

Commonwealth of Learning

A Prospective Vision for Universities

The role of the technology transfer units and
distance education

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Foreword

The mission of the Commonwealth of Learning (COL) is to help the developing countries use various technologies to enhance the scale, scope, impact and quality of learning at all levels. COL's primary focus is the Commonwealth, but because it is the only international intergovernmental agency focused exclusively on learning technologies it has become a global resource for multi-media education and open/distance learning.

COL maintains constructive links with associations that bring other groups of countries together around learning technologies, such as the Francophone RES@TICE, the Asian Association of Open Universities, and CREAD, the Inter-American Distance Education Consortium. It was at a CREAD conference in Ecuador in 2008 that I first met Luis Miguel Romero, the rector of our host institution, the Universidad Técnica Particular de Loja. As he guided us around the campus I realised that here was an outstanding academic leader – a conviction reinforced by reading his essay *A Prospective Vision for Universities*.

The oxymoron 'radical incrementalism', which is emerging as a guiding principle for international development in unpredictable times, is an excellent description of the approach that inspires his transformative university leadership. That leadership has been practised in a remote corner of Ecuador but has relevance throughout the developing world. Rector Romero made his first visit to Africa only recently and was struck by the great similarities between the challenges facing universities there and the psychological and systemic obstacles that he has overcome in Loja. COL is publishing his essay in English so that it can inspire university leaders in other developing countries to escape from the stasis of the mental frameworks in which they are trapped and galvanise their institutions into effective action.

The essay begins with an analysis of the crisis besetting Latin American universities. Whilst some of Dr. Romero's strictures are unique to that continent, most apply throughout the developing world. By allowing themselves to be weighed down by their relationship with governments, universities have surrendered their independence and their capacity to adapt and survive. Private universities partially avoid this handicap, but at the cost of catering only to the

richer stratum of society and ignoring research. Indeed, the paucity of credible and useful research is a problem for the whole university system, which suffers from the St. Matthew effect that ‘those who have shall receive more and those with little will lose even what they have’.

Universities have failed to get to grips with these issues because of their habit of looking for ‘saviour models’ or grand plans to solve all their problems at once. Discussion of models and plans becomes an end in itself and gets lost in the myth of perfect rationality with no expectation of any concrete results. Universities have proved incapable of addressing the two great challenges facing Latin America, namely globalisation and poverty.

At Loja, Dr. Romero has cut through these sterile debates and created a liberating belief in the University’s usefulness to society which generates the collective energy to bring important tasks to completion. What counts for him is a multiplicity of small actions that yield concrete results. Funding is more a problem of mentality than of dollars and bureaucratic controls merely express the fear of flexibility and creativity that might lead to real accomplishments.

Theorising about problems is easy but this essay has two remarkable features. First, Dr. Romero walks his talk. His accomplishments at the Universidad Técnica Particular de Loja are palpable. The campus is a vibrant hive of activity with students and staff – who seem little older than the students – exuding enthusiasm and confidence.

Second, he has shown a unique ability to effect reform and innovation across the whole of the university’s mandate. When he set up the UK Open University in 1969 Walter Perry espoused three goals: it should reach thousands of students at a distance; offer the best teaching in the country; and conduct world-class research. Lord Perry had the advantage of setting up a brand new institution with strong political support, whereas Dr. Romero’s genius is to have transformed an existing university, with all its baggage of inertia and low aspirations, into an institution for the 21st century.

He has found novel ways of cultivating research by getting partner universities in the richer countries to supervise Ph.D.s at Loja instead of sucking his talented undergraduates into a brain drain to the north. Research feeds into development through the concept of technology transfer units and some industrial-scale enterprises operating from the campus. He has transformed the curriculum so that students can look job interviewers in the eye and cite real experience of the

world of work. Finally, and of particular interest to COL, he has built up a most successful distance learning programme that operates efficiently and effectively using economies of scale, with high prestige and incorporating new technology as and when appropriate.

The difficulties of teaching both on campus and at a distance are well known. Why has Loja been so successful where others often fail? The answer is that Rector Romero treats his three areas of innovation as an integrated whole. The distance learners benefit from curricular innovation and the technology transfer units involve them in their research work, thereby creating thousands of research assistants all over the country. It all adds up to an exciting and productive academic enterprise that quickly infects the visitor with its sense of eagerness and purpose.

Nurturing the development of good universities in the poorer countries of the world is a vital task for the early decades of the 21st century. Dr. Luis Miguel Romero has shown us the way at Loja, which its inhabitants affectionately label 'the end of the world'. The Commonwealth of Learning is proud to make this short account of his work accessible to an English-speaking audience.

Sir John Daniel
President & Chief Executive Officer
Commonwealth of Learning

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Introduction

Universities, as institutions, were born in the twelfth and thirteenth centuries out of the spirit of monastic study and cathedral schools and their linkage to social society. Notable and relevant elements of the times were: a cultural blossoming; the incipient bourgeoisie; and the real necessity to have a professional status to access public administrative positions in, among other cities, Bologna, Paris, Salamanca, Coimbra, Oxford, Cambridge, Salerno, Montpellier, and Leuven. These and other places were the first to witness this unique birth, practically simultaneously (Borrero Cabal, A. 1997).

Already at its inception the great mission of the university was expressed in words similar to these:

*Seek the truth
And educate man
By means of science,
So he can serve society.*

As an institution, the university has come a long way to reach the dawn of the twenty-first century, where it plays a salient role within the universal historical context. There are currently more than 10,000 universities and university-like institutions of different categories. Their intermingling with society is so varied that we could say that the university is now one of the key reference points of the culture of knowledge in which we find ourselves.

However, how far from the truth those noble aims (recited above) sound today. Free and disinterested search for truth has succumbed to a utilitarian professionalism tied to pigeonholing professors and study plans. The real “sense” of higher education is lost and little attention is paid to the integral values and development of the person that complete personal development and growth imply. There is a serious rift between theory and the practical dimensions of knowledge, along with a shift in research towards businesses or specialised centres. The gap between the “two cultures” – the scientific-technical and the humanistic – deepens. More and more, the university is becoming a closed glass case, separated from the society to which it belongs and

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not, in most cases, central to and orienting us to face the complexities of the times in which we live. Even the meaning of “being a university student” is losing sense. As Tomás Calleja states, “one can enter the university, but the university does not enter one” (Calleja, T. 1990).

