technologies of automation, machine learning and the Internet of things, we are embarking on a new age, the "Fourth Industrial Revolution". In the era of "Industry 4.0", as it is also known, we are facing a range of new technologies combining the physical, digital and biological worlds. It will impact all disciplines; change jobs and challenge the way we conduct our businesses and our lives. Needless to say, education and particularly higher education institutions are at the forefront of the ensuing change.

Amid these rising trends that will impact the way we live, work and interact, the Euro-Mediterranean University (EMUNI) is celebrating its 10th anniversary. It is time to reflect on the pragmatic challenges facing higher education institutions in the region as they consider their role in the 21st century. Can we keep pace with the dynamic changes in the job market? Can we remain abreast with the requirements and expectations of the digital generation? Can we confront and manage the ambiguities of the fourth industrial revolution? How do we prepare for a technology-enabled future? Meeting these challenges and opportunities requires our dedicated attention, innovative thinking and rigorous research.

By publishing this special "anniversary issue" of the International Journal of Euro-Mediterranean Studies (IJEMS), our aim is threefold.

First, to highlight the evolution of the knowledge institutions in the Euro-Mediterranean region and celebrate the role they have played in developing and advancing their societies. Second, building on their dynamism and diversity, we attempt to share some learned lessons and good practices among the contemporary institutions and present how they respond to current challenges. Third, we aim to illustrate how digitalisation and internationalisation evolve in different cultural contexts of higher education institutions and potentially contribute to inter-cultural dialogue.

A. Hamid El-Zoheiry
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OLDEST MEDITERRANEAN KNOWLEDGE INSTITUTES

Mohammed H. Elrazzaz

When and where did the first universities appear? What was there prior to the birth of the university the way we know it? How did universities evolve over time and what mark did they leave on the history of learning? What seem like straightforward questions actually call for thorough cultural excavation in an attempt to identify the rise and development of knowledge institutes over long centuries of human learning. This chapter is a journey in time and place as we move between old academies, libraries, schools and universities on both sides of the Mediterranean, always a civilizing sea since the dawn of time.

KNOWLEDGE INSTITUTES IN CLASSICAL AND MEDIEVAL TIMES

The story of knowledge is a long one; that of its institutes, not as long. From the Prehistoric rock art at the Caves of Lascaux and Altamira to the Neolithic Revolution that brought about the invention of agriculture and the rise of the first cities, knowledge found many media, interpreters and modes of expression throughout history, which helped guard and spread this knowledge. Knowledge institutes are the culmination of a long process through which people attempted to institutionalize knowledge and regulate its transfer. The notion of a 'knowledge institute' calls for the use of a specific lens, for the very concept of an 'institute' evokes different mental images depending on its cultural context.

A knowledge institute can be defined simply as any entity engaged professionally in the systematic accumulation, production and dissemination of knowledge, mostly for public benefit, rather than for the direct benefit of a cultured elite or a privileged social-political cast. It may or may not facilitate research or offer academic degrees and titles. In this chapter, the main focus will be given to the first academies, higher schools and universities. This is why, for example, we exclude libraries and archives attached to ancient temples and royal palaces, where access was exclusive to priests, scribes or members of the court.

As for geographical scope, the focus will be given to the Mediterranean Basin and its natural cultural hinterland, specially Mesopotamia.

Historically, we start with Classical Antiquity in the Eastern Mediterranean, then proceed to the Middle Ages. Long before the idea of a university was conceived in medieval Tunisia, Morocco, Italy and France, the concept of a 'higher education institute' had already found a strong expression centuries earlier in such cities as Athens, Alexandria and Constantinople through the Academy of Plato (the Mother of all Academies), the Lyceum of Aristotle, the Mouseion and its Library in Ptolemaic Alexandria, as well as the Byzantine Pandidakterion of Theodosius II in Constantinople, just to mention a few examples.

Classical Antiquity was followed by the Middle Ages that lasted for long centuries until the birth of the Renaissance in Italy. Usually referred to as the 'Dark Ages', they were not exactly dark. It is true that the Middle Ages were marked by frequent military and ideological conflicts as well as widespread poverty, ignorance, social injustice and superstition, not to mention the disastrous plague outbreaks. Nevertheless, it was precisely during the Middle Ages that an unparalleled intellectual and humanist activity yielded golden ages in al-Andalus, Iraq, and the Carolingian Empire, spawned the Byzantine Renaissance, and saw Arab, Berber and Jewish communities playing a civilizing role across the Mediterranean region and beyond. The Middle Ages witnessed the emergence of spectacular styles of art and architecture like Byzantine, Umayyad, Fatimid, Romanesque and Gothic. They also produced scholars of universal genius and marked the 'age of universities'.

Whereas the Islamic madrasas (schools) represented the genesis of the earliest North African and Middle Eastern universities, their European counterparts can trace their origins to the Catholic monastic schools and educational bodies associated with cathedrals and major churches. The birth of the *'universitas'* in medieval Europe marked a definitive step towards the institutionalization of higher education in the continent. The *universitas* in its basic form transformed loosely-structured, student-professor relationships into well-regulated association of students and professors subject to clear codes and firm bodies of governance. Students further organized themselves into groups based on their regions of origin or their fields of study, and eventually enjoyed better mobility, protection and recognition. Professors enjoyed varying degrees of academic freedom and had to comply with certain standards meant to guarantee the quality of education and the prestige of the degrees granted by the university.

This is how the first important European universities came to exist during the twelfth and thirteenth centuries. The University of Bologna paved the way for the rise of other universities in Vicenza,

Arezzo, and other cities in Italy. Elsewhere in Europe, England, France and Spain became the birthplaces of the universities of Oxford, Paris and Salamanca--respectively. These -and other- universities played an extraordinary role in developing human knowledge and establishing exemplary models of learning.

Knowledge institutes apart, several inventions and discoveries contributed to the diffusion and democratization of knowledge throughout history. The Neolithic Revolution ushered in a radical shift from a hunter-gatherer lifestyle to a sedentary one that paved the way for the first permanent communities and, consequently, the first cities; great depositories of human wisdom. The invention of writing in Egypt and Iraq during the Bronze Age made it possible for people to 'record' important activities and events, whereas the subsequent invention of the alphabet by the Phoenicians and other nations made communication using standard characters possible. The manufacturing of clay tablets, papyrus sheets, parchments and finally paper provided an ever-improving medium for writing.

Over millennia, the practical need for a better understanding of the seasons, the elements, as well as natural and cosmological phenomena eventually gave rise to many scientific disciplines, while the desire to keep annals of emperors and kings and chart the world gave way to an interest in history and geography. In parallel, mythology, systems of belief and battlefields inspired art, literature and poetry.

The ease of physical mobility of individuals and groups, the respect of diversity, the celebration of pluralism, the encouragement of intercultural and interfaith dialogue and the appreciation of the shared cultural legacy have all been key transversal values and prerequisites for knowledge to prosper. We saw it throughout history in the cities of Cordoba, Fez, Montpellier and elsewhere in the cities of learning around the Mediterranean.

Knowledge found great advocates in countless rulers and patrons that started ambitious projects to build massive libraries and sponsor schools and extensive archives. Classical Antiquity saw some such projects with Pericles in Athens, the Ptolemies of Alexandria and the Attalids of Pergamon. The Middle Ages will always be remembered for such enlightened rulers as Charlemagne, al-Hakam II, al-Ma'mun, Alfonso X and Roger II of Sicily. In parallel, generation after generation of storytellers, troubadours, minstrels and merchants would act as agents of cultural exchange, while explorers and travelers like Ibn Battuta and Marco Polo would bring the world with all its mysteries into the hands of people that might have never set foot outside their towns through the enchanted mirror of their tales and their travel literature. Translators

played a pivotal role as vehicles of cultural crosspollination that bridged the linguistic barriers and the geographical distance. Palermo, Toledo, Baghdad and many other centers fostered a frenetic translation activity that both preserved and democratized human knowledge.

These agents and advocates are all part of the story, but now we set our compass again as we explore the oldest knowledge institutes in the world which, not so coincidently, coincide with our part of the world: The Mediterranean, where the story begins and where all four points of the compass of knowledge seem to meet. From Ancient Greece to Medieval Italy through the Middle East and North Africa, we will explore the historical and socio-cultural contexts within which the first universities -and their predecessors- were born, and we will examine the impact they had on shaping the Mediterranean culture throughout history. Moreover, we will understand the interlinkages between many of these institutions as they learned from one another and developed the academic tradition over centuries.

CLASSICAL AND LATE ANTIQUITY: ACADEMIES, LIBRARIES AND MORE

Athens: The Birth of Higher Education

"In short, I say that as a city we (Athens) are the school of Hellas." – Pericles

During his famous Funeral Oration towards the end of the fifth century BCE, Pericles bragged about the legacy that Athens was about to leave to the world. An enlightened ruler, his was a golden age that saw Greek culture reaching unprecedented heights, thanks to golden generations of intellectuals, philosophers and artists. Even after Pericles' death, Greece would still produce great minds that would exercise a huge influence on human thought until our present day. To visit what remains of Plato's Academy today is to pay homage to history's first proper higher education institute. Nevertheless, the story starts earlier elsewhere in Athens.

It was during the Archaic Period in Greece that the first gymnasia appeared. Built beyond the old city gates, these early gymnasia were dedicated at first to physical exercise and training. Eventually, and out of a deep conviction that mental and physical health went hand-in-hand, the gymnasium became more than just a *Palaestra* (wrestling school), assuming an ever-growing cultural and educational role during Classical Antiquity.

It was precisely within this spirit that state-sponsored gymnasia would, in due time, house Plato's Academy and Artistotle's Lyceum. Tradition has it that Plato's Academy, dating back to the early fourth century BCE, had a phrase inscribed above its entrance: "Let him not enter our school he who does not understand geometry." As the phrase implies, the Academy was more than just a school of philosophy, as its curricula included the teaching of humanities, physics and mathematical sciences, for how would a philosopher explain the mysteries of the world and the universe without studying arithmetic, geometry, astronomy and harmonics? This approach would yield an educational model in Medieval Europe centuries later, based on the Seven Liberal Arts (the *Trivium*, comprising grammar, rhetoric and logic, as well as the *Quadrivium*, comprising the four mathematical sciences of the Greeks).

Relics of Aristotle's Lyceum in Athens

Plato based his philosophy on the teachings of his master, Socrates, to whom he dedicated his most celebrated work: the 'Dialogues'. Plato's life was marked by many dramatic moments, including Athens' painful defeat in the Peloponnesian War, the regime of the Thirty Tyrants and, years later, the tragic trial and death of his teacher Socrates, condemned for his teachings. Having absorbed the philosophy of Socrates as well as the ideas of earlier natural philosophers and Pythagorean

mathematicians, Plato eventually formulated one of his most influential ideas, namely the 'theory of the Forms' according to which everything we see and experience is a mere reflection of the real world of celestial 'Ideas'.

In Athens, Aristotle founded his own school, the Lyceum, the remains of which were discovered some twenty years ago. The Lyceum had a library that might have inspired the Bibliotheca Alexandrina and the Library of Pergamon centuries later, and we are told that its students were engaged in laborious research projects commissioned by Aristotle himself. The scale and scope of Aristotelian thought was so extraordinary that it would exercise an unmistakable influence on the formative period of Christian, Islamic and Jewish scholarship.

Unfortunately, The Academy and the Lyceum suffered one calamity after another, and whatever survived came to an end with Emperor Justinian's decree in 529 CE, leading to the closure of all the Athenian philosophical schools. Little is left at the archaeological sites and it takes a lot of imagination to be able to understand how these schools must have looked like, and the same applies to yet another important school whose relics still echo the teachings of the great philosopher Zeno of Citium. Today, the ruins of the Stoa Poikile are understandably ignored by most visitors to the Greek Agora in Athens, eclipsed by more intact and impressive monuments like the Temple of Hephaistos. It was here that Zeno preached Stoicism.

In addition to the rise of the Academy and other such institutes, something extraordinary happened in Athens that would have a complementary and far-reaching impact on classical popular culture, namely the birth of drama and the rise of the theatre as a school for the masses. The Greek theatre became more than just a place of entertainment, but rather a stage on which plays charged with moral dilemma and philosophical ideas were presented and admired by an ever-growing audience that reflected increasingly on a complex set of ethical and aesthetic values like patriotism, reason, justice, virtue, to the end of the long list.

Rome, Ephesus, Antioch and Alexandria were among the immediate heirs of Hellenic refinement: the writings of Ovid, Horace and Virgil would never have been possible without the inspiration offered by Classical Athens, and the Library of Alexandria (our next stop) would be impossible to conceive without the intellectual base spawned by the Athenian knowledge institutes and theatres, all of them trend-setters for centuries to follow. Platonic thought metamorphosed during Late Antiquity through the writings and teachings of Plotinus and other philosophers -Neoplatonism was born. Platonism, Neoplatonism and

Aristotelianism would be debated by generations of scholars practically all over the Mediterranean and beyond. Whether in madrasas, monasteries, universities or courts, the arguments of Plato and Aristotle would find extraordinary advocates over the centuries: great philosophers like Averroes, Avicenna, Maimonides, Thomas Aquinas and Giovanni di Finanza (Saint Bonaventura) are all remarkable examples.

Probably, no professor and his student ever exercised such sweeping an influence over human thought the way Plato and Aristotle did. Today, and even though it might be not be very easy to reconstruct a mental image of Plato's Academy and Aristotle's Lyceum from the relics at the sites of both schools, their legacy lives on beyond the memory of stone.

Alexandria: The Hellenistic Muse

Few libraries evoke images of awe and grandeur the way the Library of Alexandria does. It all started with Alexander the Great who, in addition to being an extraordinary military leader and strategist, was a learned man whose tutor was Aristotle. He founded the city of Alexandria in the fourth century BCE, not knowing that it would become the intellectual powerhouse of the Mediterranean under his successors, the Ptolemies. Just like Alexander the Great, Ptolemy II Philadelphus of Egypt had another great tutor, namely Philitas of Cos. It was during the reign of Ptolemy II Philadelphus that the famous Library of Alexandria –started by Ptolemy I Soter- became the most important learning center in the world, and the strongest expression of the Hellenistic culture in the Eastern Mediterranean. While the city's lighthouse became one of the Seven Wonders of the Ancient World, the Library was the true intellectual lighthouse of Alexandria, with hundreds of thousands of rolls that attracted scholars and researchers from all over the world.

The Library itself was part of an even greater project conceived by Alexander's army general and successor, Ptolemy I Soter. The project comprised a '*mouseion*', an institution that resembles a university, with a focus on the accumulation, acquisition and dissemination of knowledge. The Mouseion, ancestor of the modern-time museums, was dedicated to the Nine Muses of Greek Mythology which had always inspired artists and intellectuals (musicians, poets, dancers, writers, etc.). However, the Mouseion would transcend the arts and would eventually give rise to generations of extraordinary natural scientists and mathematicians whose names are still etched on the very pillars that bear the weight of human knowledge.

It was within this context that Euclid and Eratosthenes laid the foundations of geometry and geography respectively, whilst Claudius Ptolemy wrote his Almagest, which would inspire scores of astronomers for centuries to follow. Other scientists frequently associated with Hellenistic Alexandria and its Mouseion include Archimedes, Theon, Hipparchus and Aristarchus of Samos, all of them worthy figures that would feature in any 'hall of fame' from the Classical World. No intellectual figure invites controversy as much as Hypatia. Philosopher, mathematician, astronomer and poetess, she became the epitome of a learned woman, inspiring respect and jealousy alike. Some historians use the date of her assassination in the fifth century to mark the end of Classical Antiquity the way we know it.

Back to the Mouseion, Strabo and other witnesses attest to the magnificence of the complex that was attached to the Ptolemaic Royal Palaces. Several accounts describe the Mouseion as comprising of, in addition to the Library, an astronomical observatory, a hall for performing experiments, another for anatomical dissection, botanical gardens, walkways for intellectual debates and discussions, to the end of a fanciful spectrum. Here, the line between fact and fiction becomes blurred, but all indications agree on the unprecedented scale and scope of learning promoted by the Mouseion.

The Ptolemies took much pride in their Library and its collection, and we are told that they went to great lengths to protect it and further enrich it. Agents were sent to look for and acquire rare books for the Library, ships and boats coming to the city were inspected and any books found were copied, and some books were borrowed from other collections and –reportedly- the original versions were never returned. During the second century BCE, the Ptolemies watched with worry as the Anatolian city of Pergamon emerged as a center of learning, with the Attalid King Eumenes II investing further and further in expanding the collection of the famed Library of Pergamon. The Library of Alexandria was much bigger and richer, but still, the jealous Ptolemies adopted a desperate measure to make sure no library would rival theirs: they imposed an embargo on papyrus export, hoping that this would deprive the Attalids of the only viable medium for copying books.

Prior to Alexandria, the Ancient world had interesting libraries like the ones of Ebla (Syria) and Hattusa (Turkey). Nevertheless, these were mostly archives of clay tablets or libraries attached to temples. It was the Neo-Assyrian Library of Ashurbanipal in Nineveh (Iraq) that could have inspired Alexander the Great to build something similar,

yet more global in scope. Alexander's dream, as we have seen, was realized by his successors, the Ptolemies.

Today, nothing remains of the ancient Library of Alexandria, but one can still visit the ruins of a satellite library at the archaeological site of the Serapeum close to the sea, erected by Ptolemy III Euergetes. The Serapeum suffered the same fate that once befell the Library of Alexandria: it was plundered and reduced to ruins in another chapter of human folly. Luckily, all is not lost, and many significant works (like Euclid's Elements) still survive through copied versions and translations. Today, the new Bibliotheca Alexandrina tries to evoke the splendor of the old Library of Alexandria and celebrate the Hellenistic tradition of promoting knowledge once exemplified by the city.

The Pandidakterion and its Successors

When Constantinople became the 'New Rome' in the fourth century, it emerged not only as the heir to Classical refinement, but also as a new capital of Christianity. A city of domed churches and basilicas, imperial palaces and an unmistakable Orthodox spirit, it was described by several travellers as a dream city of unrivalled magnificence. Successive Byzantine emperors would embellish the city and invest in its splendour. Justinian I is famous for commissioning the '*Corpus Juris Civilis*' which became the foundation upon which European jurisprudence was built, as well as building the city's most spectacular landmark: Hagia Sophia. Prior to Justinian, however, another emperor had founded a higher education institution of no parallel quality at the time: the fifth-century Pandidakterion (which roughly means a place under whose roof everything is taught) was founded by the Emperor Theodosius II and would last for nearly a millennium. It came to an end with the Ottoman conquest of the city in the year 1453.

Historians argue about the classification of the Pandidakterion (institute, school, or university?). They similarly argue about the scope of its curriculum (theology, secular sciences, or both). No disagreement lies, however, around the fact that it was one of the most prominent knowledge institutes in the Byzantine Empire. The Pandidakterion would hold that torch throughout the centuries, surviving the fall of Rome to the Barbarians and even after the ominous decree by Emperor Justinian in the sixth century to close the (Neo)Platonic Academy and similar entities inspired by Classical humanism on the grounds that they promoted pagan values.

Constantinople emerged as the optimal destination for scholars and seekers of knowledge in Europe. Education was promoted by several Byzantine emperors, but the Pandidakterion took education to the next level as a permanent, official, state-sponsored entity in which Greek, Latin, Law, Rhetoric and Philosophy were all taught. Following centuries of cultural flourishment, the thirteenth century brought terrible news for the city and, naturally, the Pandidakterion. The Crusaders, on their way to the Holy Land, ended up sacking Constantinople. Several Latin states were established and Byzantine intellectual life suffered a serious setback with the shutting down of the Pandidakterion and the flight of many exceptional scholars to Italy and elsewhere in Europe.

The school was restored following the liberation of Constantinople and the Pandidakterion was back on track, but the definitive end would come with the Fall of Constantinople to the Ottomans in the fifteenth century. Over centuries, the Pandidakterion and other educational entities of Constantinople produced renowned figures like the architect Isidorus of Miletus, Leo the Mathematician, and Anna Comnena. The latter, famous for her 'Alexiads', is one of the most celebrated fruits of Byzantine intellectual life. More than just a groomed princess, she was a polymath that endeavoured into history, literature, mathematics, and medicine; a perfect example of the amplitude of the educational repertoire that could be attained by the Byzantine elite. She and hundreds of Byzantine scholars were both guardians and promoters of the Greco-Byzantine tradition in and beyond the Byzantine Empire.

The Byzantine Renaissance is usually eclipsed by the Italian Renaissance that brought the Dark Ages in Europe to an end. Yet, Renaissance in Italy and Western Europe would never have been possible without the direct input of the Byzantine culture. Names like Manuel Chrysoloras, Demetrios Chalkokondyles and John Argyropoulos might not be as famous as Dante, Machiavelli and Pico della Mirandola, but these Byzantine migrants were unique ambassadors of the Greek tradition in Italy. Guardians of Platonic and Aristotelian wisdom and connoisseurs of the works of Thales, Galen and Pythagoras, they were instrumental in reshaping Europe's perception of Classical knowledge.

THE MIDDLE AGES: BIRTH OF THE FIRST PROPER UNIVERSITIES

Tunis: The University of Zitouna

Located at the heart of a mishmash of sprawling lanes and souqs that form the Old Medina of Tunis, is the eighth-century Mosque of Zitouna, which once doubled as a school that preceded Cairo and even Fez as a centre of learning. Zigzagging the white alleyways of the old city, one can appreciate the multitude of crafts that Tunis has to offer at Souk Sekajine, Souk El Bernasia and the Grand Souk des Chéchias, among others. Ottoman hammams, Aghlabid and Hafsid mosques and zawiyas, tiled cafés serving sweet Tunisian tea with pine nuts and restaurants with riyads (patios) offering the traditional couscous all form part of the experience of any visitor. A minaret towers above the medieval cityscape, as if to minimize everything next to its presence. This is the visual reference that guides everyone to the Mosque of Zitouna, the city's holiest site.

Tunisia has, for over three millennia, been a port of call for travellers, refugees and knowledge seekers from all over the Mediterranean, thanks to its tolerant character and its genius loci as the heart of Central Maghreb. Whereas the Phoenician legacy is still visible in Carthage, the Roman imprint is immortal at El Djem. The Fatimid touch is evident in Mahdiya, the Andalusi character is clear in cities like Tunis and Testour, and Ottoman past is omnipresent. Nothing is lost in Tunisia: where archaeology and architecture fail to perpetuate memories of the past in monuments, historical sites and museums, intangible heritage assumes the responsibility. Rich cultural tradition are manifest in crafts like the *chéchiya* hats and the wooden marionettes that correspond to characters from the Hilaliyya Epic.

Back to the Mosque of Zitouna and the role it played in promoting knowledge, the Mosque started its educational function in the eighth century with a focus on Islamic studies that included jurisprudence and hadith. Eventually, the study of humanities and different sciences would be introduced, turning the Mosque into a knowledge institute that attracted students and scholars from east and west alike. Probably, the most celebrated figure that ever studied at Zitouna was Ibn Khaldun, who praised the model of knowledge offered by Tunisia in the Middle Ages. In this, he coincides with other historians that highlighted the moderate character of Islam preached by Zitouna throughout history. As if this character permeates the walls of the

Mosque, one can feel immediate tranquillity once inside the Mosque's open courtyard, a true oasis of peace and quietness in the middle of the buzzing medina.

Zitouna in Tunis

The educational project presented by Zitouna suffered serious negligence toward the end of the Hafsid era, only to be restored again by the Ottomans at a later stage. The impact of Zitouna would extend beyond Tunisia and would reach Europe in the most unexpected of ways. In the ninth century, a qadi (judge) that had studied at Zitouna and elsewhere in the Arab world would end up leading a military campaign that culminated in the conquest of Sicily. That man, called Asad ibn al-Furat, did not know at the time that this conquest would mark the beginning of a vibrant era for Sicily that would forever shape its culture and its character. Following his death, other scholars from Zitouna would follow suit and cross the Mediterranean to settle in Sicily. The cosmopolitan character of medieval Sicily and the richness of the Sicilian tradition owe part of their grandeur to the learned men of Zitouna, Qayrawan and other learning centres in Tunisia.