The Crisis of the Latin American University

The situation is even worse in the Latin American context, with the university being weighed down by the state and by bureaucracy. It has surrendered its spontaneity, independence, and capacity to adapt and survive. Faculty members become sleepy, lethargic civil servants, and students who finish their studies fight for one of the scarce public positions offered in order to feel secure. Institutions do not believe in the university nor trust the theoretical and artificial preparation its students receive. Overcrowding, political instrumentality, and the eternal claim of little or no economic resources, are some of the problems afflicting public universities. Private ones try to respond to the needs of the business sector using models of excellence, but, in general, at the cost of becoming elitist and with very little attention to research. However, private sector growth in higher education in Latin America has grown from comprising 31% of establishments and 15% of registered students in 1960 to 54% of establishments and 38% of enrolled students in 1995; in a desperate attempt to get out of the permanent crisis of the state universities (García Guadilla, C. 1996).

Mario Bunge pointed out the “seven cardinal sins of our university” as: “low productivity of new knowledge, absence of exclusive dedication, feudalism of the professors, xenophobia, dispersal into numerous independent units, social elitism, and student indifference to academic values” (Bunge, M. 1984). In fact, Latin American contribution to bibliographic production measured by the number of articles in indexed magazines is lower than 1% of world literature. If we consider only Andean countries, that figure is even lower than 0.05% (Current Contents, 1984). The number of articles per million of people and year ranges between 3 and 7 for the Andean countries, and around one hundred in those more European-like countries (Chile and Argentina) while the figure in the United States amounts to around a thousand (Fundacyt, 1996). There is little applied research and a very weak linking of programs, especially postgraduate programs, with the labour market, which causes hardly any use of highly

qualified personnel and a flagrant “brain drain”. There’s practically nothing to speak of regarding great university projects in co-operation with business or the state. That thesis topics refer, either by content or methodology, to problems totally removed from our reality, and are rarely part of broader programs of scientific research conducted by departments or groups, is symptomatic. Their destiny is to be forgotten amid the dust of the outdated libraries.

The technological gap between the countries known as “first world” and the rest has produced in our universities a general tendency toward assimilation as the illusion of progress and apparent modernity. Personnel qualified at the doctorate (Ph.D.) level are very scarce, and the economic, political, and cultural conditions needed for the development of scientific research – as Mario Bunge described brilliantly some time ago (Bunge, M.1988) – rarely occur, especially in the Andean region. The necessary conditions are: a dignified salary, ability to capitalise on resources and administrative flexibility, stability, liberty to conduct the research of one’s choice, selection based upon ability, co-operation, good relations with other countries, tolerance, institutionalisation, constructive ambition and collaboration, conscious effort to conduct good science and to think along mid- and long-term lines, education and high esteem for knowledge, wide scientific societies, joint development of different sciences, etc. In summary, in our countries when talking about research, we could easily apply what Merton calls the “Matthew effect” freely citing that expression in the holy gospel of St. Matthew: “To he who has will be given and he’ll have in abundance, to he who has not even the little that he has will be taken away.” Essentially, a minimum set of conditions is required in order to promote a multiplicative growth, like the critical mass of radioactive material needed to begin a chain reaction (Merton, R. K. 1962).

This already sad situation is worsened due to another phenomenon about which we’ll make special mention here. For several decades now, Latin American universities have been wrapped up in a formalist tendency in which they have tried to bring about an immediate solution to every problem by means of “social engineering” and “methodological or procedural content”. Instead of addressing serious questions regarding its function, the Latin American university ties itself up in the search for those “saviour models”, descendants of those old Marxist ways of thinking, which, applied to society or to the university itself, are supposed to solve every related problem all at once. If this is not successful, then a new model is sought, and so on, instead of doing what is possible to solidify a

few small things and later broaden this experience to address bigger challenges, as is common practice in experimental science.

Let's cite some concrete examples: The emphasis placed upon "planning" and other similar techniques have filled the universities in our area with hundreds of plans for research and institutional development that have turned out to be inoperable. Huge amounts of human and economic resources have been used to teach how to design plans for research, without purchasing a single microscope or arranging the conditions for a scientist to conduct research with it. Innumerable "curriculum designs and re-designs" have been put together, highly complicated ones, while the professors in these "hyper designed" faculties haven't read papers on their fields of interest in years; the libraries contain publications that are more than two decades old.

There have been too many "research methodology" courses, the large majority of them dictated by top experts in research methodology who have never conducted research. They confuse their flabbergasted students with interminable and sterile procedures which will inevitably castrate their future aptitude for research. The only ones who will escape this methodological spiderweb are those who dare read an article on their specialty, thereby being able to confirm – to their great surprise – that the only requirement to learn "how to swim" is to throw oneself in the water, instead of enduring five hundred lessons in anatomy and fluid dynamics. Something that William of Ockham, at the beginning of the Renaissance established as the Principle of Parsimony. Worse still, words cannot express the cruelty with which thesis directors torture their thesis students, burdening them with infinite methodologies prolonging their empty jobs for more time than it takes to study another whole degree. Another example is the "workshops on total quality" in education which easily dazzle those who are not capable of the slightest amount of quality "within the realm of possibility". Then there are the "social outreach projects" that may serve as attractive words but in fact pull the wool over our eyes, and the "diverse co-ordination entities", which, as well as being useless, are prone to rules and diagnostics and are essentially tools institutions use to falsify truth. Our universities, in summation, are tangled up in this formalism. They don't allow the development of research, and they've made a sham of science in Latin America, apart from a few heroic exceptions. The repercussions for economic, social, and cultural development are not only extremely serious but they are also characterised by inertia. In other words, even were they subject to a radical change for the better, this change would not have

any significant effect until at least one or two decades later (Romero, L. M. & Muñoz, J. 1997).

Consequently, our universities have generally been completely incapable of responding to the two great challenges that Latin America faces in this globalised world at the beginning of this new century, and as such its social pertinence has been seriously questioned. These two challenges are:

- Respond to the globalisation of the economy, in which compete, in a society currently based upon knowledge, not only the productive and commercial mechanisms but also the education systems.
- To respond to the situation of extreme poverty in which the majority of people live, in terms of socially sustainable development (García Guadilla, C. 1996).

In fact, our universities, locked up in glass cases, haven't been, for the most part, more than a marginal element in the development of our towns, with the aggravation that our universities are more capable institutionally to make an effective contribution than any other agents in society. Universities have knowledge, institutional know-how, integrated components, local and international connections, a legal framework, social preeminence, a workforce (including students), and even a budget (donations, aid, exonerations, etc.). But the universities' contribution to actual projects is so scarce that it remains at the purely "testimonial" level. If the huge effort expended by the universities for the sake of appearance had instead been dedicated to produce something concrete, it's certain that they would still retain a degree of credibility. Unfortunately, plans and projects were usually presented in different instances just "to be presented" and not to "be executed", that is to say, not even those who presented them believed in their feasibility.

When I talk about "belief", I am referring to the most basic concept of belief: that of one element that forms "energy", which constitutes part of human beings so they can make sense of their behaviour and their consequent destiny (Rielo, F. 1993). And even more if we talk about that "belief" as a collective energy that, focusing on the co-responsibility of teams could carry out productive acts, that is, finished works of a certain importance and which are truly useful for society.

Naturally, the “messianic” approach is easier, and is something which has characterised our universities in Latin America. Some people are prone to tell everyone, by means of demonstrations and marches, pamphlets and solemn declarations, how badly everyone else does things. It’s the same as the commonplace experience that the ones who talk the loudest do the least – they never deliver. The difference is that, in our case, the collective reinforcement to not see the obvious distortion in behaviour is very strong. It is mediated by preconceived ideas, ideological elements, clichés, etc. Underlying this is an attitude that has its roots in the Age of Enlightenment, which had such a powerful impact on Latin America with its “myth of perfect rationality”. This myth concerns the instinctive compulsion to believe, or to want to believe, that algorithms exist in all fields of science that will allow us a complete and exhaustive description of reality, in such a way that nothing escapes their comprehensive power. This myth is responsible for the formalist and artificial trends to which I alluded earlier and it has made us experts in planning and in theory but incapable of arriving at anything concrete. It’s an attitude that has made us undervalue concrete production – the only anchor for patient, painstaking work performed collaboratively, and which begins to bring sense to all the bombastic and empty words that adorn our universities.

One could put forth the idea that the best way universities could serve society is by educating students to become “good professionals”, which would undoubtedly be a notable contribution. However, this supposed “professional quality” is actually inefficient and in many cases absolutely false. The absence of a truly integrated education that includes a serious ethical component and participation in a collective university project serves all types of utilitarian professions via which many serve the university but they never serve the mission of the university. The “brain drain”, which also has other components, is part of this. At best it contributes something fragmented and very expensive to society. Worse, professors pigeonholed in their out-of-date, uncritical theories that lack context are in charge of producing students with the weakest mentality, students who study concepts that “soar with the clouds and never land.” In this role they put up with everything, but later they will be unable contribute effectively to a society with which they never had contact by way of proper and real projects with which to contrast their knowledge. That is why, when they finish their studies, they are parachutists who fall into a totally unknown ecosystem: the working world. They leave university and go and beg for one of

the few, nepotistic state jobs available, in order to continue “doing nothing” for the rest of their lives. If they try to approach a private company, the conversation will be:

Tell me about your previous experience.

I have none. I have just graduated.

Well, this company needs people with experience, so come back when you have some.

What’s more, since the university has not taught this person to be creative, entrepreneurial, a leader, capable of managing all types of businesses, and as he has never had the experience of working on a project or in the business side of the university where things actually get done, but has always worked on the basis of simulations, on activities exempt from risk, in which accounts are not rendered, then he is not equipped to be someone who generates employment, is a motor of socioeconomic and cultural development. If, due to entrepreneurial vision, a company, whatever the type of company, hired university graduates, it’s certain that they would find students from somewhere other than this university.

This concept also has repercussions in curriculum designs, which are artificial, theoretical, completely inflexible, and retrospective. By means of exaggerated methodologies, job markets are analysed, professional profiles are characterised, and different materials in the pensum are defined by consensus in the respective academic unit with the perspective of top experts in curriculum methodology. Finally, the corresponding passing marks are obtained and the next set of course work begins. This whole process takes a good three or four years, plus the four or five for the degree, and two or more for the thesis, and then we have a professional ready to take on the job market of one decade ago. Even worse, the fragmentation and staggering are so rigorous that the student is only partially conscious of his degree in the end, with the only thing approximating real worth being some of the practicums. Even in the higher quality courses, the model for the curriculum usually addresses the European or the North American reality. These are societies which have well established production chains and the good professional ends up replacing one of the links. In those cases what is required is a high level of quality and a high level of specialisation. In our case, the production chains are small and fragmented and what is required more than specialisation is a broad set of competencies.

All of the above seems to reveal two critical anchoring dimensions:

- **Budget:** There is a constant and obstinate resistance to the idea that university budgets could be the obligation of anyone other than the state, rather than creating income through projects, consultancies, and so forth. Funding is more a problem of mentality than one of dollars.
- **Legislation:** The excessive legislation and controls, now systemically inoperable, have been brought about by fear of innovation and of aspects of business management, fear of adaptable flexibility and creativity, and fear of concrete accomplishments. The reigning mentality is bureaucratic and based on power for the sake of power.

A Prospective Vision for the 21st Century

Faced with all of that, an intensive process of university reform is underway in many places in Latin America in order to build the new university of the twenty-first century that our societies are demanding so insistently. Globalisation of knowledge and its intense development, supported by computer science and telecommunications, are catalysts. The tension between the theoretical body (theories and approaches to the Latin American universities' situation) and the empirical base (the reality of the Latin American universities' situation), as Kuhn said, is too strong to allow us to carry on with the same paradigm. It is my impression that we are experiencing an intense and convulsive process of change in the Latin American and even worldwide university paradigm, along with a "scientific revolution" in the Kuhnian context, whose fundamental elements we can barely delineate in prospective terms.

Coming up with a prospective vision for the future is not guesswork. It is a deductive science that tells about probable future scenarios based on present tendencies and the constants of human life. It is, to that end, an enormously complex science and for that reason contains much art, qualifying, assessing, and looking more deeply into the very fundamentals of culture and thought. This is precisely what the great prophetic schools of antiquity (the Jewish prophetess, Delphi's Oracle, etc.) did in consultation with kings and dignitaries – completely the opposite of the cultural decadence of so many fortune tellers and swindlers. However, all prospective that is true is not hidden from the observer. Like the processes in quantum physics, the observer is in certain measure the builder of the very future he observes. This is the case that concerns us; to try to visualise future trends supposes bringing to the construction of this future, in one sense or another, our ethical responsibility.