In the twentieth century, the University of Zitouna in its modern version accommodated brilliant figures, of whom a poet stands out. Abul-Qacem Echebbi died at a young age, but his memory lives on in

the minds of the patriots and revolutionaries of the Arab World. His life was marked by his medical condition, but his words were full of passion for life and strong condemnation for injustice. His odes, 'To the Tyrants of the World' and 'The Will of Life', are among the most celebrated poetic works in modern Arab literature.

Baghdad: The House of Wisdom

"Books are written in Cairo, published in Beirut, and read in Baghdad" – An Arab Proverb

The mention of Iraq in a Mediterranean context might raise some eyebrows; after all it is not a Mediterranean country in a strict geographical sense. Nevertheless, it is practically impossible to fully understand the story of knowledge in the Mediterranean basin without familiarizing ourselves with the cultural contribution of its immediate hinterland: ancient Mesopotamia, present-day Iraq. Cradle to the Sumerian, Assyrian and Babylonian civilizations, Mesopotamia has become synonymous with grandiosity and splendour. Having witnessed the invention of the potter's wheel, the erection of ziggurats, the enacting of the Code of Hammurabi and the construction of complex cities like Uruk and Ur, Mesopotamia had a lot to teach the Mediterranean.

Our journey starts at a most unexpected place: that pale satellite circling the earth, which we call the Moon. One of the countless craters on the lunar map carries a peculiar name. It is called 'Almanon', a Latinized version of the Arabic name al-Ma'amun. The bearer of that name is the Abbasid Caliph that gave the definitive impetus to Baghdad's legendary House of Wisdom during his reign in the ninth century. The fact that many of the House of Wisdom's greatest scholars were not from Iraq (not even from the Arab World) demonstrates the global reach of the House of Wisdom and its capacity to attract and empower the greatest minds of the time regardless of their cultural or religious backgrounds. Such was the magnificence of that project and its impact that al-Ma'amun's name found its place on the moon vis-à-vis great minds like Avicenna and Kepler.

It all started with the Umayyad dynasty (661-750) and its caliphs that embarked on collecting books and manuscripts and building rich private libraries. As their empire eventually extended from Central Asia to the Iberian Peninsula and the Maghreb, they acquired more and more books. Their successors, the Abbasids, had the same zeal

for knowledge. During one of the battles against the Chinese troops (Battle of Talas), the Abbasids took captives and learned from them one of China's best-kept secrets, namely the manufacturing of paper from trees. They established a paper mill in Samarkand, and other paper mills would follow all the way to Xàtiva in Spain, contributing to the democratization of knowledge by offering a more viable and practical medium for writing and copying books.

The reign of Harun al-Rashid, the Caliph of the One Thousand and One Nights, marked the commencement of an ambitious project centred around a massive library. It was his son, al-Ma'amun, that would convert the library into a fully-fledged learning centre actively engaged in systematic research, translation and academic debates. Under the close supervision of al-Ma'amun and his direct patronage, the House of Wisdom became the largest knowledge institute and think-tank in the Islamic World at the time.

In addition to Arabs and Persians, the House of Wisdom started attracting students and scholars from further afield. Apart from translating Greek texts by Galen, Euclid, Aristotle and others, and since the Islamic world came into contact with more diverse cultures as it expanded east and west, translation extended to Persian, Sanskrit, Aramaic and other languages. This gave students and readers an immensely broad perspective and access to cultures that were previously little understood, and hence little appreciated. This, combined with the Muslim world's capacity to absorb and integrate different cultural currents into its tissue, made possible a learning environment that produced generations of polymaths, which laid the foundation of Islamic science and culture for centuries to follow.

Among the most celebrated minds of the House of Wisdom are al-Khwarizmi, Hunayan ibn Ishaq and the Banu Musa Brothers. Al-Khwarizmi, from Central Asia, was chiefly a mathematician and astronomer that is still remembered as the godfather of algebra (which derives its name from his book, *Kitab al-Jabr*). Whenever we use the term 'algorithm', we are referring directly to his name. Hunayn ibn Ishaq was a talented Christian physician, remembered chiefly for his extraordinary skill as translator. Known to his contemporaries as the 'Chief of Translators' thanks to his prolificity and quality, he is credited with translating books from many languages (Greek and Persian included) into Arabic. The Banu Musa Brothers, of Persian origin, made notable contributions to the fields of mechanical engineering, mathematics and astronomy.

Following the reign of al-Ma'mun, the House of Wisdom started to wither slowly. Just like the Library of Alexandria and that of Pergamon

before, the House of Wisdom came to a disastrous end at the hands of the Mongols. In the year 1258, the troops of Hulagu pillaged Baghdad and wreaked havoc on the capital of the caliphate. Tradition has it that the books of the House of Wisdom were dumped into the Tigris River, which turned black with the ink of countless books, whereas the Euphrates turned red with the blood of the massacred captives.

The true value of the House of Wisdom lies in the model that it presented for later generations: a concentration of brilliant minds working side-by-side on translating classical and contemporary texts in order to make them available to a broader audience. Moreover, the scholars built their own body of knowledge in parallel, guided by a true desire to solve natural mysteries, deal with mathematical problems and find answers to scientific question marks. This spirit would guide more and more scholars in Iraq (like Ikhwan al-Safa or the Brethren of Purity) and beyond. Just as Europe began its descent into the Dark Ages, the House of Wisdom played a crucial role in preserving the Greco-Roman knowledge through translation, adding to it the wisdom of the Persians, the Indians, the Copts, the Syrians and many other nations, and fusing them all into an elaborate and composite body of knowledge that would feed scholarly endeavours throughout the Middle Ages, the Renaissance, and beyond.

Fez: Home of al-Karaouine

The Medina of Fez is one of the most impressive and best preserved Islamic cities in the world, bearing the imprint of successive dynasties since its foundation by the Idrisids in the late eighth century. The Almoravids, the Almohads and the Merinids all left their legacy here, and so did the many migrants from al-Andalus (Spain and Portugal), Sub-Saharan Africa and the Central Maghreb (Algeria and Tunisia).

Of all the imperial cities of Morocco, Fez stands out and continues to be celebrated in the Arab World as a city of knowledge. It so happened that a lady from Tunisia would give Fez one of its most treasured gifts: an emblem of the city's identity that still stands at the heart of Fez el-Bali (the old town of Fez), namely the Mosque-University of Karaouine (*al-Qarawiyyin*). Stepping into the courtyard of this Mosque today immediately carries the visitor to an Alhambra-like microcosm of pyramidal roofs and tiled floors reminiscent of the Courtyard of the Lions at the Nasrid Palaces in Granada.

The story starts in the ninth century when a pious and enlightened woman from the Tunisian city of al-Kairouan left her hometown and headed to Fez. She settled down and dedicated the wealth

she had inherited from her rich father to the foundation of a great mosque for prayer and an affiliated madrasa (school) for teaching religious sciences. Fatima al-Fihri sowed the seeds of what would eventually become –according to many historians- the oldest degree-granting and continuously-operating university in the world.

al-Karaouine in Fez

From its original configuration as a religious madrasa, al-Karaouine (from the word Kairouan) developed into a fully-fledged educational institute that expanded its curriculum to incorporate the study of the Arabic language, natural and mathematical sciences, as well as the humanities. The mosque and the madrasa also supported an urban regeneration project in which they served as the religious and cultural center of a medina that saw the incorporation of *funduqs* (hotels), *hamams* (baths), *madrasas* and a labyrinth of winding alleys that still dominate and define the urban tissue of the old city of Fez today.

Al-Karaouine eventually attracted bright minds from both shores of the Mediterranean and beyond. It was here that some of the best-known intellectuals of al-Andalus like Maimonides, Ibn al-Khatib and Ibn Baja (Avempace) lived, studied or lectured. Tradition has it that the geographer al-Idrissi and the surgeon Ibn Zuhr visited the university, that al-Hassan ibn al-Wazzan (Leo Africanus) studied there. As

did the Father of Sociology, Ibn Khaldun, whose fourteenth-century opus magnum, al-Muqadimmah, forms part of the manuscript collection of the Karaouine's library. Al-Karaouine turned into a melting pot of different cultures and traditions that brought together Arabs, Berbers, Sub-Saharans and Europeans and tossed them into a dialogue guided by Islam's heritage values. It should be remembered that, at the time, Fez was already home to several communities living side by side: migrants from Tunisia, al-Andalus and elsewhere had their proper neighborhoods and could call Fez 'home'.

Moreover, thanks to the relative ease of mobility at the time, generations of learned men spread the knowledge they had acquired at al-Karaouine to other parts of North Africa, Europe and the Levant, inspiring students and scholars and exercising a considerable intellectual influence on people far from Fez. In Morocco itself, the university played a pivotal role in promoting the Maliki School of thought, still dominant in present-day Morocco.

From its humble origins were the students would sit on the ground forming a circle around their tutor, al-Karaouine would later adopt the 'chair' arrangement, with different chairs dedicated to discussing specific disciplines or important works. Enjoying direct patronage by the rulers, the madrasa's tutors were selected according to strict criteria and –at times- were subject to close supervision and scrutiny, specially at times of political upheaval or big cultural controversies.

More madrasas were founded in Fez over the centuries, some of them featuring dazzling architecture and decoration like the Bou Inania, the Seffarine Madrasa and the Attarine Madrasa, all built by the Merinids. However, no madrasa parallels al-Karaouine when it comes to the scale of its cultural impact and the symbolic value that it holds for Moroccans and Muslims in general.

al-Azhar: The Fatimid Gift to the World

The tenth century saw an unprecedented political and ideological schism in the Islamic world, with three different caliphates vying for power in a region that extended from the Iberian Peninsula (West) to Central Asia (East). The Abbasids had their formidable capital in Baghdad, the Fatimids in Mahdiya and the Umayyads in Cordoba. The decision by the Fatimids to move their capital to a purpose-built city in Egypt would have profound repercussions. Cairo became their new capital in the late tenth century, and the need for an 'institution' to spread their ideology and culture became evident. The answer was al-Azahr, a magnificent congregational mosque that would eventually

become the theological frame of reference for Sunni Muslims from all over the world for centuries.

al-Azhar in Cairo

al-Azhar (the radiant), apart from its function as a mosque, was conceived as an educational institution meant to spread Shiite thought. Initially, studies were loosely structured and each tutor had his 'circle' of students that would gather around him and 'receive' knowledge from him. al-Azhar enjoyed the direct patronage of the Fatimid Caliphs who invested heavily in its library, dedicated special endowments for its maintenance and provided its students with a stipend. Thanks to al-Azhar and the Fatimid interest in promoting learning, Cairo produced important scholars and scientists like Ibn Yunus, historically Egypt's most important astronomer and astrologer. In addition, the Fatimid project lured brilliant scientists like Ibn al-Haytham (alhazen), famous for his 'Book of Optics'.

The Fatimids were succeeded by the Ayyubid Dynasty in the twelfth century. Of Sunni faith, the Ayyubids noticed the extent to which Shiite traditions had become widespread among the Egyptians following nearly two centuries under Fatimid rule. To counteract this phenomenon and restore orthodoxy, al-Azhar was significantly marginalized and its classes interrupted. The Ayybid Sultans and viziers embarked on an educational project that saw the foundation of

madrasas (schools) aimed at combating the Shiite doctrine by teaching the Sunni madhabs (schools of thought/jurisprudence). Today, two of these madrasas can still be visited in Historic Cairo: al-Kamiliyya and al-Salihiyya.

Following the Ayyubids, the Mamluk dynasty restored al-Azhar to is former glory, this time with a fully Sunni character. Tens of new madrasas were still built by the Mamluk sultans and princes, mostly as part of new mosques like that of Sultan Hassan, but al-Azhar eventually assumed a very special status as it attracted students from all over the Muslim world. Studies included not only theology and jurisprudence, but also humanities, linguistics, mathematics and natural sciences. Moreover, through a rigorous learning model, it became a true bastion of the Arabic language and the Arab culture. New madrasas were built and later integrated into al-Azhar, the most important of which were the fourteenth-century Taybarsiyya and Aqbughawiyya.

More than just a historic mosque and an old university, al-Azhar has become so dear to the people of Egypt that, when Napoleon tried to break their resistance to his campaign (1798-1801), he had his soldiers desecrate the Mosque and loot its library. This only made things worse and undermined Napoleon's authority as the people took terrible offence.

Lecturers like Ibn Khaldun frequented al-Azhar, whereas important alumni included historians and faqihs like Ibn Taghri Bardi, al-Qalqashandi and al-Asqalani, just to mention a few. The scholars of al-Azhar became the trusted arbitrators on all religious questions and the sworn enemies of heresy, as well as guardians of the Sunni doctrine (a huge body of knowledge and tradition that spans thirteen centuries).

Today, al-Azhar Mosque presents a unique blend of Islamic art and architecture. Fatimid keel arches and medallions, soaring Mamluk minarets and ornate Ottoman gates all attest to the importance given to this place of cult and learning by successive dynasties despite its fall into oblivion during the Ayyubid era. Surrounded by wikalas (caravanserais), sabils (public fountains), bayts (merchant houses) and other medieval buildings typical of an Islamic medina, al-Azhar and its surroundings form part of a much larger cultural landscape that is commonly known among locals and visitors alike as Fatimid Cairo.

The Learned City of Bologna

Bologna, the capital of Emilia-Romagna in northern Italy, goes by many names. As one of the cradles of the culinary tradition in Italy,

it is known as '*la grassa*' (the fat) thanks to its mortadella, ham and pasta fresca. It bears, however, another name, which is of more interest here, and that is '*la dotta*' (the learned city). Famous for its porticos, towers, covered canals, churches and piazzas, the city is the seat of Europe's oldest continuously functioning university, which dates back to the second half of the eleventh century (1088 CE). At the time, there was no central seat for the university, and the very birth of the idea coincided with the Investiture Controversy, which saw Europe struggling to define the line between what is secular and what is religious in public life. This controversy ignited the scholars' interest in Law, as professors of the Trivium (Grammar, Logic and Rhetoric) became increasingly involved in the study and teaching of legal issues to students who would pay them a '*collectio*' (gift).

Thanks to Emperor Frederick I Barbarossa, several European universities would enjoy privileges that were previously unthinkable. His '*Constituto Habita*' bestowed new rights on scholars and granted specific immunities to them. This document marked a quantum leap in recognizing the 'relative' autonomy of universities and the research work undertaken by their students, even though Bologna and other universities would have to fight for their autonomy over the centuries that followed.

It was in the sixteenth century that the University of Bologna, known as the Studium, finally had a permanent seat, namely the Palazzo dell'Archiginnasio, a stone's throw from the city's Piazza Maggiore. For the first time in centuries, one central building (the Palace) housed all the *Artisti* schools (natural and mathematical sciences) and the *Legisti* schools (law and legislation). Just like the early beginnings of the University coincided with a major political and intellectual upheaval, the decision to centralize the studies at one location physically close to the cathedral coincided with yet another crucial moment, namely the conclusion of the Council of Trent and the desire to recover the influence that the Catholic Church once exercised over the cultural sphere.

Once inside Palazzo dell'Archiginnasio, the visitor encounters the portico-lined inner courtyard. This is only the starting point of a magnificent tour-de-force that takes you to halls, arches, loggias and corridors embellished with exquisite frescoes, countless coats of arms, memorial inscriptions and epigraphic panels. All in all, the impression is one of a highly artistic *horror vacui*. The decorated staircase that leads to the second floor is in itself a masterpiece rich in decoration, and yet, the real treasures of the Palace-University are on the second floor, namely the Teatro Anatomico (Anatomical Room) and the Salla dello Stabat Mater (formerly the Hall of Jurists).

The seventeenth-century Anatomical Room/Theatre is a unique wooden hall where anatomy/dissection lessons were delivered to students of medicine/surgery, and where the table used for dissections still stands as the room's centerpiece. That was the golden age of Medicine in Bologna, thanks to pioneers like Marcello Malpighi. Two skinless statues further stress this function as we contemplate the pronounced muscular structure and tendons of the two wooden figures. Other statues immortalize a cluster of Bolognese physicians, as well as 'founding fathers' of surgery, like the Greek Galen.

University of Bologna

Whereas the ground floor has some very old classrooms including those dedicated for the Medical Society and the National Academy of Agriculture, the second floor houses ten classrooms. All, however, are eclipsed by the majestic Stabat Mater Hall, named after a thirteenth-century Catholic hymn once interpreted musically by Rossini and directed by Donizetti at the hall that would share its name. The walls are laden with heraldic symbols and dedications, and through one door, the visitor can gaze at the Sala Rusconi with its collection of priceless books kept inside old wood-and-crystal cases, a true temple of human wisdom.

Palazzo Poggi served as the seat of the Bologna University starting 1803, and a few decades later, the Palazzo dell'Archiginnasio would

house Bologna's City Library. The official brochure of the Palazzo states that "the holdings of the Archiginnasio library amount today to approximately 800,000 books and pamphlets, 2,500 incunabula, 15,000 sixteenth-century books, 12,000 manuscripts, 50,000 letters, and 15,000 drawings and designs." This makes it the most important city library in Italy.

Celebrated by the Bolognese as the 'oldest proper university in the Western Hemisphere', the University of Bologna has, for centuries, shaped the conscience and the consciousness of Europe, attracting intellectual, scientific and artistic heavyweights. Women were accepted not only as students, but also as teachers from as early as the twelfth century. A particularly impressive example is that of Laura Bassi (eighteenth century), who was given the university chair in philosophy and, later, the chair in experimental physics, thus becoming the first woman in the world to hold this post in any university.

Whether as students or as visitors, Dante, Petrarch, Copernicus, Dürer, Leon Battista Alberti, Pico della Mirandola, Galvani and Erasmus of Rotterdam all found inspiration here, and so did hundreds of thousands of students and scholars over nearly one millennium. The extensive porticos of the city still echo the murmurs of their minds and lure the visitor to discover the 'seven secrets of Bologna', even though the best-kept secret is the Bolognese formula for always inspiring a passion for learning.

Toledo's School of Translators

Once the imperial capital of the Visigoths, Toledo brands itself as Ciudad de las Tres Culturas' (City of the Three Cultures), a title that recalls the city's medieval history as home to the fabled 'convivencia' (coexistence) between Christians, Muslims and Jews typical of al-Andalus. Al-Andalus has a long history of learning and celebrating knowledge under the Umayyad dynasty and some of the Taifa Kingdoms. The arrival of a court musician called Ziryab from Baghdad to Cordoba in the ninth century marked an apogee of the arts and the etiquette in the caliphate's capital, whereas the tenth-century Library of Cordoba became the marvel of Europe under the Caliph al-Hakam II (the Bibliophile). Al-Mu'tamid of Seville was a poet-king, while the last Zirid king of Granada left a rich autobiography attesting to his knowledge of astronomy, astrology and history.

Back to Toledo, the city's diversity and pluralism extends beyond its function as a melting pot for people of all three Abrahamic religions, for its vibrant history features an ethnic and cultural diversity

that transcended faith or religion. Toledo is home to extraordinary medieval gates, churches, synagogues and mosques; its landscape was immortalized by El Greco in his paintings where we can still admire the city's towers and the beauty of El Tajo River that lends it a dream-like quality.

The city, once known as 'the Pearl of al-Andalus', produced great minds like al-Zarqali (astronomer), Samuel ha-Levi Abulafia (treasurer) and –much later- Garcilasco de la Vega (poet of the Spanish Golden Age). In the year 1085, Toledo fell to King Alfonso VI. At the time, the socio-cultural fabric was one of immense diversity. Castilians, Franks, Jews, Mozarabs and Mudejars lived side by side, enjoying relative peace, intercultural dialogue and freedom of faith. The real 'renaissance', however, would take place in the thirteenth century thanks to the vision and the will of the enlightened Castilian King Alfonso X, commonly known as '*el Sabio*' (the Wise), a very fitting title indeed.

Alfonso X is usually credited with the institutionalization and promotion of the renowned and loosely-structured School of Translators of Toledo, already functioning since the twelfth century. The School, enjoying his patronage, reached unprecedented levels of activity as the multi-ethnic and multilingual community of scholars and learned men in Toledo engaged in translating classical and medieval works. Eventually, the School would attract translators from other European cities to join the efforts: John of Seville, Gerard of Cremona and Adelard of Bath are all prominent examples. Palermo in Italy and Toledo in Spain would become fittingly the most important cultural bridges through which the most significant bodies of knowledge developed by the Arabs and the Jews, as well as the most important works of Classical Antiquity, would be translated into Latin and other European languages.

This counter-translation of the main works of Plato, Ptolemy, Galen, Euclid, Averroes, Al-Khwarizmi and scores of other philosophers and scientists would contribute to the momentum that eventually yielded a full-scale Renaissance in Italy in the fourteenth century (obviously preceded by a Byzantine Renaissance, a Carolingian Renaissance and an Andalusi Renaissance), bringing the long Middle Ages to a definitive end.

Back to the figure of Alfonso X the Wise, one can only admire the profusion of his cultural work and his intellectual repertoire. Probably, his most important contribution to literature was his '*Cantigas de Santa María*', lyrical poems written to honour the Virgin Mary. Moreover, he sponsored talented troubadours and

commissioned the translation of the most important collection of fables at the time: the Indian Book '*Kalila and Demna*', translated from the Arabic version. It comes as no surprise that, in recognition of Alfonso's generosity to writers, poets and troubadours, Boccaccio would mention him favourably in his masterpiece, The *Decameron*. In Astronomy, his *Alfonsine Tables* stand out as an adaptation of Toledo's genius astronomer al-Zarqali. Alfonso X also commissioned the translation of several astrological works.

As a statesman, Alfonso's interest in providing his kingdom with a standard body of legal codes yielded the '*Siete Partidas*', clearly marked by his humanist character. History, geography, music and even games all formed part of Alfonso's sphere of interest, and just like al-Ma'mun in Baghdad, Alfonso X has a lunar crater named after him (Alphonsus Crater) in recognition of his genius.

Toledo's School of Translators and other cultural and educational institutes contributed to the creation of a learning community whose influence would transcend the borders of Spain to some of the most unexpected of places long after Alfonso X was gone. A particularly interesting example is that of the fifteenth-century Ali ibn Ziyad al-Quti, who left his Toledo and set sail across the Mediterranean in a journey that would take him from the River Tajo all the way to the Basin of the River Niger. His final destination was the fabled city of Timbuktu in present-day Mali, where the books and manuscripts that he carried with him from Toledo became the seeds of one of West Africa's greatest libraries. Even there at the heart of the desert, the knowledge once translated and produced in Toledo prospered and yielded its fruits.

Salamanca: Where knowledge seekers go

"Whoever seeks knowledge should go to Salamanca" – Popular Spanish Saying

The year 2018 is a very special year for the city of Salamanca, as the city's famed university celebrates its 800th anniversary, making it one of the oldest recognized universities in history. There had already been a school in Salamanca during the twelfth century, but the year 1218 saw the official recognition of this school by King Alfonso IX. His successor, Alfonso X (the Wise) would decree through a major charter in 1254 the organization of the studies and the establishment of a proper library, making the University of Salamanca the first university in Europe to have its own library. Today, a majestic architectural

ensemble at Salamanca's 'Patio de Escuelas' leaves no visitor indifferent. This plaza is home to the city's temple of learning and one of the Old Continent's most venerable centres of learning.

Iconic figures of the '*Siglo de Oro*' (the Spanish Golden Age) like the prominent writers Luis de Góngora, Mateo Alemán and Pedro Calderón de la Barca were once students at the University of Salamanca, whereas other great writers like Miguel de Cervantes and Lope de Vega who never studied there still referred to Salamanca in their literature and used it as setting for some of their tales. Today, a statue of yet another man dominates the Patio de las Escuelas. Standing on an elevated pedestal, he seems to be gazing at the emblematic plateresque *Fachada Rica* (Rich Façade) of the University. The man is Fray Luis de León, one of Salamanca's most celebrated scholars and the pioneer of Salamanca's First School of Poets. From promising student to prominent professor at the University, his life was marked by the turbulent times of sixteenth-century Spain: after translating religious texts and writing literary works, he was reported to the Inquisition and ended up in prison.

Another extraordinary figure associated with the University of Salamanca is that of Beatriz Galindo, a fifteenth-century grammatician, translator and connoisseur of Latin language and texts. She excelled at a young age and eventually became advisor to Queen Isabella of Castile and tutor to her daughters. Her passion for Latin coupled with her exceptional skill earned her the nickname '*La Latina*' (the Latin), and made her one of the most celebrated women of the Spanish academia at the time. Beatriz Galindo was not the only talented woman to mark the history of the University of Salamanca, for in the early sixteenth century, Luisa de Medrano would give classes at the University. Poet, philosopher and professor of Latin, her name unfortunately fell into oblivion following the loss of her works, and we know about these works mostly through her contemporaries.

The year 1492 CE is usually celebrated by Spain as the year in which Christopher Columbus discovered the New World. A few years earlier, Columbus's plans and calculations were studied and analyzed by a council of scholars from the University of Salamanca, exposing the considerable discrepancy between his maps and the distance they thought must separate Spain from India. They were right; the Indies that Columbus discovered in 1492 turned out to be an entirely different continent.

Columbus was not the only explorer to visit Salamanca. A few years following his first voyage, the young Hernán Cortés arrived at the city to study Law at its University. He dropped out two years later, followed the footsteps of Columbus and other adventurers, and ended up conquering Mexico. Yet another figure associated with both the

University of Salamanca and the New World is Francisco de Vitoria, this time at an intellectual level, defending the rights of the native Americans and condemning the treatment they received and the atrocities they suffered for being considered 'inferior beings'.

Apart from all the intellectuals and humanists that Salamanca produced and lured over centuries, the University has marked the character and the image of the city irreversibly, making it comparable to Bologna, Paris and Oxford as a city of learning and a unique lighthouse of knowledge in Europe. There came a time when Salamanca was the absolute destination of any bright Spanish student that aspired for a prosperous career. Cervantes leads us to think that one should never argue with someone who holds a degree from the University of Salamanca, for one can never match that academic level. After all, it was here that important literary and poetic styles were developed, human rights were defended, humanist learning was encouraged and religious ideologies were debated generation after generation.

As countless students throng the streets of Salamanca every day, the city has everything to offer them, and yet, it does not immediately give away all its secrets. One such secret is the famous frog sculpture that challenges the viewer to spot it amid an ocean of details at the university's façade. Another is the fifteenth-century 'Cielo de Salamanca', a mural painting featuring a celestial map of the constellations that once adorned the ceiling of the University's Library. Forgotten for centuries, it was discovered in the twentieth century and now it is exhibited at the University's Museum.

Paris, the Sorbonne and the French Humanism

The story of the Sorbonne starts at the hill of Montagne Sainte-Geneviève, home to the medieval Parisian schools that granted several degrees to their students at the time. The growing reputation of these schools and the multitude of students that they enrolled created the need for introducing a degree of order and quality control to their functioning. It was King Philippe Auguste that, in the thirteenth century, kick-started a set of reforms that would culminate in the recognition of the schools as a '*universitas*' community, guided by statutes that defined the 'communal life' of professors and students. Following the Papal recognition in the year 1231, the University could be referred to as "*Universitatis magistorum et scolarium parisiensium*", which appeared on its seal.

The thirteenth century saw even more developments, as the University had its first recorded rector, elected by the university's

community. The Parisian schools have metamorphosed within the framework of the University into faculties dedicated to theology, canon law, liberal arts and medicine. None of these faculties, however, would reach the fame of the Sorbonne. Founded as a college in the 1250s by the French King's chaplain, Robert de Sorbon (who gave his name to the college: Sorbonne), it would mark the history of education in Europe forever after.

Just like other colleges founded and sponsored by rich patrons at the time, the Sorbonne accepted students whether they were rich or poor, because poverty should never get in the way of learning and having access to knowledge. Robert de Sorbon himself was a man of humble origins that made his way up the hierarchy through hard work and a passion for learning. Soon enough, the Sorbonne would emerge as one of the most important and respected centres of theological learning in Paris and Europe.

The Sorbonne in Paris

This 'democratization' of knowledge was not the only academic value that governed the moral compass of the Sorbonne and the University of Paris; mobility was another value that yielded its fruits early on. It was at the University of Paris that prominent scholars like Thomas Aquinas would discuss their ideas, while professors from the University would travel to lecture elsewhere in Europe, thus creating

a mechanism of disseminating knowledge and fulfilling one of the major tenets of any university. Other celebrated scholars that visited and lectured at the University include the British philosophers Roger Bacon and Duns Scotus, the Italian mystic Giovanni di Fidanza, and Siger of Barbant, firm advocate of Averroes' thought.

In addition to the 'modus vivendi' and the 'modus operandi' of the University of Paris, its prestige was further cemented by the quality of its professors, the richness of its libraries, and the introduction of the first printing press in France towards the end of the fifteenth century. Moreover, members of the Sorbonne and other bodies of the University were always consulted by the Court, the nobility and the clergy on a variety of questions, making them a reference on a plethora of relevant issues.

The rise of Humanism in France during the fifteenth and sixteenth centuries owes much to the University of Paris and the Sorbonne. One of the University's rectors, Guillaume Fichet, was himself a leading figure in French Humanism. Other key personalities associated with the movement include Jean Molinet, figurehead of the 'Grands Rhétoriqueurs' school of poetry, and Robert Gaugin, philosopher and translator of important works in Latin. Both of them had studied in Paris, whose University became synonymous with quality education and academic excellence.

Another celebrity student and principal of the Sorbonne is the seventeenth-century Cardinal Richelieu. Famous chiefly as a statesman, he renovated and expanded the Sorbonne and gave it a new library and a chapel that houses his mausoleum. His legacy in the field of art and culture is usually eclipsed by his political career, and yet, his was a remarkable contribution to the cultural landscape of France at the time. He patronized playwrights, commissioned important architectural works, founded the Académie française, which became the beating heart of Francophonie, and built an impressive art collection that featured works by such heavyweights as Da Vinci, Titian, Rubens, Bernini, and the French Nicholas Poussin.

The Sorbonne has a long history of supporting secularism and backing enlightened thought. The University of Paris as a whole was among the earliest institutions to give shape to Scholasticism as a learning method applicable not only to theology, but also to other fields of study. Scholasticism in the thirteenth-century coincided with the birth of influential religious orders that seemed to be set on an ideological collision course since the very beginning: the Franciscans and the Dominicans.

Different approaches towards Classical philosophy and how it should be regarded through the lens of Christian theology further ignited the

debate about Platonic vs. Aristotelian thought, the interpretation of Averroes, and other philosophical questions. Medieval Scholasticism emphasized the careful examination of any controversial issue by posing a question that would be debated by an argument and a counter-argument based on logic and the deduction of evidence. As such, all the modern debate societies are indebted to this tradition that found an enabling environment in Paris, a city that would later be a centre stage for the development of the eighteenth-century Enlightenment.

The University of Montpellier was officially inaugurated in 1289 through a Papal Bull by Pope Nicolas IV as a '*Studium*', making Montpellier's Faculty of Medicine Europe's oldest medical school that has been continuously functioning since its inauguration.

Montpellier is a city of charming squares, elegant palaces and churches, and beautiful promenades. The city's Place Saint-Pierre is dominated by a monumental complex comprising the southern entrance of Saint-Pierre Cathedral and the façade of the Faculty of Medicine, the oldest in Europe. The grandiose porch of the Cathedral supported by two cylindrical towers evokes images of Gothic fortifications, while the Faculty building seems rather unassuming on the outside.

St. Pierre Cathedral and Faculty of Medicine in Montpellier

The Faculty's green wooden gate is flanked by two statues, one commemorating Francis de Lapeyronie (Louis XVI's surgeon); the other, Paul Joseph Parthez (another prodigy physician from Montpellier). Once past the gate and the main hall inside, the picture changes completely as two staircases lead down to the tranquillity of the open-air Court of Honour, once the cloister of a fourteenth-century monastery that had occupied this spot. The Court commands magnificent views of the Cathedral's bell towers and its rose window.

The northern side of the Court of Honour houses the Theatrum Anatomicum, the old amphitheater-style hall where dissections were once performed centuries ago. The building also houses the eighteenth-century Conservatory of Anatomy which displays thousands of models and casts related to anatomy and surgery, a logical homage to the Faculty's privileged position in advancing medical studies and spawning generations of physicians and humanists like François Rabelais. To the west of the Faculty's building, one can still visit its precious sixteenth-century Jardin des Plantes (Botanical Garden), conceived initially for the study of medicinal plants.

Several factors contributed to the rise of Montpellier as a city of learning in the Middle Ages. As early as the twelfth century, Montpellier became home to an important Sephardic community that had fled the Almohad-controlled Spain. Jews, historically active as civilizing agents, were allowed to practice medicine in Montpellier at the time, thus producing important physicians, in addition to rabbis, merchants, translators and humanists, best exemplified by the Ibn Tibbon Family. One of its members, Moses Ibn Tibbon, translated works by Hippocrates, Euclid, Avicenna, Rhazes and many other influential Greek, Arab and Persian scientists and thinkers.

Of course, Medicine was not the only discipline taught and studied in Montpellier, for Law was introduced by glossators that had mastered the tradition at Italy's University of Bologna. Petrarch, the great Renaissance poet, studied law in Marseille, despite his explicit disrespect for the profession. Theology was yet another field of study, and we are told that Uc de Saint Circ, a celebrated troubadour, had been sent to Montpellier to receive clerical education at its university. The city, rich in musical and poetic tradition, inspired him to opt for a different career as troubadour.

Another very important factor in the rise of medieval Montpellier was trade, given the city's geographical position and its multicultural population during the twelfth and thirteenth centuries. Commerce allowed the city to flourish economically, and like always, with commercial exchange came a rich cultural exchange of ideas, ideals and visions

of the world. This was a free and spontaneous exchange beyond the walls of institutes and classrooms.

Today, Montpellier's 'Institut Universitaire Euro-Méditerranéen Maïmonides' is a vivid reminder of the intercultural dialogue and the religious tolerance that once made the city a cosmopolitan hub of learning and exchange. In addition to celebrating Montpellier's Jewish legacy, we can extend the scope of celebration to aptly include Montpellier's Islamic and the Christian legacies as well, exemplified in two representative figures from the Middle Ages, namely Averroes and Thomas Aquinas respectively.

CONCLUSION

Throughout history, the rise of schools, academies and universities in the Mediterranean region has always been inspired by social and cultural change, often coupled with a strong political will. Diversity, pluralism and mobility were at the heart of the greatest success stories from Toledo to Fez and from Montpellier to Baghdad. The most celebrated Classical and Medieval knowledge institutes of the Mediterranean flourished thanks to an enabling environment that typically featured enlightened rulers with clear vision, freedom of movement and expression, readily available sponsors, and active intercultural exchange and dialogue.

Whereas the first academies of Greece were largely secular, their successors in North Africa and Europe were deeply influenced by religious ideas and ideologies. All the knowledge institutes presented in this chapter were instrumental in spreading humanist values and in promoting academic learning. Universities took the lead in the Maghreb, Egypt, Italy, France and Spain, propelled by a more institutionalized approach and a new 'social contract' between the tutors and the students. Decade by decade and century after century, they produced remarkable humanists, philosophers, physicians, mathematicians, inventors and intellectuals on both sides of the Mediterranean that pushed the boundaries of human knowledge into new uncharted territories.

The 'academy' and the 'university' are purely Mediterranean inventions, the gift of this learned region to the rest of the world. A gift for eternity.

1: Hypatia of Alexandria

Classical Antiquity – and its Hellenistic extension – is usually associated with the refinement of Athens, the grandeur of Rome and the splendour of Alexandria. It was in this last city that a woman of ample knowledge and charming character eventually attracted a considerable following of devout students in the manner once seen in Athens around Socrates and Aristotle. Her name was Hypatia, a fine lady of good taste, and a master of several disciplines. When the Renaissance painter Raphael realized his fresco titled 'The School of Athens' in the Vatican, he found a place for her among the plethora of intellectuals that populated his painting, which makes her the only woman in this work, depicted alongside Pythagoras, Nichomacus, Averroes and other celebrities old and new. Whereas the poetess Sappho featured in Raphael's 'Parnassus' holding a banner with her name on it, Hypatia needs no such identification; she gazes at us confidently from the painting.

Hypatia was one of the most influential and gifted women of the Hellenistic Period. Usually referred to as a Neoplatonic philosopher, Hypatia is difficult to classify. Mathematician, astronomer and philosopher, she took an interest in mechanics, cosmology and logic, even though, unfortunately, not a single work can be attributed to her with absolute certainty. Hypatia taught in Alexandria, and her teachings and methods can be regarded as the culmination of a long process through which the Hellenistic culture reached its utmost maturity. Being the daughter of Theon of Alexandria, she acquired his passion for Euclid and Ptolemy, excelling in both mathematics and astronomy.

Even though she lived during dangerous times, the growing fanaticism in Alexandria at the time never kept her from teaching Greek philosophical doctrines that were increasingly seen as provocative and rejected as pagan by zealots. Despite the devotion of her students and the importance of the friendships she held with influential figures at the time, Hypatia was eventually tortured and then assassinated in the most horrific way by a group of Christian fanatics in what marked the foretold end of the golden age of Alexandria. Just like Socrates centuries before her time, and Giordano Bruno centuries after her time, Hypatia became one of the greatest martyrs of science and a symbol of an enlightened woman whose humanism was her only weapon in the face of ignorance and radical thought.

2: al-Kindi

One of the greatest figures associated with Baghdad's *Bayt al-Hikma* (House of Wisdom) is that of al-Kindi (known to many Western scholars by his Latinized name, Alkindus). This ninth-century Arab philosopher of Iraq exemplifies the zeitgeist that prevailed in the House of Wisdom and other learning centres in the Islamic world at the time; he is a prime example of a polymath that mastered several disciplines ranging from philosophy and music to astronomy and mathematics. An encyclopaedic mind and a man of many talents, he also excelled in calligraphy and cryptography.

Under the patronage of the Abbasid Caliphs in Baghdad, al-Kindi became the first significant Muslim philosopher, drawing on Aristotelian Metaphysics, the Neoplatonic tradition, Euclidian geometry and Pythagorean mathematics thanks to the active translation of Greek texts and the reasonable intellectual freedom enjoyed by thinkers in Baghdad at the time. Still, al-Kindi's ideas were revolutionary for his time, and eventually he would be scolded and even punished for some of his commentaries.

Al-Kindi coincided with both Neoplatonists and his contemporary Mu'tazalites in Iraq on the nature of God, and the impossibility of attributing any traits to him. His God can create things ex-nihilo and his Cosmos is neither infinite nor eternal. The soul is at once immaterial in nature and is considered as a substance. Al-Kindi was among the very first Arabs to realize the dire need for new Arabic terminology that would correspond to the sophisticated philosophical concepts of the Greeks. Moreover, he was a zealous militant of Greek wisdom, defending it against all those that shrugged it off as 'pagan' or 'ancient'.

Grooming himself in the fashion of the Greek polymaths, al-Kindi ventured into several fields of knowledge, leaving works and epistles on music, metaphysics, ethics, cosmology and even medicine. Celebrated by many historians as one of the founding fathers of Islamic Philosophy, he was eventually eclipsed by later generations of prominent Muslim philosophers like al-Farabi, Avicenna and Averroes. Some of his basic ideas were heavily criticized and much of his work was unfortunately lost. Still, his legacy is exceptional and his position privileged among the medieval avantgarde. Trying to harmonize and assimilate Classical doctrines into Islamic thought, he paved the way for a long tradition that is still alive over a millennium after his time.

Medieval Spain produced some of the world's finest thinkers, humanists and scientists. The historic city center of Cordoba, once the capital of the Umayyad Caliphate in al-Andalus, is dotted with statues of the prodigious sons of the city: the polymath Ibn Hazm, the philosopher Ibn Rushd (Averroes), the lovers-poets Ibn Zaydun and Wallada bint al-Mustakfi, and the most influential Jewish scholar of all time, namely Maimonides. The Iberian Peninsula gave birth to very important Jewish figures like Menahem ben Saruq, Benjamin of Tudela, Yehuda Halevi and Ibn Tibbon, but none of them would reach the fame of Moses ben Maimon (Maimonides) whose story starts in the twelfth-century Cordoba under the rule of Almohad Dynasty.

Unfortunately, the fabled tolerance and coexistence between different cultures and faiths for which al-Andalus had always been known suffered a strong setback under the Almohads, whose reign saw a serious erosion in freedoms. Scores of books were banned, many Muslim scholars (like Averroes) were banished on the grounds of liberal thought, and waves of Christians and Jews left to other parts of the Mediterranean. Such was the case of Maimonides, whose family left to the Moroccan city of Fez, where he would study at the city's University of Karaouine alongside other scholars and intellectuals. Maimonides was no stranger to the Arab/Islamic culture. Having familiarized himself with the ideas of al-Farabi, Avicenna and Averroes, as well as Greek philosophers like Plato and Aristotle, he had a huge body of knowledge to draw on. This would show clearly in his most significant philosophical book, 'Guide of the Perplexed', eclipsed only by his opus magnum, the 'Mishneh Torah', which would set him as one of the most celebrated figures in Jewish culture throughout history.

'Mishneh Torah', a massive code of Jewish law, was finalized in Egypt, where Maimonides worked –among other things- as doctor, and wrote extensively. Just like Hasdai ibn Shaprut was appointed private physician to the Umayyad Caliph Abd al-Rahman III in Cordoba before, so was Maimonides appointed as physician at the Ayyubid court in Cairo. The greatness of Maimonides lies not only in the importance of his work and the privileged place that it holds in Jewish culture, but also in the model that Maimonides presents: a medieval scholar that was able to absorb and synthesize different cultures and navigate dangerous waters guided by a passion for learning and a desire to share his knowledge with everyone.

The Jews revere Maimonides, the Christians respect his legacy, and the Muslims regard him as one of their own. Just like Toledo and

Cordoba take pride in their history as 'Cities of the Three Cultures' (Christian, Islamic and Jewish), people like Maimonides, Ibn Arabi and Ramon Llull should also be celebrated as 'Intellectuals of the Three Cultures' for the role they played as cultural bridges and as symbols of the intercultural and interfaith dialogue in the Mediterranean region centuries ago.

4: Petrarch

The Italian Renaissance marked the rebirth of the classical ideals, values and the humanist spirit. Compared to the glory of Athens and Rome in Classical Antiquity, the European Middle Ages were usually regarded as Dark Ages. The light at the end of the tunnel was finally seen in Italy thanks to the fortunate alignment of political, economic and intellectual factors. Florence became the cradle of Renaissance Humanism and the coessential centre of humanist learning, championed by likes of Dante, Boccaccio, and Petrarch.

Whereas Dante immortalized his name through his epic 'Divine Comedy' and Boccaccio conquered the world with his 'Decameron', Petrarch rose to fame as a genius lyric poet celebrated for his *rime sparse* (scattered rhymes), which he wrote in vernacular Italian. A connoisseur of the works of influential minds like Cicero, Seneca and Saint Augustine, as well as an admirer of the troubadour poems and songs, his writings typically draw on classical and medieval sources, all tossed into a harmonious whole with a twist of lyrical sensibility that was totally his. He was a Latinist by passion, and yet he championed vernacular Italian poetry and became one its most respected figures.

Even though Petrarch studied law both in Montpellier and Bologna, he had it very clear early on that it was not his vocation. An avid reader, well-versed diplomat and passionate traveller, he moved from one city to another with an open mind and a healthy curiosity that further broadened his intellectual horizon. Comparing himself at times to Ulysses, the Greek hero of the Trojan War, Petrarch tells us "I am a citizen of no place, everywhere I am a stranger."

Petrarch's love for a fair lady called Laura became the flesh and blood of his masterpiece, the '*Canzoniere*' (Songbook). For long years, this desperate and unrewarded love story marked both the content and the style of Petrarch's verses. Unlike the solemnity of Dante and the playfulness of Boccaccio, Petrarch's style presents a penetrating reflection on a desperate human condition: a man deeply in love laying himself bare as he examined the fatality of his situation and the futility of this chaste love that he could neither forget nor gratify.

Romanticism aside, Petrarch's rejection of dialectical scholasticism and his advocacy of rationalism never got in the way of his spirituality. Today, a statue of Petrarch stands at the façade of the Uffizi Gallery in Florence, a tribute to one of the world's most gifted writers and foremost promoters of humanist scholarship. His works inspired generations of artists and writers that range from Simone Martini to Shakespeare and Chaucer. Fittingly, he died while reading and writing, pen in hand, surrounded by his books and his manuscripts and, probably, with a distant memory of his muse Laura hiding in his weary heart.

5: Ibn Khaldun

Throughout history, few people have managed to reinvent the study of history and the analysis of the rise and fall of kingdoms and empires the way Ibn Khaldun did. Born in Tunisia to a family that had migrated from al-Andalus, Ibn Khaldun travelled east and west, witnessed extraordinary events and took part in incredible encounters that would bring him face to face with the Nasrid Kings in Spain, the Sultans of Egypt and the Maghreb and even the much-feared Mongol conqueror Tamerlane in Syria. Wherever he headed, his diplomatic skills never went unnoticed, but more importantly, he never missed a chance to make sense of the major historical events that he witnessed and, at times, even incorporate them into his diaries. Mobility most definitely played a major role in shaping his character and broadening his horizon.

Famous worldwide for his celebrated fourteenth-century work '*al-Muqaddimah*' (Introduction to History), Ibn Khaldun introduced to the discipline of history many cultural, economic, demographic, and even philosophical concepts that, at the time, were completely beyond the scope of historical studies, which eventually earned him the title of 'Father of Sociology'.

More than just a keen observer and researcher, Ibn Khaldun was an analyst that managed through the comparative study of different cultures and periods to detect patterns and stages in the development of any civilization, which led him to conclude that history repeated itself and that it was not linear, but rather cyclical in nature. As simple as it might sound, this revelation had a far-reaching impact, because it meant that the future could be forecasted. In his words, "History is an art of valuable doctrine, numerous in advantages and honourable in purpose."

A critical mind of rigorous methods, Ibn Khaldun rejected the metaphysical and religious projections practiced by many historians and

urged his followers to stick to scientific methods that employed cross-referencing, pragmatic comparative analysis and a thorough understanding of the complexity that surrounds every historical event. This called for delving into the social, economic, cultural and even natural environment of any event in question. Having exposed the fallacy of several historical claims that were widely-accepted during his lifetime, he naturally provoked criticism and scepticism, though his methods could not be challenged by his peers.

Today, in the old medina of Tunis, a couple of signs mark the house were Ibn Khaldun was born and the mosque-madrasa where he received his first lessons as a child, whereas his statue stands with its back to the medina at Avenue Habib Bourguiba, where we see him holding his 'Muqaddimah' in hand on top of a pedestal that describes him as philosopher, historian and sociologist. Celebrated as the first 'Philosopher of History', Ibn Khaldun elevated the study of history that was once dominated by storytellers and propagandists to the ranks of multidisciplinary sciences that could be rationally studied and approached from a multitude of angles. His legacy lives on among modern historians and historiographers.