Let us begin with some general tendencies that we can observe at the beginning of this century:

- In thought, analytic method has provided such a quantity of data that the integrative and holistic vision of the different spheres of reality is becoming more and more precise. This wholeness must evaluate, that is, extract values (*ex-valere*), provide selective criteria, solve clues, qualify, determine degrees of importance, use criteria, and all this amidst a huge amount of information that new technologies put at our immediate reach.
- Currently, there is a shift toward proactive activities, where the capacity to manage permits taking into account complexity in terms of action and leadership, especially that coming from group or team efforts. This results in a pioneering spirit of discovery for institutions and groups. An essential part of this trend is an opening up of the concept of intelligence toward what is called, as influenced by Goleman “emotional intelligence”, or in the words of Gardner “multiple intelligences” (interpersonal, intrapersonal, spiritual, etc.).
- In reference to values – whose pathological absence in the last century has converted into the clamour with which we are beginning this one, it is now commonplace for everybody to talk with insistent repetition about values, lists, demands, and so on. More than ever there is a need to return to the fundamentals that allow us to clarify, select, and even unmask.
- As far as methods go, an opening up is necessary, a spell of fresh air after wearing this corset of methodology to which we subjected modernity and a good part of the pressure of experimental science in the twentieth century. As Popper would say: “Sometimes we put on green glasses and then say, ‘The world is green.’”
- Regarding institutional and group organisation, there is a shift from rigid and regulated administration, dominated by rules, regulations, and hierarchies, toward flexible, adaptable management, featuring teamwork and shared responsibility.
- In the area of services, when it comes to action by people and institutions that have something good to give to others, there is a lot of hypocrisy and empty promises made up of words that, in the majority of cases, are destitute of actual action. We must move from the logic of words, promises, and justifications to the logic of action.

- In science, in the era of the human genome, ecological problems, “star wars”, issues in neurobiology, the nuclear weapons situation, etc., what Edgar Morin referred to as “science with a conscience” is more necessary than ever. That is to say we need a meaning for science, meaning and co-operation, rather than multiple opposing interests.
- In human education, we are lacking horizons in the form of meaningful targets at which to direct our efforts, more of a sense of discovery than an adjustment to objectives that someone else has imposed. The twenty-first century is going to be especially notable as the century of renaissance in education with regards to “*ex-ducere*”. That is to say a conveyance from a generally chaotic, diffuse situation to a sense of plenitude in a symphony (symphony = sound together) not imposed upon us by anyone, but as a horizon that must be discovered. Furthermore, in a degree matching that with which one makes discoveries, the chaos begin to take on a shape, just as when members of an orchestra begin playing and they align with the leading thread of the melody.

So, I am now going to talk about a “possible” Latin American university for the beginning of this century that allows us to get out of the aforementioned problems and to take advantage of the prospective trends we have just outlined. I will use the experience of our Catholic University of Loja, Ecuador, South America; using what is universal about it, with special emphasis on two key aspects: The Technology Transfer Units, and Distance Education.

What is required to create a new university for the twenty-first century (something that Latin America and the rest of the world are asking for so insistently)? What is the most fundamental element that should comprise our point of departure? *Dream of a horizon*, towards which we can head with vitality. “A culture’s wealth is directly proportional to the social incidence of a dignified philosophy towards human beings” (Rielo, F. 1995).

Let us return then to the beginnings, to that collective dream of great men who created the university, and that of many others, the immense majority anonymous, who were developing the greatness that we are still barely able to make out in it. As we said, since its very beginnings, the great mission of university was: “*Seek the truth and educate man by means of science, so he can serve society.*” In our case, the approach we chose with which to undertake this task of restoring the original ideals of the university has been “Christian

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humanism”, from which perspective we can undertake the search for the operative conditions with which to adapt the spirit to the new circumstances.

The Technology Transfer Units

Let us start with science. Certain economical, political, and cultural conditions are required for the development of science, whose reach is national and even international. However, determined positions in the universities can have a great multiplicative effect, despite difficulties present in the setting. At the financial level, the connection between scientists and promoters can provide financial problems with some solutions, making the results of applied research profitable in the short- and mid-term. On the other hand, one of the biggest dangers for science in our countries, which is getting worse, is the emigration of talented people. An adequate empowerment policy for young groups that maintains a flexible relationship with diverse national and international centres could alleviate the problem. Above all, we need to make a great effort to “make good science”, validated internationally, no matter how far away we are from achieving that goal at the moment. There is, similarly, a whole series of strategies that can easily be taken on, whose repercussions are enormous despite the problems of the current environment, but all of them carry with them a change in mentality that is quite difficult to tackle:

1. **“Pilot projects”**: It is necessary to reverse a trend to do work based on big plans and “ultra models”, derived from the “myth of perfect rationality”, which demand big investments and a too-rapid growth of the institutional know-how in a short time. The consequences of this situation are usually the abandonment of the project, for various reasons, with the consequent fall of the institutional know-how in quick succession. What remains is the skeleton of what was once a project. A more modest strategy is needed, consisting of small projects or successive pilot plans, each one of which leaves lasting institutional know-how that permits the start of the next one under better conditions. The overall result will be a sustainable growth of the institutional know-how.
2. **“Project matrices”**: Sometimes universities carry out isolated projects and projects that have to start practically from scratch, as do other social institutions such as non-governmental organisations. This type of project wastes the best potential, the “know-how” that has been able to

accumulate. That is why it is a priority to first build diverse spaces where different projects of a determined area of knowledge can later be carried out. For example, the objective of having a molecular biology laboratory should not be to “isolate a particular gene”, but to “have a molecular biology laboratory”. In the developed countries, society as a whole has enough institutional know-how, and operativity of the different systems that make science and other activities possible, in order to be a solid base for diverse projects. In our environment this base is very weak, so it is therefore the universities that can offer an essential support space.

3. **“Emulation of the Matthew Effect”**: For scientific development to exist a critical mass must accumulate (to use a metaphor of nuclear physics) in order for a chain reaction to be set off. This happens because the interactions that exist between diverse elements increase exponentially when they accumulate additively. However, the means available to bring about this accumulation are rare, if we take a look at each field of knowledge independently; but efforts from different areas, faculties, departments, projects can be collaboratively united in order to gain an indirect accumulation of critical mass and an enormous amount of interaction.
4. **“Interdisciplinary and group work among different units”**: This is the opposite of the “submarine” model to which we are accustomed, with numerous independent compartments that are hermetically sealed; or the model of “inclusion of groups” that are inclined, in addition to the eternal effort to find spaces of power in the world as a whole, to determine what the subgroups have to do. In the light of this a model that unites these subgroups with areas of overlap in the relationships between units and zones of autonomy, can give the sufficient flexibility and creativity for scientific growth to take place because of the “cross fertilisation” effect.
5. **A decisive effort to conduct “applied research”**: We should undertake this in such a way that the repercussions in society can take place in the short- and the mid-term. It would have an enormous rebound effect, being able later to successively descend to more and more profound levels of basic research. It is not a good strategy in our setting to always try to perform bad, basic research. We need to more closely emulate that which is conducted successfully in developed countries.