6: Denis Diderot

The eighteenth century saw a radical shift in the intellectual landscape of French society, the early manifestations of which could be detected even before the death of Louis XIV, the Sun King, in 1715. Earlier, the marvellous discoveries and theories of the Scientific Revolution had already set in motion a process of reflection on all the dogmas and ideas that people across the globe used to take for granted. The writings of Copernicus, Isaac Newton and Galileo revolutionized our understanding of the world in which we lived and our position in it: the world seemed to function according to laws that could be analysed and even quantified. In parallel, the pioneering ideas of René Descartes, Francis Bacon and John Locke paved the way for a revolutionary generation of thinkers and intellectuals that would champion the cause of rationalism and liberal thought. Names like Voltaire, Jean-Jacques Rousseau and Immanuel Kant are among the most celebrated figures of that 'Age of Reason'.

One of the most extraordinary minds of the Enlightenment is Denis Diderot, a man that started his academic career studying Law at the University of Paris before following the same path once taken by Petrarch centuries earlier: abandoning his studies for a career of writing. Known for the amplitude of his literary, philosophical and

scientific works, Diderot eventually became one of the greatest French philosophers and men of letters, famous for his anti-clerical views and his liberalism that, to many at the time, bordered on obscenity and moral decadence.

If Voltaire is celebrated for his 'Candide' and Jean-Jacques Rousseau is best remembered for his 'Social Contract', then Diderot's most valuable and enduring contribution to the Enlightenment was his 'Encyclopédie', a project that both immortalized his name and, eventually, led to his condemnation and imprisonment. Undaunted by all the criticism and the threats that he received, Diderot resumed his work on the Encyclopédie together with a group of intellectuals (including Voltaire and Montesquieu), many of whom would abandon him along the way for fear of persecution. Guided by the values of progress, secularism and freedom of expression, his Encyclopédie was aimed at empowering people by equipping them with knowledge that has not been filtered through religious or political screens.

Diderot never attained neither riches nor prestige during his lifetime. He did not live to witness the French Revolution, which would take place five years following his death. However, the French Revolution might never have been possible without the daring ideas and attitude of Diderot and his contemporaries. His epic work made possible the creation of a great depository of human knowledge from all fields and disciplines, complied by professionals and intellectuals, and made available to the general public in an uncensored and unmanipulated format that perfectly captured the very essence of Enlightenment.

SHORT BIBLIOGRAPHY

Abulafia, D. (2013). *The great sea: A human history of the Mediterranean*. New York, NY: Oxford University Press.

Braudel, F. (2002). *Memory and the Mediterranean*. New York, NY: Vintage.

Casson, L. (2001). *Libraries in the Ancient World*. New Haven, CT: Yale University Press.

Dawood, N. J. (Ed.). (1989). *The Muqaddimah: An introduction to history*. Princeton, NJ: Princeton University Press.

Dzielska, M. (1996). *Hypatia of Alexandria* (F. Lyra, Trans.). Cambridge, MA: Harvard University Press.

Freely, J. (1998). *Aladdin's lamp: How Greek science came to Europe through the Islamic world*. New York, NY: Vintage.

Kagan, D. (1998). *Pericles of Athens and the birth of democracy*. New York, NY: Free Press.
Kraemer, J.L. (2010). *Maimonides: The life and world of one of civilization's greatest* mind. New York, NY: Doubleday Religion.
Menocal, M. R. (2002). *The Ornament of the World*. New York, NY: Back Bay Books.
Pedersen, O. (1998). *The First Universities*. Cambridge University Press.
Wilson, N. G. (1983). *Scholars of Byzantium*. London: Duckworth.
Young, D. (2004). *The Poetry of Petrarch*. New York, NY: Farrar, Straus and Giroux.

Official Website

https://www.sorbonne.fr/en/the-sorbonne/history-of-the-sorbonne/
http://www.unibo.it/en/university/who-we-are/our-history
http://www.umontpellier.fr/universite/histoire-de-luniversite
http://centenario.usal.es/un-recorrido-de-800-anos/
http://www.uz.rnu.tn/en/feature.asp?cid=65
http://www.azhar.edu.eg/AboutUs/i

DEMANDING ENVIRONMENT, DYNAMIC ACTORS: HIGHER EDUCATION INSTITUTIONS TODAY

Jerneja Penca*

Knowledge, learning and invention remain virtues today. Education is understood to be the key to a more prosperous future. This is evident, for instance, from the Sustainable Development Goals of the United Nations, where goal number four focuses on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. Universities and other higher education institutions play a particularly important role of societal hubs, each in its unique way, just as they have in the past. What has fundamentally changed from before, and especially the times, detailed in the preceding contribution by Mohammed Elrazzaz, is the way knowledge circulates. Experimenting, reading, thinking, lecturing, debating and contesting in person, as we know them from the past centuries are currently being challenged. These changes are so powerful that the whole higher education appears to be at the crossroads. On the one hand, some of the traditions related to acquiring, nurturing and spreading knowledge are deeply rooted and resist any change. On the other hand, societal realities and technological possibilities are shaking them up.

This brief contribution outlines the key transformational forces in the higher education sector today. It concentrated on the trends that are taking place across the globe, and are pertinent to the entire Euro-Mediterranean region. This is not to say that the region is homogenous. Within and apart from the global trends, some challenges preoccupy the South much more than the North, such as institutions' ability to cope with high number of students entering higher education or low levels of student mobility flows. In the meantime, the

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North Mediterranean is concerned with other issues, such as the fact that university degree has become almost a standard and that returns on higher education investment are diminishing, creating a pressure on universities to reinvent themselves.

THE ENABLING AND INTIMIDATING NATURE OF TECHNOLOGY

Perhaps the most obvious trend, shaping higher education sector (much like any other sector) today, is the rising role of technology. Its presence is well evident everywhere, but its potential is far from understood and used. A primary issue is to ensure that technology and innovations taking the stage outside university walls are effectively brought to the classrooms and laboratories. How can technology gadgets be used in the learning process? On the one hand, they are capable of maximising the educational experience, increasing availability of resources and reducing costs. Enhancing learning opportunities by virtual education might be particularly important for students in view of their need to compete in a global marketplace. On the other hand, more or less sophisticated use of technology is disrupting the delivery of knowledge as we knew it. The attention of students on human relationships is diminished. The challenge is to benefit from technology, while simultaneously preserve the valuable interaction with and between students.

Overall, higher education institutions and the teaching staff mostly struggle with effectively integrating digital teaching material. Including new technological developments, such as artificial intelligence or augmented reality, seem even much more distant. The potential of distance learning and the question of how it should be integrated into traditional university programmes of different disciplines is unclear. Even when technology is included in the teaching process, the cognitive implications of this are not fully understood.

In the context of the Euro-Mediterranean regional integration, technology offers powerful tools for capacity building and knowledge transfers. Partnerships and networks have already been formed to benefit from the exchange but could be further exploited in order to enrich learning experiences North-South and South-South. The potential of using technology to empower every corner of the region and all segments of society is attractive and real. We need to lend it our full attention.

RESPONSIVE CURRICULA

The universities are alert to the external demands and feel the pressure to respond to them. Societies and markets have their needs that universities seek and are expected to address effectively. The nature of societal problems today is complex and interdisciplinary. Climate change, food insecurity, equality, sustainable development, poverty eradication, among others, invariably require inputs and interactions between a number of disciplines. Inter- or trans-disciplinarity is equally appreciated in markets, where students seek to get jobs after their graduation. But understanding the markets is an eternal challenge, especially as universities help to co-shape them, rather than only provide labour force to it.

Academic curricula at universities are poised to respond to the interlinked challenges. But how exactly to do that, both through the design of the courses and the entire programmes, is the hard part. Part of the problem are also teachers, who are ill-, or only partially, prepared to teach fundamentally revamped courses. Is a solution to have universities and their faculty more research oriented? The interplay of research with employability seems to be relevant but it is understudied.

The next challenge posed to the structure of curricula is the rise of adults who require re-training or actively seek new knowledge. Catering to the needs of these more mature learners has been a domain of a whole new set of institutions, but this is perhaps a loss for universities. The question of whether universities should be teaching young students only, i.e. be a one-off point in life, or a continuous avenue for learning at various stages in one's career, is important as the sector is becoming highly diversified and at least in part the mission of a traditional university is being implemented by a variety of higher education institutions. Some newcomers to the world of universities are non-profit distance learning providers, private free online course platforms and training centres specializing in particular professions. They are expanding the traditional higher education marketplace. But when they push for more individually customised and modular degrees or address immediate market needs, they are challenging the existing concept of degrees that universities have been safeguarding for a reason.

INTERNATIONALISATION AS BOTH AN INSTRUMENT AND VALUE

A final key pattern characterising the higher education sector is the pervasive international-mindedness. The so-called internationalization of

higher education implies various dimensions of cooperation between institutions: via mobility programmes of students, teachers and staff, research stays abroad, joint publication, co-taught courses and joint degree programmes. An increasing international outlook seems to have become unavoidable, generating also a stronger sense of competition among institutions for students. It is here that technology can again be brought into play, allowing people to have international exchanges in ways other than physically moving physically.

What is striking is that the ultimate purpose of this strategic orientation of institutions, almost a policy paradigm, is rarely reappraised. What exactly are the benefits and what are side-effects of greater international cooperation? Has increased internationalization affected the sense of citizenship? In the context of the Euro-Mediterranean, has there been a strengthened cooperation in the region? These questions are important for making sense of the missions of the institution we are affiliated with, and ultimately our own activity.

MOVING AHEAD

The above paragraphs have outlined very briefly some the core elements of the environment, in which the higher education institutions operate, and the dilemmas, often even tensions that they are faced with. How these will be resolved in the near and far future is far from certain. The present contribution did not endeavour to offer any foresight. It sought to show that in the complex and demanding environment, in which higher education institutions operate today, many directions and decisions are possible, apart from staying still. If anything, today's higher education landscape is an extremely varied and dynamic one as it moves ahead.

A snapshot of that exciting terrain is captured by a selection of narratives by individual institutions in the Euro-Mediterranean. Organised around the three trends, outlined in this contribution, the discussion of specific responses to the external challenges offers valuable insight into the adjustments presently taking place in the higher education sector.

TAKING DIGITAL TEACHING AND LEARNING SERIOUSLY AT EUROPEAN UNIVERSITY CYPRUS

Maria Meletiou, Katerina Mavrou, Paraskevi Chatzipanagiotou and Marios Vryonides*

INTRODUCTION

The European University Cyprus (EUC) is an innovative and dynamic academic institution in South-eastern Europe and has a reputation for quality education with a sharp focus on Information and Communication Technologies. Moreover, it places a lot of emphasis on the employability of its students and on investing on high tech innovation as well as on engaging with industry and society. It is a thriving learning environment with over 6,000 students from 60 nationalities and 500 academics committed in contributing to a "knowledge-based society." By integrating teaching, research and experiential learning in the curricula the EUC academic model seeks to make student education an enriching and rewarding experience but also one that lays out the first solid steps towards students' professional goals. EUC students come from Greece, China, Germany, Italy, USA, United Kingdom, Austria, Russia, Ireland, France, Jordan, Ukraine, Norway and Israel.

The EUC offers degrees at undergraduate, postgraduate and doctoral levels. Its areas of interest focus on Arts, Computer Sciences, Accounting & Finance, Business, Health (Medicine-Dentistry), Biology, Management, Engineering, Education, Literature, Communication, Information Systems, Law, Marketing, Music, Physiotherapy, Language and Sport.

European University Cyprus has been evaluated by QS TOP UNIVERSITIES, securing 5-stars in teaching, facilities, inclusiveness, social responsibility and internationalisation and a 4-star distinction in the field of Employability. The establishment of the only Microsoft Innovation Centre in Cyprus at EUC, one of only 110 such centres worldwide, has strengthened the university's focus on innovative

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research by supporting start-ups and bringing government, academia and industry together to generate new ideas through training, education and knowledge transfer.

THE CHALLENGE

Rapid advances in information and communication technologies (ICTs) have provided the opportunity to create entirely new learning environments in higher education (HE) by significantly increasing the range and sophistication of possible instructional activities in both conventional and e-learning settings. A wide diversity of powerful and readily available technological tools (e.g. high-quality streaming video, cloud-based computing, digital textbooks, mobile devices, animations, educational gaming, immersive-learning environments, virtual simulations, augmented reality, etc.), offer myriad opportunities for transforming pedagogy through the adoption of learner-centred instructional approaches. A continuously growing body of research literature indicates that appropriate and strategic integration of technological tools in the HE classroom can have a positive impact on both student attitude and learning of concepts and processes (e.g. Bishop & Verleger, 2013; Eick & King, 2012; Ford et al., 2012; Gill 2011; Guy & Marquis, 2016; Taplin, Low, & Brown, 2011; Tobolowsky, 2007; Yousef, Chatti and Schroeder, 2014). At the same time, the review of the literature makes it clear that mere use of technological tools cannot, in and of itself, directly change teaching or learning, but rather that the success of technology-enhanced instruction depends on how well it is designed and implemented

(Guy & Marquis, 2016; Oliver & Herrington, 2000; Seidel, Blomberg and Renkl, 2013).

Changing teaching practices, in particular, is proving to be very difficult. The research literature indicates that the introduction of ICT has brought new challenges for instructors, adding a new set of variables to their already complicated and demanding task of lesson planning and implementation. Ample research evidence shows that it is much more demanding for educators to exploit the growing prominence of digital technologies and their transformative potential in instructional settings than was originally anticipated, and that many instructors remain unprepared to effectively employ ICT tools in their teaching practices (e.g. Ertmer et al. 2012; McDonald et al., 2014). Therefore, for true technology transformation to occur in HE, it is essential for instructors to be well prepared to incorporate new technologies into their teaching practices (Marzilli et al., 2014).

THE SOLUTION

Acknowledging the educational potential of ICT but also the crucial role of instructors in any effort to bring about change and innovation, EUC participated in a cross-national study on faculty and student attitudes and practices regarding the use of videos and other technological tools in higher education, conducted within the scope of the EU project *RELOBIE: Reusable Learning Objects in Education* (2014-1-FI01-KA200-000831). Through an in-depth survey of faculty and students (171 faculty members, 530 students) in the participating institutions (University of Coimbra, Portugal; European University Cyprus; Abo Akademi, Finland; Tartu University, Estonia), the RELOBIE study provided useful insights into HE instructors' and learners' perceptions,

motivations, and experiences regarding the employment of digital videos and other technological tools for personal, professional, and instructional purposes. The study also provided useful information regarding perceived barriers to the effective integration of ICT into instructional settings. While a more detailed description of the study methodology and findings can be found in Meletiou-Mavrotheris et al., (2017), an overview of the study findings is presented in the following paragraphs, making connections to their impact on EUC practices for phasing the challenge of ICT innovations in HE.

THE RESULTS

Findings from the current study concurred with those of previously conducted studies, which suggest that most HE faculty (and their students) have positive attitudes toward the educational use of videos and other contemporary technologies, considering them to be a critical aspect of the modern HE learning environment (Herrero et al., 2015; Dahlstrom & Brooks, 2014; Marzilli et al., 2014). Our study participants noted numerous benefits of technology that are well cited in the research literature (e.g. Bishop & Verleger, 2013; Eick & King, 2012; Ford et al., 2012; Gill 2011; Guy & Marquis, 2016; Taplin, Low, & Brown, 2011; Tobolowsky, 2007; Yousef, Chatti and Schroeder, 2014). At the same time, however, it became obvious in this study that many instructors tended to lack appreciation of the true potential of technology for transforming the nature of higher education. The reported levels of use of different technological tools for instructional and learning purposes lagged behind their levels of use in daily life or in professional contexts outside of the classroom. Similarly, to other researchers, we also found that instructors tended to view technology as mainly a useful aid for delivering course content and/or for increasing student motivation, rather than as a tool for transforming teaching and learning (e.g. Lei, Finley Pitts, & Rong, 2010; Marzilli et al., 2014). As reported by both faculty and learners, most instructors restricted their use of technology to mainly representation tools such as PowerPoint and made minimal use of interactive technologies (social media, simulations, games, educational software, media manipulation software, etc.) that can promote student-centred, collaborative, and inquiry-based learning environments.

Faculty participating in the RELOBIE study reported not only opportunities, but also a number of challenges in their effort to keep pace with the pervasive spread of new and innovative classroom

technologies. The main barriers identified are the high investment in time and effort required to keep up with technology advancements, and the need for continuous training on the educational applications of new technologies. Nonetheless, participants were generally committed to using technology in more innovative ways and were thus open to institutional-provided opportunities for professional development focused on contemporary technologies and their effective integration into instructional design and delivery. At the same time, while factors such as institutional resources, institutional support, and peer support appeared important in motivating instructors' technology integration process, the most essential reason behind their willingness to integrate any new technological tool into their teaching practices were its perceived benefits on student learning.

The findings of the study indicated the urgent need for EUC (as well as the other partner institutions) to cultivate more supportive cultures that would bring innovative technologies to the forefront of our faculty consciousness and facilitate their integration into instructional practices in more effective ways. The provision of high quality professional development, in particular, emerged as vital for generating the necessary changes in teaching cultures that will enable our instructors, and consequently learners, to reap the full benefits of ICT advances.

Several measures have since been taken by our University to support faculty with appropriate technical and administrative resources that promote the effective infusion of emerging technologies into teaching and learning. These included both centralized collective efforts as well as individual efforts that targeted particular courses, and/or faculty members. More importantly, sessions on technology integration in HE, with emphasis to new collaborative tools (e.g. LMS and online e-learning tools) and the use of videos were included in the main Faculty Professional Development programme offered centrally by the EUC twice a year, to all full-time and part-time academic staff. These sessions were offered in three tracks: (a) core compulsory session: Basics of ICT integration in HE, (b) elective session: Interactive and Collaborative technology tools in HE, and (c) elective session: mobile learning in HE. Furthermore, the Hybridity Development Support mechanism was established based on the philosophy of blended learning (i.e. the integration of new technologies in HE with a blend of online and face-to-face learning approaches) (Weller et al, 2005). Hence, members of the faculty with scientific background in ICT in education resumed the role of the unit supporting all instructors in the design and development of their courses in an interactive

online learning environment (using the EUC's existing platforms of Blackboard and Moodle). Emphasis was given on the added value of integrating technology and the use of videos especially with respect to recording classes and employing teleconferencing in the teaching and learning process.

CONCLUSION AND RECOMMENDATIONS

Further measures to boost the innovative EUC philosophy on digital education include the continuous involvement of EUC faculty in research projects relevant to advances of learning technologies and their application in HE. For example, currently, EUC participates in an EU-funded Erasmus project titled PLAY&LEARN DIGIMEDIA - Playful Learning Experience - Enhancing adult education and learning environments with digital media. This project is a follow-up of the RELOBIE project, with four of the five institutions comprising the consortium having also participated in RELOBIE. PLAY&LEARN DIGIMEDIA aims to utilize findings from the RELOBIE study to empower HE/adult educators with better tools, skills and know-how on the use of technology-supported learning. The aims and expected outcomes of the project are the following: (i) provide instructors with hands-on tools for designing their own instructional activities based on contemporary pedagogical principles pertaining to the educational use of different digital media; (ii) implement a set of high quality online professional development modules on the use of digital media in HE/adult education; (iii) Enhance instructors' eMaturity and boost their ICT skills so that they become more independent users of digital media.

REFERENCES

Bishop, J., & Verleger, M. (2013). The flipped classroom: A survey of the research. *120th American Society for Engineering Education National Conference Proceedings*, Atlanta, Georgia.

Dahlstrom, E., & Brooks, D.C. (2014). *ECAR Study of Faculty and Information Technology*, 2014. Louisville, CO: ECAR.

Eick, C., & King Jr., D. T. (2012). Nonscience Majors' Perceptions on the Use of YouTube Video to Support Learning in an Integrated Science Lecture. *Journal of College Science Teaching*, *42*(1), 26–30.

Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education*, *59*, 423–425.

Ford, M.B., Burns, C.E., Mitch, N. & Gomez, M. (2012). The effectiveness of classroom capture technology, Active Learning in Higher Education, 13(3), 191–201.

Gill, R. (2011). Effective Strategies for Engaging Students in Large-Lecture, Nonmajors Science Courses. Journal of College Science Teaching, 41(2), 14–21.

Guy, R., & Marquis, G. (2016). The flipped classroom: A comparison of student performance using instructional videos and podcasts versus the lecture-based model of instruction. *Issues in Informing Science and Information Technology*, *13*, 1–13. Retrieved from http://www.informingscience.org/Publications/3461

Herrero, R., Bretón-López, J., Farfallini, L., Quero, S., Miralles, I., Baños, R., & Botella, C. (2015). Acceptability and Satisfaction of an ICT-based Training for University Teachers. *Educational Technology & Society*, *18*(4), 498–510.

Lei, L., Finley, J., Pitts, J., & Rong, G. (2010). Which is a better choice for student-faculty interaction: synchronous or asynchronous communication? *Journal of Technology Research*, *2*, 1–12.

Marzilli, M., Delello, J., Marmion, S., McWhorter, R., Roberts, P., Marzilli, T.S. (2014). Faculty Attitudes Toward Integrating Technology and Innovation. *International Journal on Integrating Technology in Education (IJITE), 3*(1), 1–16.

McDonald, P., L., Lyons, L.B., Straker, H.O., Barnett, J.S., Schlumpf, K.S., Cotton, L., & Corcoran, M.A. (2014). Educational Mixology: A Pedagogical Approach to Promoting Adoption of Technology to Support New Learning Models in Health Science Disciplines. *Online Learning, 18*(4), 1–18.

Meletiou-Mavrotheris, M., and Mavotheris, E. (2007). Online Communities of Practice Enhancing Statistics Instruction: The European Project Earlystatistics. *Electronic Journal of e-Learning, 5*(2), 113–122.

Meletiou-Mavrotheris, M., Mavrou, K., Vaz-Rebelo, P., Santos, S., Tenhonen, P., Riska, M., Sundstrom, M. & Pilt, L. (2017) Technology Adoption in Higher Education: A Cross-National Study of University Faculty Perceptions, Attitudes, and Practices. In P. Tripathi, & S. Mukerji (Eds), *Technology-Centric Strategies for Higher Education Administration* (pp. 295–317), Hershey, PA: IGI Global.

Mintz, S. (2013). The future is now: 15 innovations to watch for. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/article/The-Future-Is-Now-15/140479

Oliver, R., & Herrington, J. (2000). Using situated learning as a design strategy for web-based learning. In B. Abbey (Ed.), *Instructional and cognitive impacts of web-based education* (pp. 178–191). Hershey, PA: Idea Publishing group.

Seidel, T., Blomberg, G. &Renkl, A. (2013). Instructional strategies for using video in teacher education, *Teaching and Teacher Education*, *34*(1), 56–65.

Taplin, R.H., Low, L.H., & Brown, A.M. (2011). Students' satisfaction and valuation of web-based lecture recording technologies, *Australasian Journal of Educational Technology*, *27*(2), pp. 175–191.

Tobolowsky, B. F. (2007). In practice—Thinking visually: Using visual media in the college classroom. *About Campus*, *12*(1), 21–24.

Weller, M, Pegler, Ch., & Mason, R. (2005). Use of innovative technologies on an e-learning course, *Internet and Higher Education*, *8*, 61–71.

Yousef, A. M. F., Chatti, M. A., & Schroeder, U. (2014d). The State of Video-Based Learning: A Review and Future Perspectives. *International Journal on Advances in Life Sciences*, *6*(3 and 4), 122–135.

LAUNCHING A DIGITAL OPEN LEARNING PLATFORM AT AL AKHAWAYN UNIVERSITY: CONTEXT, PILOT COURSES AND LESSONS LEARNED

Karim Moustaghfir, Hassane Darhmaoui and Ali Idrissi*

BACKGROUND INFORMATION ON THE INSTITUTION

Inaugurated in 1995 by His Majesty King Hassan II and Crown Prince Abdallah bin Abdel-Aziz of Saudi Arabia, Al Akhawayn University in Ifrane (AUI) redefines the classic American liberal arts educational experience on an architecturally stunning modern campus amidst the beauty of Morocco's Middle Atlas Mountains. AUI is an independent, not-for-profit, co-educational, Moroccan university with a globally oriented education and research system. Based on the principles of diversity and an international outlook, the university's mission is driven by values of human solidarity and tolerance. Still in its infancy, the university has already developed a national and international reputation for its unique identity and potential.

The University enhances Morocco and engages the world through leading-edge educational and research programs, including continuing and executive education, upholds the highest academic and ethical standards, and promotes equity and social responsibility. Recently accredited by NEASC (New England Association of Schools and Colleges – US), AUI offers 7 bachelors and 16 masters programs encouraging choice and experimentation under three schools, Science & Engineering, Business Administration, and Humanities & Social Sciences. AUI counts 163 Faculty members, about 40% of whom are international, more than 4200 Alumni, over 2100 students taking courses in different disciplines, including but are not limited to General Engineering, Computer Science, Management, Finance,

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Marketing, Human Resource Development, International Studies & Diplomacy, Communication Studies, and Renewable Energy.

AUI values research and publication by its faculty, also through various research centres covering different areas, including economic analysis, social sciences, regional development, environmental studies, women's empowerment, leadership, cross-cultural management, and learning technologies. As part of their co-curricular activities, students have access to 36 student organizations, 15 sports teams, 9 athletic facilities. Average class size is 19.7 and students to faculty ratio is 14.1. The student population counts 54% females and 46% males. AUI promotes internationalization through solid and diversified international partnerships to facilitate study abroad programs for students, faculty exchange and mobility, and joint research projects.

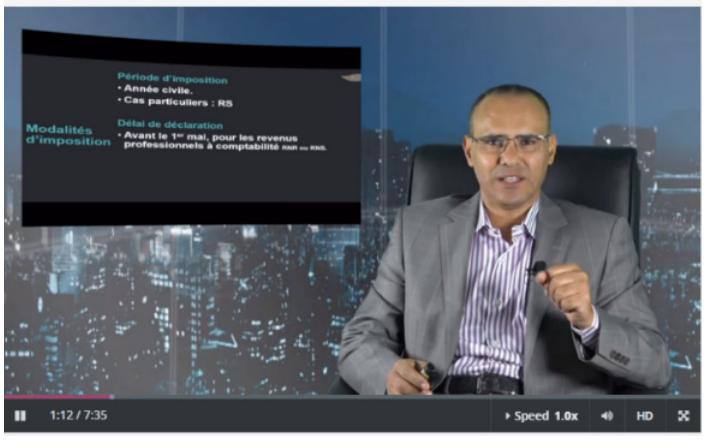
THE CHALLENGE

In the past few years, most universities in Morocco have been facing a major challenge stemming from the massive newly registered students and the increasing demand for higher education services often exceeding their maximum logistical and human resource capacities. Most of lectures and classes are delivered in large auditoria as the noticeable shortage in terms of space and specialized faculty is negatively affecting teaching and learning quality. In their lectures to very large audiences, faculty members find it very difficult to interact with students and to respond to all their questions. A number of students opt not to attend these lectures due to the lack of interactivity, leading hence to an extremely high rate of absenteeism. They rely mainly on textbooks and/or lectures' handouts, which remains a limited education method preventing the effective understanding and assimilation of the learning content. Such an attitude results in large failure and drop-out ratios among students especially in the first and second years of their university studies.

Universities are seeking sustainable solutions to cope with the problem of *massification*, enabling them hence to better meet learners' needs and help the students benefit from their university experience and achieve the intended learning objectives. Responding to such a challenge has the potential to contribute to performance also at the societal level, while building the right competences needed for economic growth, reducing unemployment among university graduates, and fostering self-employment.

E-Learning and distance education present a golden opportunity for Moroccan higher education institutions to efficiently face such a challenge, while achieving both economies of scale and scope. Such technological change would also allow for an affective diversification of educational offerings and for large-scale training services while respecting the required quality standards. e-Learning facilitates reaching out to learners anywhere on the globe and at any time with a considerably reduced cost. It could be used as a supplement to face-to-face teaching (blended learning) allowing for better engagement and learning effectiveness.

IR : MODALITÉS D'IMPOSITION



The rise of open and massive online courses (MOOCs) and small private online courses (SPOCs) in recent years has also been demonstrated through the considerable increase in the amount of investments being made by higher education institutions in the design and dissemination of educational resources in general and educational videos in particular. In this perspective, and as part of a project funded by the National Centre for Scientific and Technical Research in Morocco (CNRST), Al Akhawayn University in Ifrane (AUI), in collaboration with the University Fez (FSJES), has embarked on the development of SPOCs (as a first experimental step, before full deployment of MOOCs), to help design an effective online learning platform that has the potential to help Moroccan universities address the issue of *massification* and foster a new culture in higher education in Morocco, focused on knowledge acquisition, competence development, and collective learning.

THE SOLUTION

The definition of the term MOOC, appeared in 2008, remains flexible. Nevertheless, it meets four criteria:

- Massive, the course can accommodate, in principle, an unlimited of number of participants;
- Open, the course is open to all users, regardless of origin, level of education, or other criteria;
- Online, the whole course can be followed online: courses, activities, homework, exams, etc.;
- Course: a learning activity with educational goals and one or several educational courses for participants, but not limited to resources distributed online[1].

This educational movement started smoothly in the early years of its appearance and then has made a huge step forward. In 2012 with the appearance of Udacity (February 2012), Edx (May 2012), Futurelearn (December 2012), and then others that followed such movements, the current statistics speak of more than 1900 European MOOCs (mainly Spanish, British, German, and French), and more than 2900 non-European MOOCs (mainly American). The figures keep growing exponentially[2]. Unfortunately, in Africa and despite all the initiatives, the number does not exceed dozens, including all geographical areas[3].

The evolution is qualitative insofar as the resources produced in the framework of the design of MOOCs are, in general, thought for an online use as compared to Open Coursewares (OCWs), that are created most often for a face-to-face experience. In the case of our pilot, the goal is to develop an integrated e-Learning and distance education platform for course delivery, including tutorials and online practice. The five courses, subject of the pilots, cover the following thematic areas: corporate taxation, principles of management, microeconomics, linear algebra, and financial accounting. The pilots were selected, based on the sense of urgency, number of target students, and faculty self-efficacy.

The design of the platform emphasized a new approach to:

- open the "doors" and the expertise of faculty to both national and international communities. The university aims hence to transfer

1 France Université Numérique. (2012). A la découverte des MOOC. Ministère de l'Enseignement Supérieur et de la Recherche.

2 Delpech, Q. & Diagne, M. (2016). MOOC, l'âge de maturité ? Modèles économiques et évolutions pédagogiques. France Stratégie.

3 Serge, M. (2014). Les MOOCs donnent des ailes aux Africains. Lemonde.fr.

knowledge using the MOOC, which represents one of the most effective means of fostering and diffusing quality education to as many people as possible (i.e., not everyone has access to higher education);
- create communities of knowledge and practice, through facilitating dynamic and social interactions between participants when taking an online course, which makes it possible to bring out communities around specific topics as addressed by the MOOC; and
- gain national and international visibility (English-speaking MOOCs are followed by the whole planet while the audience of French-speaking MOOCs comes from the entire Francophonie: Africa, Haiti, Quebec, and French Polynesia.)[4]

The integrated platform was developed following the principles underpinning systematic instructional design and a contextualized psycho-pedagogical methodology. The platform includes rich and dynamic content, a knowledge base and informational/educational resources, as well as interactive technology applications facilitating objective-oriented and competence-driven content delivery, and effective learning-based evaluation systems.

For the technological platform, we adopted OPENedX solution, a free and open-source course management system (LCMS) that was originally developed by edX. The OPENedX platform is used all over the world to host Massive Open Online Courses (MOOCs) as well as smaller classes and training modules. The platform is currently hosted in Al Akhawayn's internal servers, in the following web address: http://mooc.aui.ma/

The operational objectives of the project include:
- Identifying training needs and learning objectives in relation to target courses and practical lab sessions;
- Designing training content following a rigorous and systematic instructional design;
- Implementing a change management system to ensure the commitment of faculty and students to this project;
- Developing the human and logistical capacities, necessary for the effective implementation, maintenance, deployment, and evolution of the platform;
- Developing the platform, including user-friendly technological applications to ensure efficient, dynamic, and interactive content delivery;

4 Legrand, O. (2013). Construire une formation pour le e-learning. Carte Heuristique.

- Developing rich and diverse course content, including tutorials and practical lab sessions;
- Identifying and integrating evaluation mechanisms tied to various learning processes. Final exams are kept in conventional classroom environment, requiring physical presence;
- Developing, deploying, and evaluating the pilots at FSJES.;
- Disseminating the results of the project and identifying potential mechanisms to ensure its generalization and sustainability[5].

Following the instructional design approach, a methodology based on interactivity was adopted for course design and content development, including six main steps:

Steps	Components	Description
Step 1	Introductory video	Introduce the course briefly, present the learning steps and any other useful information.
Step 2	Heuristic map	Presentation of the lesson plan using a heuristic map that encompasses different concepts, definitions, theories, documentation, and any learning resources.
Step 3	Recording of course videos, following a detailed scripting	Video recording of different parts of the course but also any other visual resources, animations, virtual simulations and labs etc.
Step 4	Design of additional synchronous and asynchronous resources and communication tools	• Online Tutoring • Forum • Chat • E-mail • Video conference
Step 5	Project design	Problem-based design, learning process, guidelines, definitions of expected results, and deadlines.
Step 6	Formative and summative evaluation	Design of evaluation means and follow-up mechanisms.

5 Moustaghfir, K. (2014). Projet Al Akhawayn e-Learning. Appel à projets dans les domaines prioritaires de la recherche scientifique et du développement technologique, CNRST

To support video recording, a detailed scripting was followed. This crucial step allows for an effective distance training experience. The development of our courses considered the steps below for a thorough and qualitative scripting:

- Define the objective: the question of the pedagogical objective is quite often overlooked or put aside, which limits the benefit of digital media and increasingly tool efficiency. The purpose of a blog, a flash animation, or a Wiki for instance, remains unclear and not fitting the target audience if the educational objective is ill-defined[6];
- Sequencing: the purpose being to come up with a course structure where each single element corresponds to a specific educational objective and contributes to learning[7];
- the development of the scenario: the development phase is paramount as the pedagogue starts articulating learning contents, activities, and evaluation methods[8];
- Implementation: in this phase various elements are defined, including the choice and dissemination of digital resources, the selection of digital tools, and the path of course implementation;
- Evaluation: emphasis being placed on learner's skills and knowledge level, while experimenting with new digital tools, facilitating effective evaluation techniques and devices.

THE RESULTS

Following the launch of the MOOC, a survey was conducted to see the impact of using instructional videos on student motivation and engagement. This survey was conducted using a questionnaire that was completed by junior students from FSJES.

The questionnaire was composed of six close-ended questions also including a justification space, and seven Likert scale questions

6 Legrand, O. (2013). Construire une formation pour le e-learning. Carte Heuristique; Vacaresse, S. (2013). E-learning : la pédagogie avant tout. L'École Numérique

7 FAO. (2012). Méthodologies pour le développement de cours e-learning, Un guide pour concevoir et élaborer des cours d'apprentissage numérique

8 Bertolini, M. (2014). Comment concevoir un cours en ligne ? Voici une méthode efficace ! Formation 3.0.; Debbie, M. (2013). How to design an excellent online course. Online Learning Insights; SBSSA. (2009). Différents types d'évaluation.

addressing the degree of satisfaction (scales of 1 strongly agree, to 5 strongly disagree), and an open-ended question. 300 questionnaires were distributed and collected from the students. 29 were rejected, as they were not properly completed.

The surveyed population is made up of 57% of females and 43% of males, the majority of whom (80%) are between 20 and 23 years old.

9% of surveyed students use PCs, 52% use laptops, 46% smartphones, and the rest use other devices (e.g., Tablets).

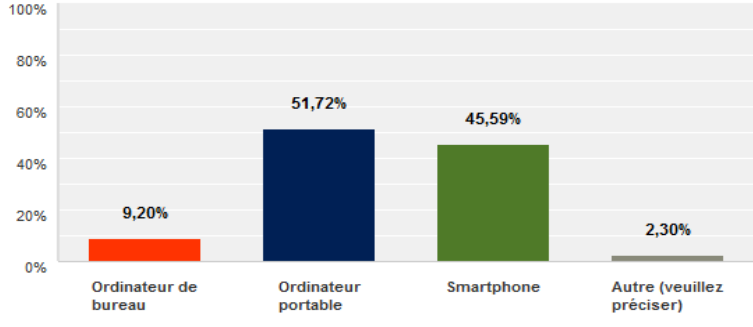


Figure 1: Use of devices by respondents

31% of the surveyed students watched all course videos, while 69% did not see the entire videos.

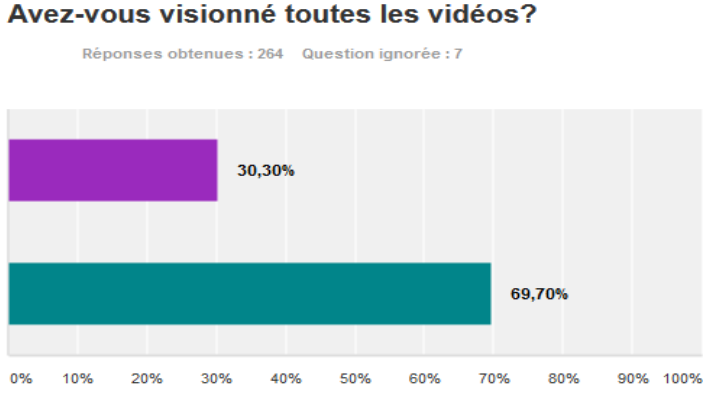


Figure 2: The use of videos by the respondents

As for the benefit of videos, 33% of students reported that these instructional videos gave more precise information compared to conventional courses. 35% of the students think that the videos are richer, 23% considered that the videos gave the same information, whereas

only 8% think that these videos gave less information compared to conventional courses.

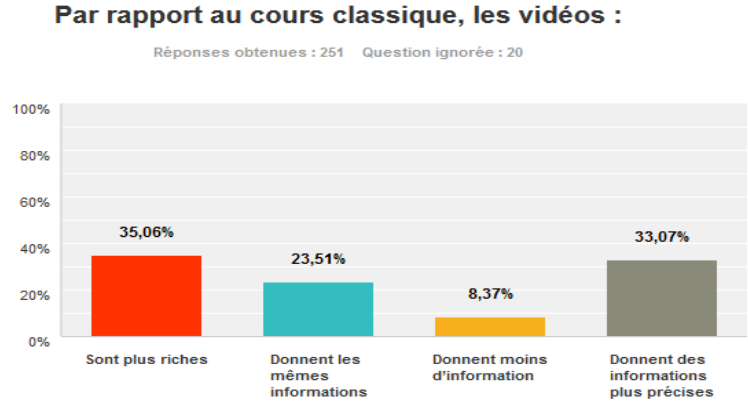


Figure 3: Perceived benefit of videos by respondents

The results also show an appreciation rate of 4.16 on the content clarity and 4.01 on the usefulness of the content and videos to better understand the concepts as covered by the course. The appreciation rate of the presentation side is of 3.89 for aesthetics and 4.13 for sound quality. An appreciation rate of 3.8 was assigned to the help the content and videos provide for review and exam preparation. Overall appreciation rates of 3.81 and 3.92 were respectively allocated for the positive impact of the content and videos, and as an assessment for the use of similar instructional content and videos in other courses.

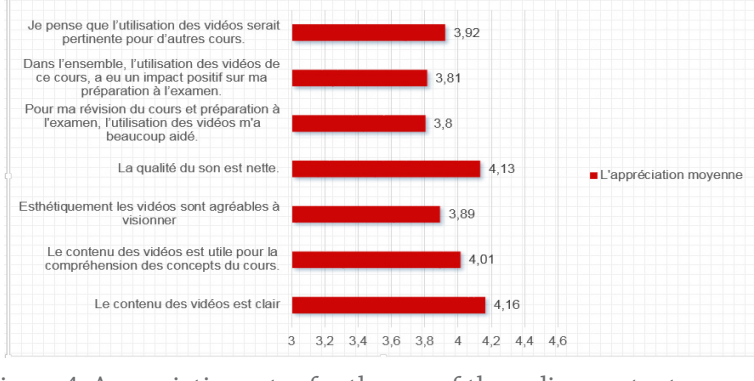


Figure 4: Appreciation rates for the use of the online content

From a learning perspective, an evaluation following the use of two SPOCs, namely corporate taxation and microeconomics, demonstrates clear impact results:

Microeconomics

Starting date: 10/01/2017
Ending date: 12/11/2017 (10-week SPOC)
Number of students: 220 students (45% females, 55% males)
Achievement rate of the quiz: 20%
Resources: 33 videos of course and applications, 11 quizzes, pdf. files for resource support.
49 forum streams (total of 112 interactions).

Corporate Taxation

Starting date: 09/18/2017
Ending date: 11/27/2017 (10-week SPOC)
Number of students: 156 students (60% females, 40% males)
Achievement rate of the quiz: 30%
Resources: 30 videos of course and applications, 20 quizzes
59 forum streams (total of 132 interactions)

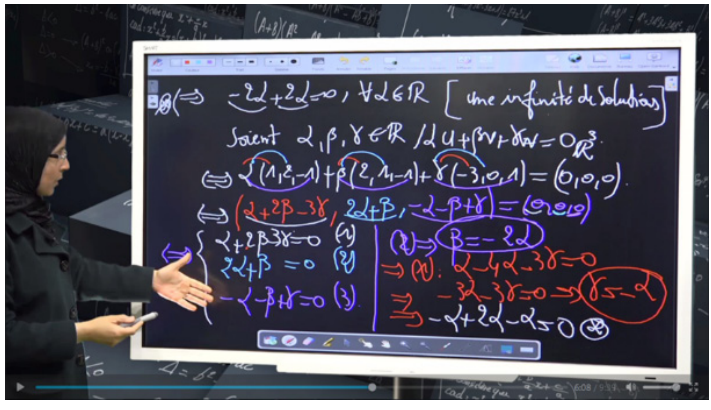
CONCLUSION AND RECOMMENDATIONS

Further research, assessments, and evaluations are in progress to identify the impact of the pilot SPOCs on learning outcomes, as well as the contribution of the new learning modes on educational quality and success rates. We believe such plans have the potential to determine venues for continuous improvement and guide the developmental strategies and paths for other courses in the near future.

The initial assessment provides some lessons learned:

- Key success factors for better engagement, requiring further elaboration, include: more videos for applications, more diversified resource support files and links, more quizzes especially in difficult topics.
- Learning activities should be continually tracked, prompt support offered, and feedback provided. A community management plan is essential, including a tutoring task.
- Invitations to engage in teamwork, peer reviews and forum discussions must be continually expressed and linked to specific learning tasks.
- Digital skills should be fostered to prevent possible frustration while following a learning experience. Also, initial activities must

be included into the design (e.g., video tutorials, guided platform tours, training sessions, peer-to-peer assistance etc.)



Finally, the experienced course design and delivery fostered active learning and student engagement to an acceptable degree. This could only be achieved with elaborate instructional design features that came along with a high course facilitation effort. From the evaluation of the learner's and the instructor's experiences, we also drew findings that will lay the foundations for further course development, mainly focused on pedagogical interventions for collaborative learning.

BEING AN E-UNIVERSITY: UNIVERSITY PEGASO ONLINE

Luigia Melillo*

BACKGROUND OF THE INSTITUTION

Pegaso online University is an e-University. Intelligence, independence and interactivity are in fact its main educational criteria. It was established by Ministerial Decree of 20 April 2006 and has since been a university built on the most modern and effective technology standards in e-learning. Focused on innovation and quality, it is dedicated to a comprehensive interaction between the University and its students. It aims to improve professional and educational qualifications by using teaching tools of continuous education.

The University complies with the Self-Assessment, Evaluation and Accreditation document of the Italian university system (AVA - ANVUR) regarding on-line training. The staff is made up of qualified teachers, tutors and experts who are aware that the future of learning and training

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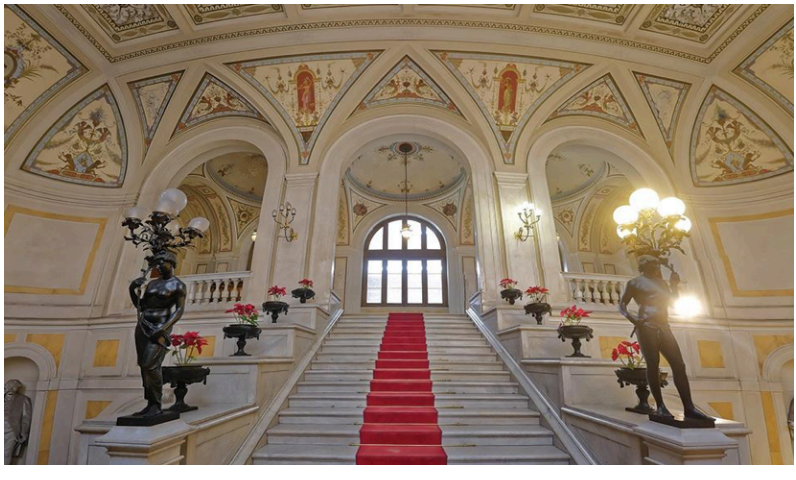
is tied to online teaching. The teaching methodology integrates innovative informal learning tools (educational tools) that involve the student in a truly unique and effective educational experience. Pegaso is based on the most modern and effective technological methods and standards of e-learning, chosen by more than 60,000 students. It boasts a wide variety of educational and professional courses: 10 undergraduate degree courses, 126 master's degree courses, 20 specializations, 57 higher-education courses, 10 training institutes, individual exams and certifications. University has more than 60 campuses available all over Italy and about 1.000 staff members, assistants and stakeholders.

Pegaso University has adopted a proactive approach to studying which greatly benefits the student by placing emphasis on:

- Its ability to respond flexibly and effectively to students' needs;
- Adequately understanding the spirit of the network;
- Understanding each student's preferences in order to put them on the correct path to succeed, helping them in continuous process of acquiring the necessary workplace skills;
- Sharing knowledge. We make the expertise gained and the experiences learned available to all students, which also facilitates the teacher's ability to adapt and harmonize objectives and teaching strategies (e-Portfolio).



THE CHALLENGE

The challenge today is to promote opportunities for innovation in e-learning. This is critical for knowledge acquisition in the future society,

in which the creation of new communities will set new demands for universities. They will have to provide not only better understanding of the reality, but also renewed opportunities for creation of new knowledge. Solutions to measure, evaluate and stimulate the teaching and learning processes are being sought. The definitions of quality have undergone deep changes in recent years in all social fields and also in the educational world, where there is also a different relationship between university and society, especially the new generations. The priority is to emphasize the pedagogical - humanistic - technology relationship. The teaching in the digital age can often be perceived as impersonal from both professors and students. For the professors who enjoy the classroom experience or expert trainers who thrive on live feedback, teaching online means not being fully present and that means letting their students down. Here, the risk is the reduction of inclusion of students into the body of knowledge they are presenting and their interaction. Teaching is not just about transferring information, but about engaging people in a community of thought. By sharing subject matter knowledge, educators impart the identity of the group that have engaged with the topic so far.