At our university we have united all these strategies in a type of work based in the “Technology Transfer Units” (TTUs), which are units with the specific function of research and outreach or service to society. They are units with thematic coherence, constituted around specific scientific areas. It is also an essential function of the Technology Transfer Units to contribute to the self-financing of the university. They are the equivalent of what are, in many universities, departments, laboratories, institutes, etc., generally inter-faculties and defined by a topic or an area of knowledge on which research is conducted. In the case of the TTUs though, in accordance with our medium, the research is, fundamentally, applied research; we work to make the transference of science and technology to society viable, and to this end carry out diverse outreach activities and services. Professors work in the TTUs, but also teach in different faculties and schools – whose function is the administration of the curriculum. For their part, students participate in real projects that are carried out at the TTUs, and in which they engage more and more. Upon finishing their studies, then, they already have a lot of direct professional experience. In this way teaching, research, and outreach functions are integrated for both the professors and the students.

At the beginning, the TTUs consisted of groups of young professors and students whose main objective was to set goals and break away from the routine and negative morale that tend to be typical in our universities. These groups maintain intense relationships and a central focus on facts, the resolution of problems, or, as we say, “*aterrizment*” or “landing”: trying to make ideas, projects, and illusions truly come about. They are group with a strong sense of collegiate leadership and are intrinsically very motivated. They know that the group is always more than the best among them, and since they live according to the Socratic idea that “I know only that I know nothing” (an attitude that is quite rare in the universities) their capacity for accepting new ideas and for creativity is enormous. Already at this stage, the capacity for growth is very great as soon as they receive enough empowerment by the authorities of the university, a degree of autonomy in the case of procedures and control, and access to current articles written by experts from all over the world. For example, our TTU corresponding to the computing area went from this first phase when it had only one computer connected to the internet by a modem – the only one in the whole university – and progressed to having the internet servers for the whole university and southern Ecuador, with a satellite link, in less than a year. In a

second phase, professors and experts visited us, which caused the growth of this “fertile terrain”. The third phase involved members of the teams attending practical courses and congresses for short periods both in this country and abroad, sharing their experiences with the group soon afterwards. The fourth stage is the establishment of permanent collaborative relationships with other departments and units, preferably abroad. Naturally this is a simplified outline, and the stages intersect in different ways.

Life in the TTUs, with this atmosphere of values and group work, is inclined toward interdisciplinary work among different TTUs, and this integrated work between different areas constitutes the greatest potential of the university: namely, an effective contribution to society with many types of benefits. However, institutional elements are required for the function of service to society to be really effective:

- Give priority to relationships with the productive sector and incorporate scientific and technological advancements in relation to their demands.
- Make the curriculum and the following different dimensions of knowledge management more flexible: research, postgraduate courses, publications, etc., according to the prospective needs of the different social contexts. Our curriculum is designed in a prospective way, trying to deduce (a) the future trends of the different occupational markets, and (b) along which lines the most important development of different disciplines will run, worldwide.
- Develop a type of teaching in which the student interacts with society through efficient productive projects. All the academic units have transformed, because of their essential connection with the TTUs, into academic-productive units (where “productive” is meant in a wide sense, not its economic sense) in order to be real models of professional activity.
- Create new and imaginative alliances with business, the state, and different national and international organisations, helping to effectively carry out associated productive projects through diverse consulting bodies.
- Develop a “business spirit” inside the university in the widest sense of “engaging in business”, incorporating the modern sciences of management. Instead of deducing the future we should create it.
- Work with a team spirit and co-responsibility, since Jesus said: “a divided kingdom does not last”. Show a type of collective leadership to the

institution of the university itself; professors and students are not served by the university, but serve the university.

- Establish a smooth, realistic and flexible relationship with the complexity of the social setting, which is subjected to very profound processes of change. The needs of society must be determined “dynamically” and we should seriously meditate on the contributions, taking into account the real possibilities of the university and its specific “stamp” or “trademark” – that which characterises the whys and wherefores of its own existence and its style.

(Calleja, T. 1990; García Guadilla, C. 1996)

In essence, socially sustainable and equitable economic growth hinges on knowledge, and who, if not the university, is in the condition to undertake this task? But for this to be realised, new and fruitful relationships should be established with society:

It is expected that universities not only form people into professionals, but also into individuals who will contribute to the establishment of scientific communities capable of converting knowledge into an instrument of societal development, and who will adopt theoretical and technological paradigms produced by the international scientific community, and who will propose new focuses and the appropriate technology for the development of every country.

(Infante Villareal, A. 1991)

We have given the name “Productive Management” to the university and external agents working together in the different tasks of the university as part of its mission to serve society, something which transversally crosses the traditional characteristics of the university: teaching, research, and outreach. We do not mean something merely financial by saying “productive”, but we use this word as a reference to concrete results, facts, achievements in all fields of activity: social, cultural, scientific, socioeconomic developmental, artistic, educational, humanistic, etc. We refer to projects instead of words and presumed intentions, or “pie-in-the-sky” plans that, most of the time, produce nothing. Productive Management reunites the two great virtues of the monastic spirit, which are responsible for the transmission of the Greek and Roman culture, the educational development and review of publications, the development of art,

handicrafts, and agriculture, and, with this, the development of the incipient bourgeoisie, and the birth of experimental science and medicine, even the creation of cities, that appeared around the monasteries of medieval Europe, and the creation of the universities themselves. In other words, Western culture, before the “goddess of reason” appeared in the heart of Europe. This spirit lit up the Latin American culture as well, with the Jesuit Reductions in Paraguay as the most representative example. These two virtues are: “personal dedication” and its conversion into “concrete results”, in other words ensuring that the love felt for this issue converts into something effective; for this reason the “signs of the times” must be interpreted and the genius of the spirit added to them. With this perspective the same policy is lifted up to the level of “science of the spirit”, that together with ethics and defined by “responsible love” make possible a historical change in the sad political reality of our continent, about which even Bolivar complained: “The sudden impact of the exaggerated ideology will cause us unprecedented problems, or it is even more correct to say that they will complete the already existing ones. You will see the world surrender to the flood of demagoguery, and then: “Poor, wretched people! Poor, unfortunate governments!”

(Simon Bolivar: “Carta al General Juan Jose Flores”.
Barranquilla; 9 November, 1830)

Almost every one of our country’s leaders is a university graduate. To a great extent, Latin America depends on what we do in our universities; like in all human activities, it is not simply about preferences, there is a great responsibility in our actions and also in what and how we dream. Hopefully, all will be fulfilled for everyone.

From this point of view, the university has a new range of possibilities regarding financing. The high costs that a quality education and research development require cannot be paid solely by the contribution of the state, which in general has enormous limitations, plus the tuition fees for the students, unless we make the university excessively elite, and not even then because the most well-to-do class will end up studying in “first world” countries. A third source of financing is needed, along the lines of what has been said about the TTUs and the spirit of Productive Management of the university. As we will see, the Distance Education System can also be a contributing factor in this self-financing because of the low operative costs and economies of scale. But some profound changes

in the institutional vision are necessary, of which the following goals are notable:

- **Honesty:** We need not only direct honesty, but honesty that unites all the changes in a spirit that does not squander resources because of a deficient operational focus. A deficient use is like letting money go down the drain, as occurs with projects set up as “sustainable”, which – in more than 95% of cases – they are not at all.
- **A “business-like” efficiency in everything, including time management:** We should aim to work on projects integrated between different units where the responsibility of self-financing should fall back on the whole university, not only on some “star” projects. This also applies to students, who should contribute to their education, which costs much more than they pay for it, by means of concrete collaboration with the university’s different productive activities.
- **A good income from services to society:** These services are increasingly specialised. The idea is not to compete with businesses and other social agents, but to support them with our know-how which is more and more specialised thanks to efficient and numerous technology transfer interfaces.
- **Finally, an enormous administrative flexibility:** The slow bureaucratic machinery of our universities tends to be just the opposite of what the modern contribution of business management advocates.

One of the direct applications of service to society is the reduction of the cost to the country for tuition fees. The average cost of obtaining a degree in our country is approximately \$20,000 (it is two or three times more expensive in Chile). I am not referring to what the student pays, which in the state universities is practically nothing, but what the total of state contributions, donations, credits, income from services, etc., is. But taking into account all the universities, out of 100 students who start their studies only ten graduate and only two end up working in their field. We could calculate the cost to the country for the education of a socially useful professional by multiplying the tuition fee by 50, which is the effectivity factor of the process, in other words, about a million dollars! These are preliminary calculations, but it is already symptomatic that there are no detailed studies on these figures. Naturally, this factor of impaired effectiveness depends on society, but society is an abstract thing. The real things are the agents and the interrelations among them, which

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are very complex. Responsibility, especially to the university itself, should be attributed to such agents, since the university is the entity that can most directly tackle the problem and is the most equipped to resolve it. A pedagogical enhancement aided by financial help, by means of Productive Management, could enable almost all students to graduate, and a change in attitude would mean that instead of them looking for the rare and bureaucratic jobs these professionals would be creators of jobs, their own and those of others, in other words they would be generating agents of development. In addition, the cost to the country for their education would go down drastically.

The Distance Education System

One of the biggest trends of the universities in the last century is the establishment and development of the Distance Education System. When this system came into existence in the seventies, it was frequently criticised that it was not a university, that degrees were awarded by post, etc. In the last world congress, held in Sao Paolo in the year 2000, the questioning was along these lines: “Is it possible to say today that a university is real if it does not have a Distance Education System?” In three decades, the concepts have been inverted, naturally aided by the utilisation of new computing and telecommunication technologies. So strong is the trend of distance education that it is even said that by the end of the next decade the “traditional” universities as we know them will have disappeared (*The Latin American Congress for Open and Distance Higher Education (AIESAD), Cartagena; August, 2001*).

But what makes us think that distance education is better than attending classes on site? Naturally, if you are 18, you do not work, you are not married or you do not have family-related responsibilities, you have some sort of funding at your disposal, and close access to a good university, then study on site. If this is not your situation, which is the case for most people, distance education is not only an excellent option, but often the only option. In fact, distance education, breaking the barriers of space and time, provides the population with truly equal opportunity and an efficient way to continue education and personal development, in line with the massive and effective access to higher education in the current society of knowledge. It also permits a new type of alliance between the university and business, the state, diverse organisations, etc. UNESCO’s policies on distance education are clear: it should be given priority as a way for everyone to access permanent education; it permits the diversification of education aimed at special groups; it has a great importance in the education of teachers and international cooperation. In a nutshell, the policy recognises and supports its great contribution to higher education but highlights the need to improve the capacities of the distance education system: policies, planning, management, personnel, material, technology, and so forth. But is it really efficient?

The growth trends worldwide testify that it is, even before the forthcoming mass use of new technology. Many of the world's giant universities as far as distance learning goes, with more than a quarter of a million students, are situated tellingly in countries with great financial growth: China, Indonesia, India, Thailand, Korea, and so forth. Others, that can already be taken as classical, are in European countries with a great university tradition: France, the United Kingdom, Spain, etc. In South America, the first distance universities were: UTPL (Ecuador), 1976; UNED (Costa Rica), 1977; UNA (Venezuela), 1977, and these have strengthened and given rise to many others in almost every country. The major Latin American universities (UNAM in Mexico, UBA in Argentina, etc.) are directing their enormous potential towards distance education, supported by new technology. Such is the revolution that is happening in today's world of globalisation and an information boom that we can say that we are aiding, with the combination of distance education and the latest technology, the biggest educational revolution since the last century. More than that, we are part of a real digital revolution in the world of education. The digital revolution is a revolution of unimaginable scope, keeping in mind that according to the law of Moore, the potential of computers has doubled every 18 months since their appearance, which implies growth by 10,000 million times since the 1950s. It is accompanied by a decrease in costs of the incorporation of contents from businesses and from freelance professionals from all over the world, and the possibility of simultaneous access from any part of the planet. A decade from now, the universities that have not incorporated this situation will face serious problems of survival.

The situation in Ecuador has been rather paradigmatic. In 1997, our university had about 7,000 students in the distance system, and the rest of the universities with a distance education program only had 3,000 students between them. By 1999, our university had 12,000 students, while others, about 36 institutions, had more than 20,000 students in the distance system. At the technical level, despite our country's limitations, we count on a synchronous virtual-classroom system (one-way video conferencing and interaction via telephone and internet) in 16 cities throughout the country, and we are the Ecuadorian counterpart of the Global Learning Network for The Development Institute of the World Bank (www.worldbank.org). We have also moved from our traditional "Distance Education System", with its 112 university centres across the country towards an asynchronous, web-based, virtual campus. We believe that the contribution that

distance education can give to the development of the country is invaluable, especially in the case of the provinces, in order to decentralise the big cities – with the problems associated with this phenomenon that are so typical of the underdevelopment of our countries.

But let us look at some elements of the traditional dimension of distance education because there is a misunderstanding, fed by the “technology myth”, that technology is necessary and “enough” for “modern” distance education. Information technology and telecommunications themselves have not provided any new educational concepts that weren’t already part of traditional distance education as regards “an educational dialogue partly comprised of a management system”. The difference is made by the immense potential of the technological educational medium. There are risks as well, among them these three:

- A physical distancing of the human factor in education, both with regards to learning and with regards to the teacher-student relationship. Implied here is the relation between professional content and personal growth.
- The undervaluation of the integral and very complex aspects of distance education systems, such as: curriculum, teachers, methodology, technology, students, research, outreach, and action.
- And the lack of emphasis on dimensions of ability. There is an undesirable distancing from the creation of critical thinking with quality and excellence, by means of research, which is what makes distance learning truly a university education.