The University Pegaso has put the student in the centre of training experience and university activities and developed interactive didactical tools that enshrine the relationship between (especially young) students and University. Among these, there are video lessons, the so-called i-tivities, fora, the use of social network etc.

However, today there is a need to renew the teaching methods and strengthen the human relationships in the context of "virtual spaces" with the aim of improving the human value of the teaching, involving the students within the training experience and not running the risk of isolating them in a virtual "vacuum" space.

Figure 1: Digital humanist manifesto, source: Thomas, Kaas, Davarzani, 2015, at 1

There is a great advantage to assume the human from the "virtuality", in spite of the deficiencies that arise by lack of the direct contact: it is the individual accompaniment to the cognitive and human learning. That is to say, values, ethical, anthropological principles, human condition, regional identity, life project, affection, interpersonal relationships are included. In this sense, teachers, in all the instructional framework needed in virtual education, are called to locate the development of learning from the importance of human commitment, learning to be and living together, rather than having or knowing.

University Pegaso has approached this challenge by creating a monitoring process for the evaluation of all aspects regarding the didactical aspects involving the students. In particular, by focusing on the results of individual interactive activities (web-forum, case studies, exercises, elaborates, project work and workshops, blog, chat) carried out by professors, the incoming and ongoing orientation service, the presence of the tutoring (both technic and didactic) and all the practical arrangements which allow the student to improve their relationship with all academic staff. In this system, the University has created a mixed commission (students and professors) in order to face the challenge of improving the training experience. Every year it produces a report with the "state of art" and the proposals as results of evaluation process (*Commissione Paritetica Docenti/Studenti* – CPDS). All these aspects and factors every year are under analysis of the governance of University Pegaso and are included in the Quality Assurance System and in the final report (*Riesame ciclico*).

In this process, a very relevant role has been taken by the C.E.LL (Euro-Mediterranean Centre for Lifelong Learning)**.** The C.E.LL has been created to implement the recommendations of the EU and the Italian national law 92/2012 on the labour market. Lifelong learning has become an important mission of the university. The C.E.LL addressed the challenge of teaching a digital generation by developing studies and focusing specifically on the theme of "a new idea of quality: looking for the human aspects in the virtual learning". The C.E.LL. Director, Prof. Luigia Melillo, in particular sees the alternatives to the risks of virtual education in solutions such as the awareness of the participant, the definition of clear rules, the synchronization of synchronous and asynchronous activities, the systematic use of software or audio and video programs. Obviously, the students should justify the activities performed. The next step is the creation of virtual learning communities, which are shaped around the relationship space, are

a frame of relationship where respect is the value that marks the pattern of interaction.

THE RESULTS

Università Telematica Pegaso is now the major player of multiversity holding group that include also: Universitas Mercatorum (Rome), Pegaso International (Malta), European Polytechnical University (Bulgaria), that aims to pursue an excellent online education using innovative and advanced technological assets.

Between the results achieved, there is the very important inclusion in the University strategy of a high-technological tool of simulation of practical experience through the use of "avatar" which allows to the student of living the "real-virtual" life of a class. In this way the virtual relation between student and University becomes "real". This is a non-formal learning activity able to translate situations "close to reality" in the academic life.

The 2017 reports published by several degree courses of University Pegaso show very good level of appreciation of the interaction with the professors and other staff by the students (more or less the 80%). However, there is the need for improving the actions for the support and enhancement of services and interventions for students.

The University Pegaso plans support and enhancement actions for its students, especially considering the particular audience, divided in younger, more oriented to the use of digital technologies, and adults

who want to acquire knowledge and skills necessary for the world of work, free from the concepts of time and place.

These are the lines of work that the University Pegaso plans to provide for a quality service and support for training and learning: initial orientation, with the particular commitment dedicated by the appropriate territorial structures; 2. interactive teaching with particular attention to self-learning and self-assessment moments; 3. final verification of the training path; 4. technological infrastructure (platform), with the centrality of the tutor's assistance aimed at encouraging a friendly enjoyment of the training contents. Moreover, the strategy intends to develop further the social tools and the interactive activities which remain under exploited and the real instrument able to create the "virtual community".

CONCLUSION AND RECOMMENDATIONS

The future policy has to establish relations based on securing respect for identity, intimacy and, therefore, must be based on mutual trust, as an expression of an ethical conscience. "Distance" or "virtual" students experience a new way of being and acting in a new structure which support the planning and preparation of the didactic materials and their relationship with the educational community. The results of an ongoing monitoring and interactive process developed by the University Pegaso will allow the student to understand the new role that he/she must assume in an environment with an active and autonomous learning. This environment is integrated in the virtual community, in tune with the global educational model, where it tries to globalize education.

The policies have to include further indicators about the quality of the interactive activities and the self-assessment of not only teaching and learning but also of the "student experience". The University must be ready to update the social tools for the creation of virtual community and plan new model of monitoring, evaluation and feedback of interactive experience.

There are four needs: teach to research; teach to understand; teach to apply the critical sense; and teach to communicate. The final goal is to reach more learners than possible in a face-to-face setting. The University has to create virtual spaces for human contact means helping learners access options to connect with others. E-learning is not only exciting; it can be the future of training the new generations. The final suggestion is: we must change the perception about it and work to make the *e-xperience* a more than just a transfer of skills and teaching lessons.

REFERENCES

Thomas, R. J., Kass, A., & Davarzani, L. (2015). Accenture: From Looking Digital to Being Digital – Accenture (online image), available at http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture-Impact-of-Technology-April-2014.pdf

MASTER PROGRAMME IN DATA SCIENCE AND SCIENTIFIC COMPUTING – A JOINT EFFORT OF THE UNIVERSITIES OF TRIESTE, UDINE AND SISSA

Luca Bortolussi and Agata Mannino*

THE CHALLENGE

> *"Change has never happened this fast before, and it will never be this slow again"* (Graeme Wood)

We live in a moment of unprecedented pace in scientific and technological change, fostered by the blossoming of the digital era. Continuously expanding computational power and the availability of large datasets, combined with technical and algorithmic innovations in information and communication technology (ICT), are acting as catalysers of innovation and accelerators of transformation in other scientific disciplines, in technology, in industry, and in practically all aspects of economics and of daily life. This context is posing an extreme stress in the job market: the speed of change in job profiles is impressive, and there is an overall decreasing trend of low qualification jobs, due to the automation of cognitive tasks part of the Industry 4.0 revolution. On the other hand, there is an increasing need of professional profiles skilled in informatics and with capabilities of analysing and making sense of the large amount of data produced every day. Professionals capable of working in multidisciplinary teams and of concretizing the promises of the Artificial Intelligence and Data Science revolution are highly requested (WEF, 2016).

Education institutions face the consequent challenge to renovate and modernize their programmes, trying to match the needs of the job market of this class of professionals. Updating the didactic offer, however, is never easy, due to internal resistances and lack of expertise

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in the emerging scientific areas. At the University of Trieste, in particular, researchers with competences in artificial intelligence (AI) and data science are spread among many departments (Engineering, Mathematics, Statistics and Economics, Physics), and none of them has enough critical mass to qualify and to develop a successful programme in this area. Furthermore, this fragmentation can be seen also at the level of the scientific system of Trieste, the European capital of Science in 2020 (ESOF 2020), and of its region, Friuli Venezia Giulia. Solving these challenges required a novel approach, combining all these fragmented competences and joining them into a strong faculty of Data Science.

THE SOLUTION

The starting point was a post-graduate specialization programme in High Performance Computing (HPC), with application in Scientific Computing, run by two top scientific institutions of the Trieste area: SISSA (International School for Advanced Studies), a post-graduate teaching school, and ICTP (International Centre for Theoretical Physics), a UN research institution aimed at diffusing scientific knowledge in Physics to third world countries. SISSA, in particular, offered their expertise in HPC to the Department of Mathematics and Geosciences of the University of Trieste, in order to expand the didactic offer of the programme in Applied Mathematics. The university saw in this offer the opportunity to join forces and design a novel master programme, focussed on Data Science and Scientific Computing, capable of training professionals with highly demanded skills. During the design phase, the Department of Mathematics, Informatics and Physics of the University of Udine was also involved,

to complement the expertise of the distributed faculty in some areas of computer science, together with scientists operating in the National Research Council on Material Sciences (CNR-IOM) and National Astrophysics Institute (INAF). The University of Trieste involved internally 5 departments: Mathematics and Geosciences, leader of the project, Engineering and Architecture, Economics, Business, Mathematical and Statistical Sciences, Physics and Chemical and Pharmaceutical Sciences.

In 2017 this cooperation led to the launching of the International Master Programme in Data Science and Scientific Computing, which scientific and didactic quality is certified by a strong faculty of professors and researches of the many institutions involved. This allowed the programme to have a broad offer of courses, and to train students not only in the computational, mathematical and statistical skills, that are the foundations of data science, but also in several possible application fields.

A challenge that had to be faced in the design phase, was the lack of a Bachelor programme as a natural source of students for this Master programme. This led to designing a programme accepting students with very different backgrounds, mostly with a scientific and technological one (mathematics, physics, engineering), but also computationally-minded students with a background in biology or economics.

Students studying in the Master programme in Data Science and Scientific Computing stay in Trieste, and have lectures mainly at the University of Trieste, but also in SISSA and ICTP, thus having a chance to be exposed to a different range of an international and stimulating research environment. In addition, also companies are involved by offering seminars and internships, in order to provide students with a better understanding of the challenges and opportunities in the area of their studies.

THE RESULTS

The Master programme in Data Science and Scientific Computing started its activities in October 2017. Surprisingly, even before having students, it attracted the interest and recognition of companies and institutions, both local and international. In particular, companies agreed to sponsor scholarships for students enrolling in the programme, and to offer sponsored students a tutoring activity during the first year of their studies and an internship during the second year. The reaction of companies was so positive, that in 2017/2018, all eligible students gained a scholarship. In terms of enrolment statistics, it is too early to make any judgement, particularly because the advertisement and the communication of the programme for the year 2017 started very late (mid July 2017). The earliest occasion to draw first conclusions will thus be the academic year 2018/2019. Nevertheless, the support offered by companies and institutions, as well as the actual need of skilled professionals in this area, are building our confidence of having an excellent product for highly motivated students capable of competing internationally.

CONCLUSION AND RECOMMENDATIONS

The main lesson learned in designing the international Master programme in Data Science and Scientific Computing has been discovering the power of networking between several institutions, making them cooperate on a common goal. The area of Trieste and Udine is rich in research institutions and of scientific skills. If the fragmentation intrinsic in the presence of multiple institutions will be overcome and cooperation around concrete projects will be built, it is possible to offer a highly skilled training and attract students from all around the world.

REFERENCES

WEF (World Economic Forum), The Future of Jobs, 2016, available at http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf

REFORMING ACADEMIC CURRICULA AT LEBANESE INTERNATIONAL UNIVERSITY

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BACKGROUND INFORMATION ON THE LEBANESE INTERNATIONAL UNIVERSITY

The Lebanese International University (LIU) is a private institution founded in 2001; its primary mission is to provide students' accessible and affordable quality education. Today, LIU is the fastest growing university with nine campuses across Lebanon. It further established three campuses in Yemen (Sanaa, Aden, and Taiz), one in Mauritania, and another in Senegal.

Academic strengths are grounded in a wide range of outstanding majors and schools, each of which endeavours to achieve academic excellence and a position of distinction in its own field. The university comprises 5 schools: Arts and sciences, Business, Education, Engineering, and Pharmacy. It offers 41 undergraduate majors and 18 at graduate level. More than 1450 academic faculty provide provision to 30, 000 plus Lebanese and overseas students.

Through its Teaching and Learning Office, the University fosters a culture of excellence and innovation in teaching by way of professional development programs, championing values of equity, diversity and inclusion across disciplines; promoting new and emerging instructional methods while supporting existing best teaching and research practices. In developing new educational programs, LIU works with relevant stakeholders to design and align program outcomes to serve industry and labour market demands. A considerable number of LIU graduates are employed in the Middle East and North Africa Arab Region.

The University, with more than 50 international agreements, is an active promoter of collaborative research, has created a new Office

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of Quality Assurance, Institutional Effectiveness & Accreditation (QAIEA) to comprehensively promote and embed a quality culture that also encourages interdisciplinary basic and applied research. Along with teaching, this is a key contributor in building modern curriculum and is achieved through a Centre of Excellence for Research & Development at the University level and assisted by Department Research Leaders at the schools' levels. LIU actively sponsors student exchanges, dual degree programs with Worms in Germany and faculty exchanges through EU agencies and programs such as Tempus, Erasmus Mundus, and EuropeAid Programme. Currently, LIU is working with European Union, UNIMED, British Council, and UNRWA in capacity building for Syrian and Palestinian students and Staff.

Governance structure and approach to policy and decision making plays a key role in that accountability and effectiveness in use of resources are aligned with the University's mission. Intermittent revisions of the organizational structure in terms of centralized and/or decentralized approaches are considered when it comes to administrative and academic relationships among various stakeholders. Such centralization model in human resources selection, promotion, students' admissions, student support, in a multi-campus university, has been rather feasible. However, growth and perennial drive for enhanced service learning and other provisions inexorably require constant change and modification inclined towards a decentralized academic approach may have better purchase.

From education to science to health and other academic areas, LIU's faculty and staff have demonstrated their commitment to community service and outreach engagement in innovative ways that touch the lives of people.

Below, we will present two case studies in which the University malleably worked to reform the curricula in order to address and accommodate two new challenges: education for refugees and continuing education in the public health sector.

CHALLENGE 1: REFUGEE CRISIS

Effective education to migrants is an unprecedented refugee crisis spilling over to affect the Middle East, and especially Lebanon. In the past five years, Lebanon has witnessed massive population movement from Syria to Lebanese cities and Villages. One vital and under-reported aspect of the mass displacement is the lack of access

of millions of Syrians to a proper education. Ensuring the provision of such education should form an important part of the response to the crisis. This would help to combat at source some of the factors contributing to mass migration, extremism and the risk of a lost generation that could blight Syria's chances of recovery for years to come.

It is important to investigate if and how education might be reshaped to meet the needs of the refugee graduates. To date this issue has been empirically neglected. Using macro-level data for the Lebanese case, this paper contributes to filling this gap by providing a framework for a supportive response in the case of migrants in Lebanon. It is for these reasons that a plan and framework had to be put into place to address a situation that causes serious, sudden grief and disequilibria in such communities. In particular, it is concerned with the association between enrolment in the Lebanese International University in Lebanon and subsequent stay in Lebanon.

Context of the Study

A number of workshops and retreats took place to identify, prepare and develop a reform strategy, one which would serve to enhance the effectiveness, efficiency, and quality of education provision for the instructors enrolled in the 5 schools; School of Arts and Science, Business, Education, Engineering and Pharmacy. The review was captured in technical studies encompassing the themes of the quality of LIU education, the organization and management of LIU education, the evolving nature of LIU's schools and modified education programming in LIU for displaced students.

The LIU Education program (2015) was now in a very good position to meet the evolving demand of an education system in the twenty-first century for migrant education, including Syrians and Palestine refugee students in. In alignment with the vision of the education program at LIU, a new principle was incepted, the vision of education for all.

To attain it, we implemented the following activities in the field of teacher development and school empowerment. The main outcome of the programme was to have professional, qualified and motivated teaching force through developing an overall LIU Strategy. It constituted developing capacity of Syrians and Palestinian teachers. The aim of the program was to transform classroom practices, a professional development program for LIU instructors on how to embrace new

methods of supporting migrant student learning away from a didactic approach towards holistic styles and approaches (active learning). The program was planned to take 9 months, with instructors engaging with one module each month. The program adopts a blended learning approach and is designed to support the teaching of all areas of the curriculum.

In addition, a workshop on the facilitation and support of learners with particular needs was conducted. The learning outcome of this project was to develop a strong pool of instructors in the school of education and to prepare them on facilitation and support of Syrian instructors who will continue on and teach Syrian students in the refugee camps with particular needs. The ultimate purpose was to deliver a TD program that should reflect on the role of the educator as a facilitator, reflect on developing skills and knowledge in others in a changing world, consider the relationship between theories of learning and practice, examine skills required for facilitation, engage in a range of facilitated activities, explore methods of active teaching and learning, reflect on and develop participants' own facilitative skills

The workshop lasted over 2 days, it was held in Beirut campus on the 3rd and 4th of November for twenty-two SoED instructors in partnership with Lebanese Association for Scientific Research (LASER) and the Lebanese Education for Development in the Arab Program (LEADAR) through British expert Dr. Robin Attfield. During the workshops, participants were provided with handouts designed and delivered to guide the user step-by-step with hand-on-activities.

Finally, the learnt lessons were implemented. LIU in general and the SoED in particular promote multi-tiered teaching which provide a continuum of services, support, and interventions to students across Lebanon. This workshop empowered the participants with an effective overview in serving the needs of all students (including students with post-traumatic stress disorder) because of its focus on school-wide, group, and individual interventions. This workshop provided the participants with tools based on effective, research-based instruction, and assessment strategies. It also empowered the SoED instructors in identifying educational, literacy, and processing demands which pivotal roles in evaluating the curriculum at hand which will hybrid between LIU's current curriculum and the integrated one - as requested by our partners to meet their intended learning outcomes.

Most refugees have experienced extended stay in refugee camps in rural and urban areas. This affects the way they experience school and the relationship they form with teachers and peers. Pre-settlement experience of refugee children can have significant implications on their post-settlement and academic performance, psychosocial service needs, and sense of belonging in school.

When it comes to exploring the educational needs of young refugees in first asylum countries like Lebanon, there are four key aspects of educational experiences that were particularly salient.

First, limited and disrupted educational opportunities. Recent studies suggest that the enrolment rates of school-age Syrian refugee children in Lebanon are around 20%. The number of school-age Syrian children outstrips the capacity of Lebanon's entire public-school system. Even when they enrol, Syrian refugee children are more likely than their non-refugee fellow students to receive poor or failing grades or drop out from school. Refugee children often experience frequent disruptions and limited access to schooling, performing under their age-appropriate grade level.

Second, language barrier to educational access. Refugee children are also frequently exposed to multiple languages of instruction over the course of migration, resulting in language confusion and difficulties mastering academic content. In Lebanon, refugee children are taught in French or English as well as Arabic.

Third, inadequate quality of instruction. The magnitude and size of Syrian refugee children influx has stretched educational resources in Lebanon. There are huge shortages of teachers and books, and many other things. Most teachers have not been trained in dealing with the needs of traumatized children. Further exacerbating the problem, Lebanon's policy of not allowing Syrians to teach, although employing them could help provide instruction in Arabic and ease classroom overcrowding.

Fourth, discrimination in school setting/environment. Hostility towards Syrian children has been pronounced in Lebanon, in an environment of growing resentment , refugees may and in fact encounter discrimination and verbal and physical abuse in schools, which further deters parents from enrolling children and can seriously affect their cognitive, emotional and social development and increase their academic challenges.

A number of factors beyond the limited capacity of existing schools contribute to the low enrolment of refugee children in Lebanon which in October 2015 MEHE announced plans to waive tuition and book fees for Lebanese and refugee children up to grade nine in the public-school system.

Refugees are at risk from a range of mental health issues resulting from their traumatic experience. Research on refugees identifies post-traumatic stress disorder (PTSD) as the most common problem, followed by depression. Studies suggest stressors associated with Syrian refugee children such as economic hardship, language barrier, social isolation and discrimination can negatively affect their long-term development. Furthermore, many fall significantly behind in their schooling, or drop out altogether, while educators in host and resettlement countries may struggle to re-engage these students and help them bridge the gaps in their formal education.

THE SOLUTION: NEW TEACHING DIPLOMA IN MIGRANT EDUCATION

Education program provided by LIU financed a massive scale-up of support to UNRWA and LASER student-teachers to enable 1907 students to enrol in 54 majors. The study was done on the Teaching Diploma where these graduates will cascade their experiences to an additional 172,000 refugee children in school, while also providing for accelerated learning programs, non-formal and early childhood education and child protection activities. Together, these actions will target up to 587,000 school-age children and adolescents (6 to 17 years) that are currently out-of-school. As a result, LIU education

support was marginally supporting the remaining gap to achieve the long-pursued goal of the global "No Lost Generation" initiative to bring 1 million Syrian and Palestinian refugee children into education.

LIU aimed to widen and enhance access of refugees across Lebanon to primary, secondary and tertiary health care, psycho-social support, and protection from sexual and gender-based violence. It will reach and benefit at least 350,000 refugees.

PROJECT OUTCOMES

The project provided a customized training modular curriculum and instructional material of pedagogy, aligned with the UNRWA and LAZER values and principles in general, and the education program vision and reform initiatives in particular. The training included education methodology, education psychology, and seminars in compliance with the reform initiatives implemented by the education department at all UNRWA and LASER schools, such as: school-based teacher development, inclusive education, and curriculum framework, among others.

Organized and conducted simultaneous training sessions, as per the syllabus developed, for teachers in five areas where UNRWA and LASER - operates: North, Beirut, Beqaa, Saida and Tyre - within a training modality that complies with the training approach, such as, but not limited to, interactive/active learning, presentations, projects, cooperative learning, and e-learning when available.

A team of 17 instructors from Dean, Chairs, Assistant - Deans and highly qualified lecturers delivered a significant degree level of completion of activities that all campuses completed 100% of the planned activities. All the five campuses worked directly towards this objective and completed all outcomes. Some of the most effective measures taken under this objective included the dissemination of information about current education policies through training and awareness-raising sessions for teachers. All the UNRWA and LASER students now have visible copies of the course content. Associated to this has been the establishment or strengthening of internal practicum procedures to ensure cases of task-based teaching.

The researchers drew data from the population of instructors and the number of registered migrant students as subpopulations at LIU in Tyre, Saida, Beirut, Tripoli and Khyara campuses.

CONCLUSION AND FUTURE RECOMMENDATIONS

The intrinsic purpose of this study was to examine the impact of the migrant education Program in developing the capabilities of the students from Syria and Palestinian students from Syria across all other majors.

The results from observation contribute to a robust theoretical framework that informs both existing and future strategies in teaching these students. It also provides the stepping stone for further research as certain issues need to be investigated and certain questions need to be answered.

Four conclusions flow from the programme:

1. The outcome of the program to Syrian and Palestinian can be placed in the following dimension for student satisfaction results after a face to face interview by ASFARI Foundation with the students: (a) setting directions, (b) building relationships and developing the students, (c) developing the program, (d) leading the instructional program, and (e) securing accountability?" clearly showed that there is a positive impact of the education program delivered by LIU
2. The researchers conclude that the afore mentioned five dimensions of education satisfaction should have equal significance with respect to the participants of the study if quantitative analysis is done
3. The researchers conclude that school principals are practicing satisfactory levels of accountability at their majors.
4. The main area of enquiry under this project focused on the relevance and applicability of the learning theories in approach in practice. Overall, student-teachers felt that one of the main areas of value that these approaches added as compared to other education initiatives was its emphasis on their techniques in teaching and in education and its capacity to utilize strategies in teaching throughout the process. The uniqueness of the approach and its capacity to support the application of task-based approach in practice within LIU's School of Education broader program of work was also highlighted. Overall the TD project has successfully managed to increase awareness of UNRWA and LASER's student-teachers to teaching and in education.

Yet, attention should be given to the following aspects:

1. CPD programs for instructors are very significant for professional growth and development of LIU's 'management and leadership outcome practices and competencies at the administrative and technical level. So, LIU School of education department should ensure delivering and presenting those programs for their positive

outcome in delivering the commitments of this educational transformational change driven by instructors at LIU.
2. School of Education should ensure the sustainability of the impact of the migrant education in the five provinces.
3. School of Education at LIU should ensure the implementation of accountable, effective, and reliable assessment and evaluation polices for migrant education program to ensure its effectiveness and efficiency, based on tangible indicators and reliable data sources.