Let us look at some fundamental components of this “system”:

1. **Teachers:** Together with their up-to-date, in-depth knowledge of their subject, both theoretical and practical, they must be proficient in the principles, theories, and methodologies of distance education, be able to handle new technologies well, and be clear about the goals of university education. Teachers must fully embrace the educational model of the institution, and continue to develop and perfect their understanding of it.
2. **Methodology:** The emphasis should be on the vision and the principles. Participants should be conscious that while this is an indirect educational relationship it is a real one. There should be interactivity, consideration for the student’s role, and an understanding of the importance of the

tutoring function of face-to-face encounters. Efficient management is required, as is planning that takes into account opportunities for flexibility and innovation. A network of university centres as elements in management and as a link with the larger community is also important. Finally, evaluations should be taken very seriously and should involve a large component of face-to-face assessment.

3. **Materials:** They should be of high quality and used adequately in order to link the medium, the message, and the participants. We use the textbook plus a didactic guide, which is very important in distance education, and these are carefully combined with the new technologies in order to meet the specific educational necessities.
4. **Students:** Awareness of the psycho-pedagogical conditions of the student, such as: motivation, isolation, age, demands, methodology, emphasis on values, and so forth.
5. **Technology:** The reliability of the technology is very important. The “technological myth” seriously affects the seeming “innovations”; it is easy to be tempted to purchase new technologies. However, we should only use technologies that we have tested thoroughly in the institution, that suit the purposes of the institution, and for which we have allowed pedagogical assimilation by teachers and students. The ability to adapt the technology “at any given moment” to the specific characteristics of each pedagogical situation is essential.
6. **Research:** This is relevant as much for teachers of distance education as for the students, to which end it is advantageous to have two systems of education, as we do, where the different schools, in relation with their corresponding TTUs, teach in both ways. Together with research into the different areas of knowledge, it is also important to conduct research about distance education itself. One can also take advantage of the characteristics of geographic dispersion and the large number of students in order to conduct “puzzle” style research of enormous magnitude.
7. **Extension:** The university centres, spread around the country, should also be management centres and linking places for the community. This is a way for the university to have a real presence. This presence may even be one of great operability in remote places or those which are demographically small, and which will probably never have a “university

life” per se, except by means of university satellite branches where on-site classes are given. The current problem with these small-scale, on-site classes is that they are sometimes poor quality, and with an almost total absence of research and minimal educational services. The same could be said about businesses – different state and private organisms.

8. **Costs:** One of the great advantages of distance education is its low price and value for money, due to economies of scale and the intrinsic characteristics of the system. This is also true of contemporary technologies, whose costs are decreasing rapidly. What is also required, in order to lower costs and improve quality, is to have an efficient, complex, and flexible management system.

To summarise, any simplistic consideration of the Distance Education System that does not take into account its systemic condition and its complexity is condemned to fail; and unfortunately such a simplistic attitude is more prevalent than it seems and is fuelled by the “technological myth”.

Let us now look at an example of the kind of “puzzle” research carried out by the Distance Education System at our university in combination with one of its TTUs, which is “The University Institute for the Development of Talent and Creativity” (IUNITAC). We also collaborated on this research with the Pontifical Catholic University of Ecuador (in its satellite branch in Ibarra), to put us in contact with other more fundamental elements of reflection about the whys and wherefores of the university. We analysed the intelligence quotient of 180,000 children all over the country by applying the Raven and Cattell tests in correlation with 50 socio-economic variables, with the help of 1,800 students conducting graduate work in the faculty of Education, and guided by a staff of professors from the same faculty and from IUNITAC. Some results are interesting, such as there is no meaningful difference, at any age, between the IQs of boys and girls. Some results, on the other hand, are terribly alarming, such as the population’s average IQ falling drastically to half, in relation to age: values were found to be similar to the world averages at 5–7 years old, but extremely low for those aged 16–18. The meaning of such results is not that simple, but given that there are several studies that correlate the results of general intelligence tests with creativity, we think that the lack of factors that prompt creativity in the schools could be crucial in explaining the results, and at

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the same time that takes us again to a recurring subject for reflection at our university, one which is deeply related with its vision and mission: creativity.

Horizons, Creativity, and Leadership

Creativity is usually addressed by means of a series of operative elements designed to develop certain abilities, and only exceptionally has it been treated thoroughly. It is a concept related with complex epistemological aspects that are difficult to formalise, such as: the incubation of notions, concentration, faith, interest, daydreaming, heuristics, intuition, cross fertilisation, “insight”, illumination, knowing how to listen and the capacity to learn, complex thought, etc. Developing creativity requires the following: doing away with prejudices, fears, customs; to have the cognitive focus of children; to open our minds even more; but above all “intrinsic motivation”, a key element in university education. In fact many of the “murderers” of creativity, exposed brilliantly by Goleman in his recent book “Creativity”, are present in our universities. These include excessive vigilance, simplistic evaluations, rewards for “good behaviour”, intra-group rivalry, excessive control, regulated activities, pressure, lack of time, fear of making mistakes, fixation with prescribed structure, oversimplifications, a negative atmosphere, etc.

Let us look more closely at the aspects related with the educative dimension of the university. From the theory of administration, vision has been conceived as a projection of the aspirations of an enterprise for the future, that is to say a representation of a future state once the fundamental objectives have been achieved. The mission will be the combined institutional actions that carry the enterprise to reach that desirable condition, its purpose. These concepts have contaminated the theoretical conceptions about the university by applying to them too much “strategic planning”. As a result, the freshness and openness that university “life” has always had has been reduced to a series of simplified, artificial and distorted formalisms. In this egocentric conception of vision, this appears as a projection of desires and interests of people and groups, and therefore strongly loaded with ideologies and prejudices, and, of course, not in the least creative. In other words, we depart egomaniacally from what we had to arrive at what we had. There’s no change. The mission is conceived as a

delineated path, and therefore inflexible and inclined to repeated collisions with reality without learning from it. The underlying educative concept is one of directing the pupil to a state that “someone”, person or group, is projecting. Motivation in the pupil is exogenous, and evaluation is a procedure of adjustment to the objectives; it will hardly be very moving (“ex-movere”: to move from) or exciting, therefore, for the student. In our conception, as a Catholic University, Christian Humanism is the vision of the university, but Christian Humanism is not a future condition that someone projects, except for whom this notion is understood in a foolishly limited way. Christian Humanism is a horizon, always the biggest that can be conceived, and it is there, whether or not the person who ventures to discover it is looking at it. This horizon, every horizon, has always a universal sense; from Antonio Machado’s words: “It is not my truth nor your truth, but the truth, and come with me to seek it.” A horizon is like that, like a metaphor from Exodus, “the promised land”, towards which it is worth heading and being a part of a whole population on the move. There is an intrinsic motivation because it is something that appears valuable; it is an ideal, an integral life project. From this perspective, to educate (“ex-ducere”) is to direct someone towards a state of plenitude towards which they will move with intrinsic motivation. Not because someone is forcing them to, but because they find it valuable and it excites them. Then the eyes on the horizon, in terms of the discovery, the mission, and the path will be intrinsically creative. Let’s remember that the very etymology of the word “theory” has similar connotations: “théos-hioráo”, that is, to look at or to seek something divine . . . the horizon. To evaluate (“ex-valere”) then becomes to draw out what is valuable as an aid to intrinsic motivation. Unfortunately, in our universities, it is uncommon for us to evaluate or extract values from concepts that are considered important from many other perspectives, namely: empathy, capacity to recognise and express feelings and emotions, capacity to take decisions, illusion, self-esteem, capacity to overcome difficulties and frustrations, to integrate priorities, to look for meanings, to think critically and creatively, to develop personality, social contextualisation, to co-ordinate independence and solidarity, to adapt to the environment but not depend on it, to respect differences, to have a life project, to develop the “other” intelligences: (interpersonal, intra-personal, spiritual), etc. No, not one of these notions do we usually value and evaluate in university life; this is the origin of the big contradictions that we have been mentioning. The search for the highest objectives, when it comes to living the vision in the whole university community, with its corresponding evaluations as

positive reinforcements, will bring about in everyone an intrinsic motivation of enormous creative potential, an expression of a love “well constituted” by the horizon which moves us (“ex-movere”) and will create an enormously positive collegiate leadership, a creator of spaces of unity and solidarity.

In essence, the university should propose for itself a search for the deepest keys, for the most profound keys to human reality in all its dimensions – the cognitive, affective and active, valuable and transcendental ones – and in all the possible fields of relationships: with oneself, with nature, with society and with God. The search for truth, so diminished in our universities, implies avoiding the restrictions that bypass the richness of the person by emphasising only one of his or her qualities. For example the cognitive dimension in the study of nature at the cost of, for example, the affective dimension in relations with other people, as has been made clear so fervently in recent studies on emotional intelligence.

Furthermore, the transcendental dimension of the horizon, understood in its broadest, fullest sense, is referred to precisely as being “more than itself”, as the vital dimension of seeking truth. The big mistake that has been darkening the university world has consisted of separating knowledge and sense from one another, rather than a model that permits the systematisation of key concepts and experiences together. Truth cannot be an uncompromising abstraction, but one that implies a person’s vital direction, a search that is “ecstasy” (“ex-stasis”: to move out of oneself toward a condition of plenitude), and therefore related with the field of ideals. To seek truth means to be idealistic, to have faith (vital energy) in the horizon, and this is so much more important when the university is “a collective enterprise” in the search for truth. We believe a good portion of the pessimism at the end of the century and the millennium, was due to the social pathologies derived from a thought that did not have vision, and in this way breaking down the leadership role that the university should adopt to guide society to somewhere other than itself, towards its perfection as a humanistic vector that gives it sense. The exhaustive description the dustman gives of the world, performed so many times in the university cloisters, only makes us “experts in rubbish” and not builders of gardens. Every thought is either humanistic or it is not a thought. Let us hope that from the patient, meticulous, and humble effort of our universities, carried out with illusion and open to truth, arises something more than “well-constructed lies”.

This “seeking the truth” is, at the same time, an artifice of an authentic integral education, because it provides a certain “model” of human being. And from the form that we define as the human being is going to be derived the basis of its rights and duties, and the greatness or the misery of its relation with itself, with Nature, with others (from the person closest at hand to society in general), and with God – who could be anything from “the mystery that is hidden behind the horizon” to “Father” (Riello, F. 1990). It is an essential task of the university to try and ensure that all areas of human beings’ relations are “well formed”, in all the dimensions; this is what is called “complete education”. The general despondency present in the life of the university of the end of the century, which overvalues the scientific and even more so the technical, which postpones the humanities and totally forgets ethics, contributes to a serious de-formation of the university student, to whom we give the best tools to deform society and the future world. We urgently need the formation of qualified professionals who are able to unite scientific and technical qualities with humanistic ones, but who also integrate knowledge and operative skills with great vision and values and with a proactive, manager-like, and enterprising attitude, capable of collegiate leadership with creativity and deep thought. In other words, the university has to help the student define his or her “Life Project” in the integral sense to which we alluded before. But integrity is not just a mix, in the same way that a symphony is not a just a group of musicians playing different instruments, but rather a “sym-phony” (a playing together) of different directed and integrated elements. The “new university” should provide as a vector a humanistic model that invites each student to seek the highest level of perfection in himself or herself, in the most perfect harmony. Christian Humanism provides this model, worthy of the big aspirations of human beings, with two key elements that recall Quixote’s assertion “I know who I am and I know where I’m going.” These elements are (1) the definition of man as a “son of God”, the highest identity that can be given to him, and (2) his projection towards the horizon, whose limit cannot be other than God Himself (“be perfect as your Heavenly Father is”). This “being more” of human beings carries with it a potentiation of all our dimensions and a primacy of the relational aspect, not as a side benefit but integrated by the unity of experience. These dimensions are susceptible to being studied by the “experiential sciences” – complementary to the so-called “experimental sciences” with their mathematical structure and with their reductive omnipresence that have created so many existential and social contradictions in the world in which we live. And there are so many other ethical repercussions as

much from the products of the science and the scientists themselves as from the ideas, most of which act like Frankensteins whose effects are only attributable to the madness of their creators. And then there are the simplistic and absolutist attitudes full of epistemological arrogance so common in a science without conscious: “The unified theory will allow us to have a complete explanation of what is happening around us and of our own existence. It would be the triumph of human reason, because then we would know the mind of God” (S. Hawking). Look at all the announcements derived from research into the human genome, for which “the secrets of life have been opened” and “we could know fully what a human being is”. As Einstein said, “Science without epistemology is a primitive report.” Remaining latent is the whole, immense dimension that we could include in the experiential sciences, which possess many areas that overlap with experimental sciences, expressed marvellously by Miguel Hernández: “Human beings come with three wounds: that of love, that of death, and that of life.”

Finally, the integration between horizon and life gives us the ethical direction that is so sought after, overcoming diverse subjectivity and objectivity. More than ethics, it supposes the creation of a new civilisation with its centre in the spiritual aspect but integrating all values. Spiritual here is spiritual in the widest sense, since Christ’s Humanism is not exclusive to believers; in his universal professorship the historical Christ has given humanity some conceptions worthy of consideration, regardless of whether or not we believe in His divinity.

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