CHALLENGE 2: NEW GRADUATE PROGRAM IN PUBLIC AND APPLIED HEALTH SCIENCES (PAHS)

Reports show that graduates of basic and medical sciences majors tend to seek jobs in the public health sector, yet without prior formal training in this professional field. Moreover, medical professionals – MLTs, nurses, pharmacists, physicians, etc. – need to accrue Continuing Medical Education (CME) credits, be it in the form of research, professional development, or formal education, etc. However, not all of them are equipped to undertake one or more of the above tasks.

Although there are some other programs that may partially or totally serve the same purposes as stated above, these programs are very limited in terms of their admissions. Such a matter, along with the limited options that non-public-health graduates have, paused itself as a major challenge for our university, which has an ethical obligation/social responsibility to try to find some feasible solutions to its graduates. Nevertheless, any new program needs to address several aspects, interdisciplinarity, applicability, and internationalization

are just some of them, to name a few. Such an approach necessitates some solid collaboration, extensive research, and a pilot study.

THE SOLUTION: THE ATHEALTH TEMPUS PROJECT

A solution to the above channel was to design and implement – through an EU-funded Tempus project, Advance Training and Lifelong Learning in Applied Health Sciences (ATHealth) – a degree program that meets the mentioned requirements. To do so, LIU partnered with several European, Lebanese, and Arab universities in a Tempus project. The partners worked over three years in the design of the degree program via several work packages and dedicated the fourth extended year for the piloting and implementation.

The project identified several specific steps:

- Identification of the SWOT (Strengths, Weaknesses, Opportunities and Threats) of the existing training and study programs, including academic and non-academic staff skills and knowledge regarding public health and other related health care subjects;
- Introduction and modernization of the training curriculum, teaching material and exam methods;
- Training/retraining of a number of university and non-university staff, trainees and trainers (TOT);
- Establishment of a sustainable virtual health care quality training Centre (VQC) for health care sector;
- Promotion the university-industry-society partnerships by jointly establishing vocational training centres;
- Dissemination of the results.

To achieve such objectives, several work packages were developed, and work was undertaken so as to attain the targets, be it via training, equipment acquiring, or information dissemination. LIU's contributed to all aspects of the work packages, the details of which is as follows:

WP1. SWOT analysis and Staff Training. LIU team contributed to the review and analysis of the existing educational situation related to healthcare programs in general, and continuing education in particular. It helped in the identification of SWOT factors relevant to the study at hand and participated in the initial (Sweden) and subsequent (Lebanon) training sessions held to finalize the findings of the SWOT analysis.

WP2. Developing & modernizing professional training/study program and training centres. LIU team contributed to the redesign of some existing courses (Medical Informatics, Health Education and Promotion, Infection Control, Health Psychology, Introduction to Medical Laboratory Techniques, and Research Methodology), and commented on the content/structure of some other newly introduces courses. The team underwent training on ongoing development of modern and effective teaching methods and material. It also contributed to the delivery of the first draft of the master syllabus, and its approval by the Faculty Curriculum Committee, and made sure it was sent to the University Council for final approval.

WP3. Quality control and assurance, and monitoring of the project. LIU helped creating the Quality Steering Team (QST), composed of The Project coordinator (LNU), EU partners' coordinators, and the local Lebanese partners' coordinators, through the active participation of LIU Project coordinator in the team. The University performed its own internal quality monitoring, control, and assurance through standardized protocols of questionnaires, KPI's, and routine checks.

WP4. Dissemination and sustainability. LIU team worked on the dissemination of information about the project to potential users (information meetings, brochures to potential users, emails). The team lead the work on the project web site, Facebook page, and Twitter account. It also produced the monthly Project Bulletin, both in electronic and print formats.

WP5. Project management. LIU team actively participated in setting up the Management Committee, and in conducting the various management activities. The team dynamically joined in building management and quality control committees (the University project coordinator/manager). It vigorously contributed to the project coordination, administration & planning. This was evident in:

a. The participation of LIU in the different financial management meetings and reports (mechanism for payment of the staff cost and travel costs, etc.)
b. The gathering of all supporting documents that are required in order to proceed with payments.
c. The active communication through emails, telephones, skype.
d. The updates of the project activities and regulations that can be found on the project website.

THE RESULTS: GRADUATE PROGRAM IN PUBLIC AND APPLIED HEALTH SCIENCES (PAHS)

The global outcome of the above Tempus project was the creation of a Master of Science (M.S.) degree in Public & Applied Health Sciences (PAHS). The program is a 2-year, 36-credit program. The first three semesters involve traditional coursework in the areas of health education and health promotion, quality management of health systems, management and evaluation of health services, health policy and environmental health and statistical methods and deign of research. The last semester is dedicated to implementing a community-based research project in civil society associations or public or private health care institution and the presentation of the Master's thesis. The thesis project rounds out the program by providing opportunities to apply many of the skills learned in theory to the real world of epidemiology and applied health sciences.

The program is made up of 36 credits with 24 credits as major and core course, a choice of 6 credits of elective courses and a 6-credit thesis. Each year of the program is structurally independent for the other, and the student may elect at the end of the first year to write a 3-credit graduate diploma project; else, upon the completion of the two-year coursework, the student is supposed to write a 6-credit thesis.

Pilot runs of the diploma and master programs took place at LIU and another Lebanese partner university. Moreover, mobility of students and staff to study and train at different EU partner universities for at least one semester is encouraged, where up to 5 students from each partner university studied abroad some topics of the program.

The outcomes of the project were benchmarked against similar programs, and the stakeholders – students, staff, and employers – were surveyed in terms of their satisfaction. The data was collected via questionnaires distributed among to the participants in meetings, trainings, and classes, to measure the technical and the functional qualities of the project activities during the activities, and the perceived satisfaction of the participants.

CONCLUSION AND RECOMMENDATIONS

The experience was new to the LIU team. The results of all the quality checks and satisfaction surveys proved to be very positive. The idea of the program is well designed and implemented. Although we did not have enough time to recruit international students to come over to LIU, the fact that our own students were able – through the very same

program – to go and get ICM transferred to their curriculum is a positive result per se.

We will continue implementing this program and capitalize on the experience to project this success story onto other students' needs, be it in terms of degree programs, professional diplomas, or, continuous professional development modules.

THE EVOLUTION OF A SUSTAINABLE DEVELOPMENT-FOCUSED CURRICULUM AT HELIOPOLIS UNIVERSITY

Mohamed Yousri Hashem and Omar H. Eldahan*

BACKGROUND INFORMATION ON THE INSTITUTION

Heliopolis University for Sustainable Development (HUSD) was established as the culmination of the activities of a holistic enterprise known as SEKEM. SEKEM comprises different institutions, NGOs, companies, and other institutions making up various elements and pillars of this holistic organization. SEKEM's companies include Isis for Organic Food Industries (organic food, tea, etc.), Atos (phyto-pharmaceuticals), Libra (organic cultivation), Naturetex (organic textiles and cotton) among others, while its list of NGOs includes the Egyptian Bio-Dynamic Associate, the SEKEM Development Foundation, and the SEKEM Schools; these are only some of the most notable organizations, with many more thriving under the SEKEM umbrella.

Heliopolis University for Sustainable Development, the newest member of the SEKEM group, is an innovative institution focusing on addressing the traditional fields of study, while infusing elements of sustainable development, arts, and a new philosophical perspective into each field. This is reflected in its vision: "Heliopolis University is a pioneer scientific institution that strives for the sustainable development of individual consciousness, economic solidarity, social justice, and environmental balance in Egypt and the world".

The university currently serves over 1350 students and comprises 3 faculties: Faculty of Business & Economics, Faculty of Engineering, Faculty of Pharmacy & Drug Technology. Two new faculties are currently under establishment: Faculty of Physical Therapy and Faculty of Organic Agriculture. In each of these faculties, faculty members and researchers focus their approaches to both teaching and research towards sustainable development addressing the SDGs, as well as local

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issues related to SD. During its short history (the university officially began operations in 2012) HUSD has made significant contributions to various sustainable development (SD) and Education for Sustainable Development (ESD) related initiatives both nationally and internationally including EduCamp (introducing ESD to Egyptian schools), TriNex (Water-Energy-Food Nexus), and MEEHU (natural medicines and amino acids for reducing bacterial resistance to antibiotics).

THE CHALLENGE

The main challenge facing HUSD stems from the very nature of the institution and its ambition of integrating ESD into the very heart of its curricula and courses. The challenges of this approach are many: 1) lack of qualified university faculty members that can apply ESD techniques in courses, 2) unwillingness of governmental entities and regulators to accept fundamental shifts in teaching content and methods, 3) resistance by faculty members to radically change their own teaching content, 4) resistance by students to learning content that they do not see as directly relevant to their own filed of specialization, among others.

A few years after the establishment of the university, it became very clear that the way forward would not be as straightforward as assumed. The focus soon changed from the question of how to design the best curricula to achieve the university's vision to the question of how to design a curriculum that could be accepted and implemented in Egypt without straying too far from its original vision.

For example, the curriculum for the Faculty of Business & Economics was updated in October of 2014 in order to reflect the needs of the faculty, the challenges that it faced, and to make the overall structure more consistent with the university. After updating the curricula, the committee which was selected by the Supreme Council of Universities to review and approve it, removed many of the courses updated to integrate the concepts of sustainability and sustainable development (e.g. integral economics, living economics, integral management, etc.). The vast majority of these course, essential to the vision of the university and faculty, were stripped from the curriculum. The resulting curriculum ended up with a distribution of courses as seen in Figure 1.

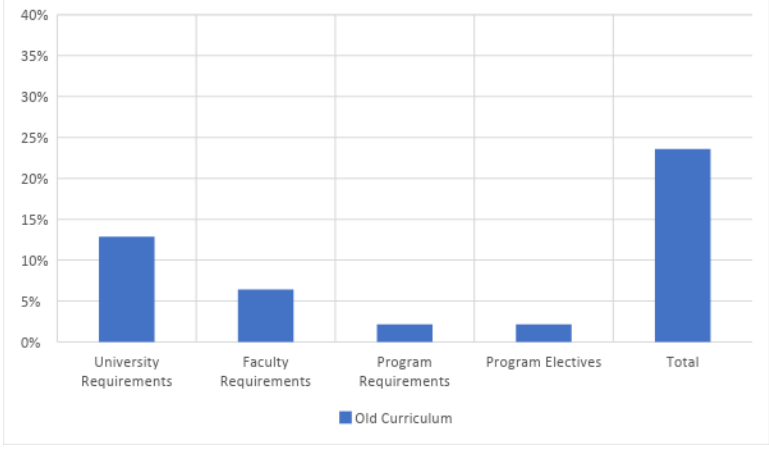

Figure 1: Credit hour distribution of SD-related courses in the old curricula (%)

THE SOLUTION

The first attempts at developing state-of-the-art curricula took place before the university was even established. Several different approaches were taken to navigating the complexities of modern education systems and tightly integrating ESD concepts and courses within. Projects, such as the EU-TEMPUS funded JIM2L & DOPSE Projects were initiated for exactly this reason. However, the curricula that was finally accepted by the Egyptian Supreme Council of Universities looked very different from the original curricula developed and are far more traditional in nature.

In order to update the curriculum a few years into its implementation, a series of interviews, discussions, and workshops were held

in order to identify both the key problems and the most appropriate methods for rectifying the situation. The major comments regarding the curricula were as follows:

- The number of academic programs were too many considering the number of students/faculty members;
- Students do not gain a satisfactory breadth of knowledge of business & economics;
- Economics courses are not represented in sufficient weight in the faculty requirements;
- And courses do not sufficiently and explicitly address the major themes and concepts of sustainable development.

However, the most significant change was not in the total number of courses addressing SD, but rather the method of integrating SD concepts. Rather than developing entirely new courses that were unfamiliar to local teaching staff members and governmental institutions, the curricula was developed in a way that is more grounded in the traditional concepts which are also more widely known. Thus, virtually all of the SD-related courses are transformations and adaptations of traditional courses. This way, both the names and the content can be easier for local academics to understand and to begin to adapt their educational content, techniques, and material in the direction of sustainable development. Examples of such courses and their transformation can be seen in Table 1.

Traditional Course	New Course	Change in content
Business Ethics	CSR & Sustainability	Focuses on the role of the company in society and how corporations and enterprises can play an essential role in the sustainable development of their surrounding society & community.
Cost Accounting	True Cost Accounting	Focuses on methods of accounting for externalities of environmental, cultural, & social costs of different activities to find the "true" cost of a product or initiative.
Entrepreneurship	Social Entrepreneurship & Innovation Management	Focuses on entrepreneurial activities that have a positive added value on the community, emphasizing companies that improve people's lives and solve real challenges in the community.

Human Resource Management	HRM & Development	Focuses on the employee not just as a resource to be managed, but as a human being that should be engaged in a holistic manner. The course will focus on understanding the employees as key stakeholders in the company with value to contribute, stories to tell, and lives to be lived.

Table 1: Examples of courses transformed and reoriented to address SD concepts

RESULTS

After the restructuring of the Faculty of Business & Economics curriculum, the major issues of the stakeholders were addressed. The number of academic programs were reduced to two (Business Administration & Economics) which also encouraged more interdisciplinarity. Furthermore, the total number of courses explicitly addressing SD increased significantly (see: Figure 2).

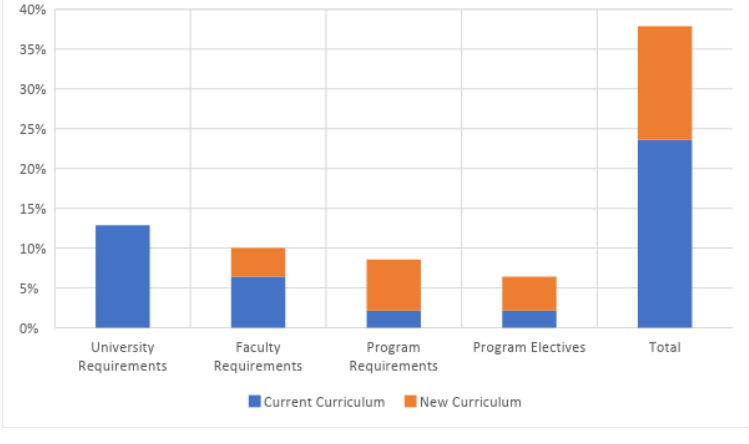

Figure 2: Comparison of credit hour distribution of SD-related courses in the curricula (%)

As it can be seen in Figure 2, significant improvements were seen regarding the total percentage of credit hours of SD-related courses. For example, the total percentage of credit hours from SD-related courses increased from 6% to 10% in the faculty requirements, from

2% to 8% in the program requirements, and from 2% to 6% in the program electives. Thus, the overall integration of SD courses saw significant increases with the total number increasing by 14 percentage points from 24% to 38% of the total required credit hours. This is despite the fact that no increase in SD-related courses was seen within the university requirements.

The immediate benefit of such a change becomes apparent in the variety of the content that students are exposed to. Students are now exposed to a wider range of topics and disciplines, and will be given a stronger, more comprehensive, and more interdisciplinary understanding of SD within the context of business administration & economics.

Other information will still be gathered after students have had a time to experience the curricula and provide useful feedback on their experiences with the new curricula. As this new curriculum will still be implemented during the current academic year, there is no clear data on student benefits, change in student satisfaction and other aspects. However, this will be at the focus of the Faculty moving forward.

CONCLUSION AND RECOMMENDATIONS

The main lessons learned from this experience is the difficulty of getting a buy-in from external evaluators and governmental entities on such a new and radical concept as an SD & ESD centred curricula. However, through the clever use of familiar lexicon and through

developing the curricula using the input and feedback of such entities in a way that reduces their overall dissonance and distrust of the unknow, new innovations in curricula can be established and approved.

The future activities of the University will mainly be focusing on studying the impact of the new curricula on the students, studying the overall benefit of the curriculum, how to replicate the approach in the different faculties and so on.

The main recommendations would be applied to the new faculties that are being established, as well as to the upcoming reforms in the curricula of the Faculty of Engineering, and the Faculty of Pharmacy and Drug Technology. These recommendations and considerations are as follows:

- Creating strong connections between SD-related courses and traditional courses taught in Public HEIs is critical for achieving program validation;
- Reorienting traditional courses to address SD is a valid (and sometimes the only) approach for integrating such concepts;
- SD is an interdisciplinary field, and so relies more on generalists with knowledge and skills in-breadth, rather than in-depth, which should be reflected in the curriculum.

Finally, it is essential to consider that, when following the principles of SD, the process of development is never complete. The curricula will be revisited time and time again based on further studies in order to continuously move closer towards the vision of the university. This is but the first step in a very long road ahead.

MASTER PROGRAMME IN MANAGEMENT ENGINEERING AND INTEGRATED LOGISTICS AT THE UNIVERSITY OF TRIESTE AND HOCHSHULE OSTWESTFALEN-LIPPE

Dario Pozzetto and Agata Mannino*

THE CHALLENGE

The relationship between the University of Trieste (UNITS) and the University of Applied Sciences-Lippe (Hochshule OstWestfalen-Lippe, HS-OWL), based in Lemgo in Germany, dates back to 2008, when an intensive course was promoted and conducted in Pordenone by the German side. It was a one week English language course (50 hours) on "Stationarity Wood Machining", and it was immediately welcomed by the President of the three-years degree course in "Engineering management and integrated logistics", prof. D. Pozzetto. The following year, with the participation of Prof. M. Nicolich, a Summer School was organized in Lemgo, to which 25 other students from Trieste were admitted alongside the same number of European students.

The *Kreis* of Lippe is characterized by an important industrial presence for the production of furniture very similar to the *Livenza furniture* district with which the two universities operate, both with specific courses in their study plans. Based on these experiences, the idea arose to integrate the activities in a Degree Course in English language profitable for students and industries, which could give to new Management Engineers an international imprint and homogenization of the university preparation.

Teachers of the two universities started working on the project. Between 2010 and 2011, they met several times with representatives

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of the top management of the companies of the two areas, as well as with Industrial and Services Associations, in order to find a solution with European significance, such as the Double Degree: the Italian title issued by UNITS plus the German title issued by HS-OWL.

In the respective Faculties and Administrations, the initiative was welcomed. The collaboration for the success of the proposal was great, both on academic and administrative level.

At the same time, the promoting teachers discussed the drafting of the study plans, their contents and the structure to be given to the university course, in compliance with the rules indicated by the European Union: Bologna Process and Dublin Descriptors. The long planning work led in 2011 to the signing of Didactic and Executive Agreements, and to the activation of the Double Degree Master Programme in the academic year 2011-2012.

THE SOLUTION

Thanks to this work, the former Master's Degree Programme in *Management Engineering and Integrated Logistics*, coordinated by prof. M. Nicolich and active in Pordenone (where a campus of the University of Trieste is located), changed to the International Double Degree Programme in *Production Engineering and Management*.

The Degree programme takes its basic contents from the former programme and integrates them with the know-how of the wood-furniture industry sector. This international programme offers, even more than the previous one, a greater satisfaction of the specific needs of those who hold managerial positions in medium-sized companies in both regions, OstWestfalen-Lippe and Friuli-Venezia Giulia.

The study course has been built by distributing the Study Plan for 120 ECTS (European Credit Transfer System) between the two Universities in the following way:

- 1st Semester: students attend lectures at their own University, 28 ECTS;
- 2nd Semester: HS-OWL students come to Pordenone (Italy), to attend classes together with the UNITS students, 30 ECTS;
- 3rd Semester: UNITS students go to Lemgo (Germany) to attend classes together with the HS-OWL students, 30 ECTS;
- 4th Semester: at the university of origin, lectures for 8 ECTS, Internship for 6 ECTS and thesis work for 18 ECTS.

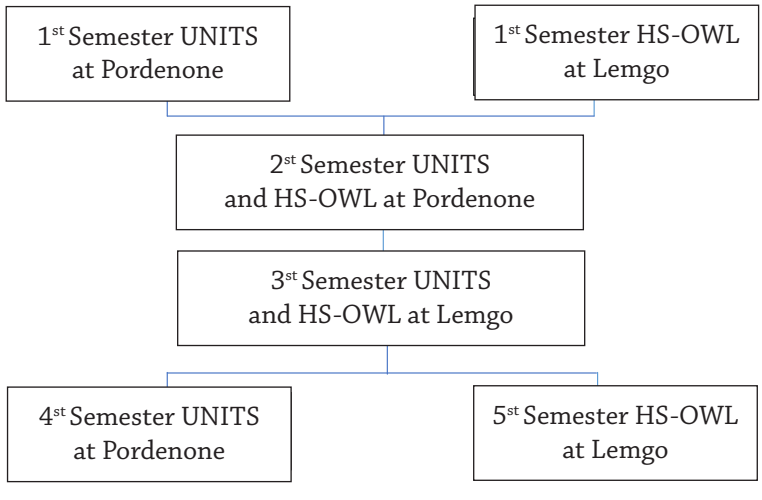

Figure 1: Design of the programme

The UNITS had at the time already structured courses in English at local and inter-university level with teaching collaborations with European universities (Regensburg). The Double Degree had not yet been considered and the Trieste Administration faced the problem with enthusiasm, defining in detail all the procedures together with the colleagues of Lemgo. Compliance with the European rules for university education was fundamental.

The first students to be involved immediately realized the great opportunity, but they raised the problem of the language. Previously, only marginal attention had been paid to English. From that time onward, it was therefore decided to provide English conversation seminars with a native speaker.

The enrolment of students is based on a defined number of places (20) for each University, with an admission test based on the evaluation of the previous curriculum (Bachelor's Degree) and of an English proficiency (B2 level). With these requisites and with the level of services offered by the two universities, the courses finally begun in the academic year 2011-2012.

THE RESULTS

Even though there is no Bachelor degree course directly connected to the Double-Degree Master course, and this initially affected the number of applications, this gap has gradually been recovered in the following years by attracting students with Bachelor degree courses from all over the Region and from other Italian universities. In addition, one of the many results was that teaching in English has also attracted international students.

The surrounding industrial labour market, which already was in close contact with the professors teaching in Pordenone, highly appreciated the new professional profile of the Management Engineer. They pointed out that, besides the English fluency, the engineers had also achieved confidence with extra-national environments in approaching industrial activities.

Other immediate benefits were and are the job opportunities given to students closely after graduation, also thanks to the acquired English proficiency and to the technological innovation competences gained during their studies. Moreover, networking with another European university, and the opportunity to interact and study together in the same environment with students of many different countries has been the best way to promote cultural integration.

The employment of graduates is well above 90% after one year from graduation, and still the market demand is not satisfied. The companies in which the graduates find employment, are international and often constitute large industrial groups, e.g., Accenture, Amadeus Group (Spain), Danieli Engineering, Electrolux Professional, General Electric Healthcare, Luxottica, Management Solution (Spain), Maschio Gaspardo, Pittini, Safilo, Snaidero SpA and Taraftan (Turkey). Mainly the offered job positions are: Commercial Executive, Industrial Engineer, Product Engineer, Production Engineer, Production Planner, Project Manager and Responsible for Technology Innovation.

The orientation, originally set towards the furniture production, was not particularly attractive for students, who preferred the production management sector. For this reason, the two partner universities changed the study plan, offering two paths: one concentrating on furniture production and the other one on industrial manufacturing management, giving emphasis to the development of some Industry 4.0-enabling technologies. In fact, the HS-OWL Campus offers the opportunity to make use of the second *Smart Factory* laboratory in Germany, set up in 2016 in collaboration with the Fraunhofer Institute for Industrial Automation.

CONCLUSION AND RECOMMENDATIONS

Designing and launching a successful double-degree programme in English has been challenging, constructive, satisfying and most of all, it has brought its major results in the great job opportunities offered to graduated students. Moreover, the programme enables interaction of both professors and industrial actors by stimulating discussion, exchange of ideas and practices that result in a continuous quality improvement of the programme.

INTERNATIONALIZATION AT GALILEE INSTITUTE

Yossie Shevel*

International Higher Education opens minds, enabling people to go beyond building connections, to exchange ideas and greater understanding between cultures. In the 21st century, universities and higher education institutes that do not develop international programmes will be unable to compete in the present and future higher education markets.

Internationalization of higher education today includes the internationalization of curriculum, the internationalization of research, offering dual degrees with foreign partners, involvement of international alumni, creation of international quality assurance frameworks and increased competition for international students. It has significance for the sustainability of higher education at national level and subsequently the contribution that higher education makes to the development of a nation, its people, and its ability to compete in a global market. It is integral to economic well-being, driven and enabled by liberalization of the international trade (General Agreement of Trade in Services – GATS).

"Internationalization is the intentional process of integrating an international, intercultural or global dimension into the purpose, functions and delivery of post-secondary education, in order to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to society." (De Wit et al., 2015).

In recent years, higher education has become more international. Governments emphasize internationalization of higher education through international co-operation and exchange. Institutions and universities develop their own strategies to internationalize their researches and their teaching.

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The 17 Sustainable Development Goals[1] (SDGs) outlined in the 2030 UN Agenda offer an opportunity for the global higher education community to evaluate how universities contribute. Despite some criticisms about scope (too wide) and funding (not enough), the 17 Sustainable Development Goals provide a globally agreed-upon vision for the future. Though only one of the goals is focused directly on education (SDG #4 aims for inclusive and quality education for all and though it is focused on primary and secondary levels, it mentions the tertiary level of education among its targets), the various SDGs require support of higher education institutions and professionals. From the elimination of poverty (SDG #1) and hunger (#2), through the development of sustainable cities (#11), and on to prevailing peace and justice (#16), all of these goals require well-educated and thoughtful public citizens.

There is a tendency at the UN, the World Bank and other global institutions to focus on macro trends. They emphasise that educational attainment is rising around the world. Yet such high-level narratives neglect the massive gaps and (more) visible inequalities both among and within nations. They focus on the overall number of highly educated people in the world yet ignore that these gains are primarily concentrated among the economically well-to do.

1 17 Sustainable Development Goals: http://www.un.org/sustainabledevelopment/sustainable-development-goals/

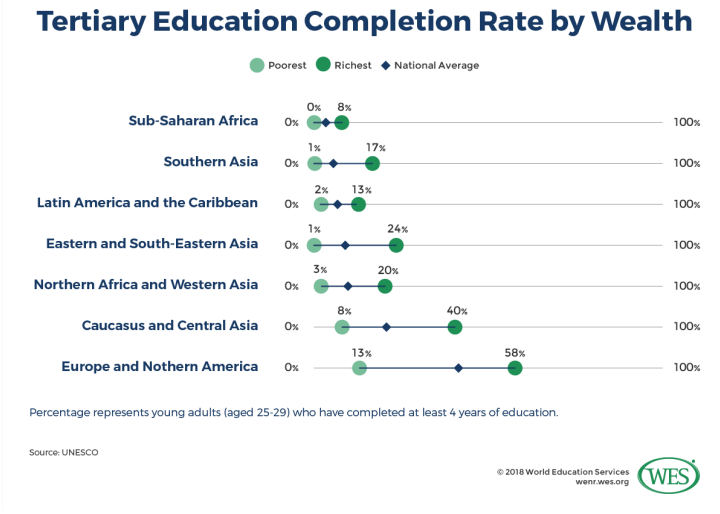

Figure 1: Tertiary education completion rate by wealth of regions; Source: UNESCO, World Education Services

GALILEE INSTITUTE, ISRAEL – INTERNATIONAL PERSPECTIVES

Galilee International Management Institute, located in Israel, develops advanced capacity-building courses for professional personnel from all over the world. Since its establishment in 1987, the institute received a global reputation as a leading institute.

The institute was founded on the belief that all countries can advance their economies by investing in the human element - in the knowledge - as well as the innovative, daring thinking of the people working in each sector of society. This belief has been strengthened as we witnessed the rapid economic and infrastructural development of Israel in less than seventy years since its establishment, despite the lack of natural resources. Social emphasis on education and initiative has proven to be a powerful engine of progress.

More than 20,000 senior managers, administrators and planners, from over 170 countries, have graduated from the various programmes of the Institute.

EXAMPLES OF ACADEMIC PROGRAMMES JOINTLY WITH EU UNIVERSITIES

Roskilde University, Denmark – Joint MA programme in Health Systems Management. This programme was designed for senior health officials from the Developing World mainly from African and Asian countries. Studies lasted for 12 intensive months and were held at both locations, at the Institute in Israel and at Roskilde University in Denmark. At the end of the programme, participants received their MA degrees from the Danish university.

New University, Faculty of Government and European Studies, Slovenia – Joint PhD in International and Diplomatic Relations. This programme was designed for senior political and economic leaders in the Developing World, mainly from African and Asian countries. The programme lasts for 3 years and is held at both locations, at the Institute in Israel and at the University in Slovenia.

Paris School of Business, France - Executive DBA. This Joint Executive DBA programme is made up of a unique partnership, representing different geographical and cultural backgrounds. The programme is designed to enable working professionals to remain in their managerial positions while undertaking their periods of study and will provide the necessary tools to contribute to production and dissemination of the applied science in the areas of management and business administration. The joint Executive DBA is a full-fledged degree, but contrary to the Ph.D. the focus is on professional experience.

Cooperation with Palestinian Organizations - In an effort to live up to the values of regional cooperation, the Institute partners with Palestinian organisations to deliver capacity building programmes that advance development in the Palestinian territories. The view of the Institute is that this pro-active investment in regional cooperation is a key in the path to peace. In line with this mission, the Institute is devoted to participating in the projects of local organisations that promote Israeli-Palestinian endeavours towards co-existence and well-being for all in the Middle East region.

CONCLUSION

Galilee Institute's policy and international strategy is based on the new trends of higher education. Education in general, and higher education in particular, is becoming more and more international and the number of students studying abroad is increasing steadily. Several governments have already realised this potential and have been encouraging their universities to attract foreign students. The UK is the fastest growing destination, with half a million foreign students.

We forecast that this trend will continue, therefore Galilee Institute has been developing tri-lateral training and academic programmes. For example, the new MA in Educational Management and Leadership of Ghana will be held at 3 locations: the university in Ghana, Galilee Institute and the European Institute of Educational Leadership. As the Asian student market is also growing steadily, we believe that

EMUNI and its members should develop training and academic programmes for Chinese, Korean and other Asian markets that are looking for advanced, attractive educational programmes. Galilee Institute has already signed an important agreement with the Government of China and during 2017, 350 senior Chinese students and officials went through the Galilee's various programmes, especially focusing on innovation.

REFERENCE

De Wit, H., Hunter, F., Howard, L., & Egron-Polak, E. (2015). Internationalisation of Higher Education. Brussels: Policy Department, Directorate General for Internal Policies, European Parliament.

GROWTH THROUGH INTERNATIONALISATION AT THE UNIVERSITY OF LISBON

Ana Maduro and António Serra*

THE UNIVERSITY OF LISBON AT A GLANCE

The University of Lisbon (ULisboa) is a comprehensive university, organized in 18 Schools and 82 research centres. ULisboa brings together nearly all areas of knowledge. With about 50000 full time students, 3400 faculty and 2000 non-academic staff members, it is the largest and most prestigious university in Portugal. About seven thousand international students, from more than one hundred countries, study at our university, creating a multicultural learning environment. We offer 81 bachelor's degrees, 241 master's programmes, 21 integrated master's degrees and 123 PhD programmes. Every year, around 7500 new students enrol as undergraduates in the University of Lisbon, while 3800 students attend doctoral programmes. The budget of the University reaches 400 million euros per year, half of it from competitive funding sources, the other half from the Portuguese state budget.

Besides the Central Services and its 18 Schools, the University includes the University Stadium of Lisbon, with its 40 hectares of green

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areas and sports fields, located in our main campus in central Lisbon, as well as its Social Services, providing students the support they need, promoting equal opportunities in access and enabling sustained levels of attendance to the University. The University of Lisbon comprises also the National Museum of Natural History and Science, three Botanical Gardens and the Astronomical Observatory of Lisbon, all important tools for our mission of promoting public understanding of nature and science.

THE CHALLENGE OF BUILDING A REFERENCE UNIVERSITY IN THE INTERNATIONAL ARENA

When the University of Lisbon was formally created in July 2013, as the result of the merger of the Classical University of Lisbon with the Technical University of Lisbon, the two largest and oldest public universities in the Portuguese capital, one of the main goals of the merger was to build a reference institution in the international arena. The challenge was to create a worthy global competitor university, based on the values of freedom and autonomy, producing high-level research as well as offering top quality education to its students.

To achieve such purposes, it is crucial to recruit the best faculty, the best researchers, the best administrative staff and, of course, the best students. On the other hand, to succeed in recruiting top researchers, students and staff, whether they come from home or abroad, it is necessary to increase the international prestige of the university and make its position rise in all of the better-known international rankings. For these reasons, internationalization is a key factor for the University of Lisbon strategy.

THE STRATEGY

To build a reference university it is crucial to promote world-class research as a pre-condition for leading education. It is also necessary to create a vibrant environment in the campus, capable of attracting the best students, professors and researchers from all over the world. We therefore decided, in order to increase the quality of research, that our top priorities were to invest in renewed infrastructures, to hire new young researchers, and to recruit more and better doctoral students. Furthermore, we decided to increase the dissemination of our work, and the promotion of our degree programmes abroad, in order to attract more students from all over the world.

The financial resources generated by the two universities' merger, allowed us not only to start an ambitious program aimed at recruiting every year 150 new professors and an equal number of administrative staff, but also to create a one million euro grant programme to attract PhD students and to invest in renewed infrastructures for research and teaching. With these policies we intend to significantly increase the scientific output of the university.

But we feel this is not enough. In order to have an impact in our international rank, all our scientific output must be correctly indexed in the relevant international scientific data bases, upon which the international rankings of the universities are based.

Attracting younger professors affords our scientific output global impact, but it also increases our competitive budget coming from scientific research programmes and joint projects with the industry. In a typical positive feedback process, additional resources available for the scientific infrastructure, attract the best researchers and the best students, thus increasing our position in international rankings.

In order to attract more international students, the University has also decided to reinforce its participation in the Erasmus Programme, to increase the promotion of learning programmes abroad and to start an ambitious programme for the construction of new student residences.

We consider the Erasmus programme one of the most successful initiatives of the European Union. The University of Lisbon is highly committed to this program, having received more than 3300 Erasmus students from abroad in 2018. Considering the benefits of this program, we encourage our students to experience at least one semester in another country. In order to achieve this goal, the university offers grants to all outgoing students, even if the budget provided by the EU is not enough to support all candidates.

The participation of ULisboa in international university networks and in international reception days of our European partners, along with the visibility of the University in international rankings, have shown to be important tools to increase the number of incoming students.

Beyond the attraction of the European students, the University of Lisbon seeks to attract a significant number of students from all over the world, in particular from all Portuguese speaking countries. There are more than 200 million people speaking Portuguese in all five continents. It is therefore not surprising, that most of the students from such countries feel very much at home in Lisbon.

This easy conviviality notwithstanding, only 2.900 students coming from Portuguese speaking countries were enrolled in the University of

Lisbon in 2013. This was a result of the legal constraint that only students who had finished high school in Portugal, were deemed to have fulfilled the requirements to enrol in a bachelor degree in Portuguese public universities. The situation only changed in 2014, when the Portuguese Government enacted a new, more hospitable law, which allowed us to start a program to increase the number of international students. In 2015 we started a regular road show in countries with which we share a common language and culture to attract students.

THE RESULTS

Four years have elapsed since the University started the initiatives we described in the previous section. We can already see the results achieved.

In what concerns the policies to support research, the best measure of the outcome is the evolution of the position of the University in the international rankings, especially in those who are very sensitive to research output as the Shanghai Ranking.

Year	Shanghai ranking
2013 Technical University of Lisbon	301-400
2013 Classical University of Lisbon	401-500
2014 University of Lisbon	201-300
2015 University of Lisbon	201-300
2016 University of Lisbon	151-200
2017 University of Lisbon	151-200

Table 1: Rank of the University of Lisbon in the Academic Ranking of World Universities

Table 1 shows the results of the University of Lisbon in the Academic Ranking of World Universities (ARWU) from 2012 until 2017.

As the table makes clear, before the merger in 2013, the Classical University of Lisbon was placed in the interval 301-400, while the Technical University of Lisbon was placed in 401-500. In 2014 and 2015 the University of Lisbon which resulted from the merger of the two entered the range 201-300. After 2016, ULisboa is placed between 151 and 200. This seems to us a major result for the University, as it corresponds to position 61 of all ranked European universities.

Aside from the Shanghai ranking, ULisboa is the first Portuguese university in all the main international rankings (SCIMAGO, NTU, CWUR, URAP, CWTS Leiden), and it ranks 2nd among all ibero-american universities in Scimago and ARWU, and 31st is Europe in CWTS Leiden.

The number of Erasmus students has increased from 1300, in 2013, to 3300 students, in 2018. The growth of international students has been from 2900 to 3700 in only 2 years, after the previously described change in the Portuguese law and the start of the regular road shows in Portuguese speaking countries.

New infrastructures were either built or significantly rebuilt, both for education and research purposes, ranging from student residences and facilities to a new business incubator centre.

CONCLUSION

Four years ago, after the merger of the universities in Lisbon, we started an ambitious programme to build a world-class institution by attracting and fostering talent and creating a global and vibrant environment for those who work and study with us. Internationalisation thus became a strategic objective.

We had a 27% increase in regular international students' enrolment over a period of 2 years. We expect to double the number of international students in the next 4 years. The number of Erasmus students increased 250% in four years. The position of the University in the Shanghai ranking has risen from the interval 301-400 to that of 151-200 in 5 years. We expect to be ranked 101-150 within four years.

In conclusion, we feel confident that the results of the several actions we have detailed clearly show how successful we have been in attaining a steep increase both in the number of international students at the University of Lisbon and in the position of the University in all the main international rankings.

EMPOWERING UNIVERSITY OF UDINE THROUGH INTERNATIONALISATION

Claudio Cressati*

BACKGROUND INFORMATION ON THE INSTITUTION

The University of Udine was founded in 1978 as part of the reconstruction plan of Friuli after the earthquake of 1976. Its creation was the result of a broad popular mobilization. Its aim was to provide the Friulian community with an independent centre for advanced training in cultural and scientific studies, and it rapidly established a national and international reputation as one of the most innovative and complete medium-sized Italian universities. It offers a wide range of teaching programmes in various fields (Agriculture, Communication and Multimedia, Economics, Engineering, Humanities, Law, Mathematics and Computer Science, Medicine, Modern Languages), at BA, MA and PhD levels, in tune with the changes in society and with the development of new professions. About 15.500 students are enrolled[1].

Udine and its University are a point of reference in a region which is historically a meeting place of different worlds and cultures. Geographically situated in the centre of the European Union, at the crossroads of Latin, Germanic and Slavic languages, between the Alps and the Mediterranean, the University of Udine plays an active role in a close network of relations, and it is committed to sharing its knowledge and ideas.

Since its establishment, the University has pursued a policy of internationalisation, aimed at preparing students and forging relations and partnerships with foreign universities and institutions. It collaborates not only within Europe but across the globe and has long-standing connections with North Africa, the Middle East, India and China. Participation in EMUNI, the Euro-Mediterranean University based in

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1 For relevant statistics see: http://nuva.uniud.it/scon/ateneo-in-cifre/informazioni-generali

Piran, was in this light the finalization of a policy undertaken from the very beginning.

THE CHALLENGE

The challenge that the University of Udine has had to confront since the start of its activities was to affirm its peculiarity within a context, like the Italian one, which was characterized by many historically renown universities, having lots of courses offered as well as students enrolled. At the same time the University of Udine had to overcome its peripheral connotation, with regards to the Italian national frame, and to become a relevant centre able to foster development and growth within the Friulian region, a territory which has been marked for a long time by marginalization and brain drain. It was hence necessary to convert the weak points in advantages.

Historically speaking, Friuli was a land of emigration: people used to leave it in order to look for jobs that they could not find in their homeland. The preferred destinations were other European countries, yet Friulians also used to reach non-European countries with the aim of finding better living conditions. The consequence of this moving process was that several economic, social and cultural relationships have been put in place with many peoples that were different on the basis of geography and culture, thus leading to the development of new ideas. The University of Udine has therefore tried to develop exchanges with other countries, both European and non-European, and particularly with other universities. The highlight of this process was represented by the start of the Erasmus Programme. To this respect, it is worth mentioning that the "father" of this programme was Domenico Lenarduzzi, a Friulian who used to be a high official within the European Commission. As a tribute to his fundamental role, the University of Udine awarded him the *Laurea honoris causa* in Education Science in 2004[2].

THE SOLUTION

To define a clear strategy for the whole University is the solution put in practice in order to foster an even stronger internationalisation. This strategy is coordinated by the Delegate for Internationalisation,

2 See: https://www.youtube.com/watch?v=Gb7Ph-uVack

nominated by the Rector. Actions and programmes are implemented by the International Relations Office (IRO) with the assistance of a specific Mobility Committee established to promote and coordinate students and staff mobility and the development of double, multiple and joint degrees. The Committee is supported by geographical area managers. Each of them has been nominated for the deep knowledge and expertise on specific geographical areas. The main focuses are Australia, North and Sub-Saharan Africa, the Middle East, Russia, India, China and South-East Asia, USA/Canada, and South America.

To maximize the efficiency of this strategy, each Department creates a specific approach to reach the targets defined by the whole University. This gives the Departments the possibility to choose partners that best complement their *curricula* in terms of quality of teaching, services (libraries, laboratories, contact with local companies, etc.) and opportunities for students and staff. This "federative" approach develops the best practices in the different fields and spread them among all Departments.

Up to now, exchange agreements have mostly been signed with partners operating within the EU (Northern Europe, Germany, Spain and France in particular). However, in the past few years also non-EU countries have become target destinations, in particular China, Australia, India, Thailand, South America and Russia, thanks to the financing of mobility grants offered by local authorities and institutions.

Referring to first and second cycle students, the University of Udine has created a Job Placement Service in order to stimulate students' abilities, competences and knowledge and qualify their

capacities. The aim is to create a professional, personal and academic added value through the development of an educational culture based on direct experience and know-how exchange. As for the third cycle, research is the main goal. PhD students are encouraged to spend at least 6 months abroad (both at EU and non-EU destinations): in this case they receive extra funding by the University.

Concerning the mobility of incoming students, the approach is to accept exchange requests from institutions of any EU and non-EU country as the University aims to offer an international experience also to those students who decide not to join an Erasmus exchange. Moreover, the University of Udine has built specific collaborations with neighbouring universities in Austria and Slovenia so to increase the overall attractiveness of the Alpine-Adriatic area.

The University of Udine is now able to offer a complete semester in English language for 17 *curricula*. In some of these cases, the entire *curriculum* is taught in English. This increases the number of incoming students in mobility programs and represents an opportunity for Italian students as well. Double, multiple and joint degrees have been strongly promoted, too: they are now 13, covering almost all subject areas.

To reach these goals the University of Udine implemented already 20 years ago some flagship initiatives, in order to foster the internationalisation process of the whole university. One of the first and most relevant was the Euroculture project, established (together with the Universities of Deusto, Göttingen, Groningen and Uppsala) in 1996 and implemented since 1998, i.e. even before the Bologna Process was put in place. The main aim of the Euroculture project was to build a European network for education and research. In 1999, the participating universities gave birth to a Master course. As a consequence, the network increased and new partners joined (Strasbourg, Kraków e Olomouc), thus leading to the creation of a Consortium. Year after year, Euroculture has enlarged and strengthened its educational offer (from 60, to 90, and finally to 120 ECTS; from 2, to 3, then to 4 semesters; from the double degree to the joint degree), and it has established cooperation even with 4 non-European partners (Indiana University, Universidad Nacional Autónoma de México, Osaka University, University of Pune). In 2005, the Euroculture Master was awarded the label of excellence within the framework of the Erasmus Mundus Programme. This recognition was confirmed twice, and it will remain in place at least until 2022.

Since the beginning, the aim of the Euroculture Master was to develop an interdisciplinary *curriculum* common to all partner universities, providing graduates with advanced education for those professions in which knowledge of European culture and EU institutions are particularly relevant. Graduates could thus be competitive in an increasingly international labour market. More in detail, the course gives students the means to analyse social phenomena on a European scale, to understand how European institutions and organisations work, and to reflect on historical and cultural factors playing a key role in the process of European integration.

Since 2011, the Euroculture Consortium has forged cooperation with many Associate Partners. Among them, EMUNI is one of the most important. It recognized the value of this international education programme, confirming its commitment to implement various form of collaboration (placements, conferences, study visits, research projects, etc.), with specific reference to the University of Udine.

THE RESULTS

The University of Udine targets all the four priorities of the new European Agenda for Higher Educ[3]ion[4]. It is aware of HEI's role in improving education, research and innovation, and it is

3 See : https://ec.europa.eu/education/sites/education/files/he-com-2017-247_en.pdf

regularly revising and renewing the *curricula* in order to make them more competitive and innovative. In particular, taking into account that Italy has one of the lowest percentage of graduates in Europe, the University of Udine has implemented strategies to attract a wide number of students through a high-quality offer that guarantees a better preparation and improves graduates' attractiveness in the labour market.

For that reason, innovative and flexible teaching and learning methods are strongly promoted. In particular, the Erasmus+ Traineeship and other projects that the University carries out in collaboration with local private and public institutions (the Udine Scientific Park, the Friuli Foundation, the Chamber of Commerce, business associations and NGOs) give the possibility to develop and strengthen cooperation with all kind of organizations (for example the exchanges of students, academics, entrepreneurs and experts in the wine sector between Udine and other Mediterranean countries).

Moreover, the University of Udine is very active, by leveraging on the "knowledge triangle" (through business plan competitions, entrepreneurship and business model courses, collaborations with scientific parks and business incubators), in encouraging the development of new ventures by its students and staff in high-tech sectors as a way to contribute to the process of industrial modernization of the region. The participation to exchange programs, besides the evident effects on the quality of human capital, has created opportunities for international networking, crucial to the growth of business ventures, particularly the newly born ones.

CONCLUSION AND RECOMMENDATIONS

The University of Udine is well aware that its first role is to respond to the needs of its territory, forming and shaping citizens able to handle the complexity of the modern society. Nowadays all the regional stakeholders are conscious that without a coordination and a strategy for a "macro-territorial system" it is not possible to cope with future challenges. The University strategy for the implementation of international cooperation projects has been fulfilled thanks to an effective collaboration with the Regional Government, other local institutional partners and the Ministry of Higher Education; furthermore, the strong links with the Friulian people living abroad helped to develop meaningful social and institutional relations useful for a solid academic exchange.

The University took advantage of EU funds to finance the mobility of students and researchers, as it believes in the necessity to increase their technical capacity. With the other regional HEIs and the local authorities, the University is running a project for Supporting Human Assets in Research and Mobility, with the aim of financing projects: PhD grants, research study grants, mobility for experimental thesis, study courses in EU HEIs, PhD grants for research projects in EU.

In the near future new tools will be implemented with the following aims: information and communication of all the international programmes financing education and training; selection of specific target groups for a prompt communication, according to the type of project; specific training in international activities for the staff; professional management of all financial resources in order to guarantee the achievement of the strategic goals (all grants will be allocated through an internal competitive procedure); support to the dissemination of the results through all the available tools (publications, conferences, newspapers, website, social media, etc.).

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