

PSYCHOLOGY FACING THE CHALLENGES OF THE THIRD MILLENIUM*

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INDULGING IN THE MILLENARIST MOOD.

There is something magical about numbers. We all know this is irrational. However even we, psychologists, cannot refrain from indulging in the mysterious attraction of figures. The number 7 is a case in point, as reminded to us by the historical paper by Georges Miller (1956). Ends of centuries, years ending with two zeros, are equally impressive, inspiring mixed feelings of expectation and fear, and encouraging prophecies of all sorts. Such psychological reactions are multiplied by a factor of ten when it comes to an approaching millenium. People are looking ahead at year 2000 as if something really special will happen at the turn of the millenium. Disregarding the purely conventional character of the event - limited, after all, to those using the christian calendar - , they engage in states of excitation and in the fanciest predictions. Astrologists are at their best. Horoscopes sell out well, and will do increasingly so until the crucial day will be reached. The end of the world is not as popular a prediction as it was one thousand years ago, but prospects seriously made by serious people such as scientists are

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sometimes just as alarming: some of them foresee, not a brutal apocalyptic destruction of the world, but a nonetheless ineluctable decay of our environment, at least if we go on behaving as we do. Compared with the end of the first millenium, sins have shifted to different areas, but punishment is equally promised.

Specialists in all fields make a point of summarizing the state of affairs in their domain, and draw perspectives for the future. Psychologists do no escape the general millenarist mood. To take just one example, the volume based on lectures delivered at the last European Congress of Psychology hold in Dublin in July '97 is subtitled: "*Progress, paradigms and prospects for the new millenium*". This is just one of the many books, conferences and journal issues that emerge as the byproduct of the magical number 2000. Of course, psychologists and other scientists participating in the popular enthusiasm are not essentially motivated by millenarist mysticism. They simply take the occasion to reflect on their science, what it has achieved, what it is facing ahead, how it will evolve, or how they wish it should develop, or how their fear it will develop. This is profitable exercise, which people in the profession do not always have or take time to practice. Also, special occasions like this give more freedom of thought and style, and many take advantage of this, who would decline writing or speaking in a more constrained context. Thus, I have no hesitation in engaging myself in that "genre" today, and look, in your company, in the cristal ball.

Encompassing the millenium admittedly sounds a bit ambitious, not to say pretentious. As shown by the subtitle of the Dublin book, I am not the first. Don't worry: I shall not go into the details of the whole millenium! I might have limited myself to the next century, as others have done (for instance a psychology journal published in Barcelona is preparing a special issue on *La Psicología en los umbrales del Siglo XXI*). If you think about it, we don't know much more about the next century than about the next millenium. Therefore why not extend our scope? If you request from me some guarantees, I promise that I shall come back to Lisbon at the turn of each century to make the corrections as necessary.

Looking in the cristal ball is first looking at the past and the present, as any provincial astrologist knows. Editors of the Dublin

book, if I may use that example again, knew it as well, when they gave the title *A Century of Psychology*. What I have to say is, of course, largely drawn from the current state of psychology, my own view about it, and my guesses about where it takes us.

I shall first propose some reflections on psychology as a basic research domain. However, the main challenges will likely be to applications of psychology, which is by far a much more hazardous area, where future developments are more difficult to predict.

PSYCHOLOGY AS A SCIENCE.

Unity Lost...

Looking at psychology as a science at the eve of the third millennium might leave us in a somewhat pessimistic mood. For sure, scientific psychology has been developing in an astonishing way since it started one and a half century ago. It has literally exploded in a wide array of subdisciplines, which in some sense is a very positive sign, but to many, psychology now looks like a fragmented object. Development has been at the price of unity. Fifty years ago, the French psychologist and psychoanalyst Lagache still strongly believed in the unity of psychology (Lagache, 1949). Those who came after him were more and more sceptical. Researchers have been increasingly prone to hyperspecialization. After a long period of monolithic theories which shaped the first landscape of psychology, local models and microtheories proliferated; conflicts persisted and multiplied, sometimes with ideological connotations; and worse, mutual ignorance from one subfield to the others has become the rule. All this is not very favourable for building a future for psychological science; not favourable for promoting firmly founded applications (practitioners confronted with a number of discordant voices get fed up and turn their back on basic research products); and it is not favourable either to the credibility of psychology in the opinion of other scientists and in public opinion at large. This is a rather pessimistic account. I have myself very much shared that view especially after a certain brand of cognitivism had restricted humans to the model of a computational machine processing information, reducing mind to that function, and reducing men to mind, to that sort of mind.

However, the evolution of psychology in the last few years points to important changes compared with that state of affairs. It seems to me now that we are heading in the good direction to recover a sense of unity in psychology, without leaving out complexity. Let me point, very briefly, to some of these incipient changes.

...and recovered?

After exaltation of Mind, emotion, affect and motivation are, at last, rehabilitated. A major landmark is the book by the neurologist from portuguese origin, Antonio Damasio *Descartes'Error*, significantly subtitled *Emotion, Reason and the Human Brain* (1994). Damasio must be credited for having influentially restored the rights of the body, for having, so to speak, "re-dignified" it as unseparable of the functioning of the brain, including in its most "noble" cognitive tasks, to which Descartes had assigned another distinct substance (perhaps only to avoid conflicts with the church?). Others have been contributing to the same trend, for instance Varela, Thompson and Rosch in their *The Embodied Mind* (1991). However, these authors search for the solution in the complementary juxtaposition of oriental philosophies (especially budhism) and cognitive science, rediscovering on that occasion european phenomenology. They do not really offer an integrated scientific view of man; they maintain Descartes' dichotomy between mind and animal nature, and so doing they perpetuate Descartes' dualism. The merit of Damasio is in his attempt to really recombine cognition and emotion (not to build a cognitive view of emotion, as has been the tendency in the past few years, and is but a by-product of cognitivist radicalism), making an important step towards restoring the unity of man.

Similarly, after the exaltation of cognition as an information processing device, with no consideration for the final stage of whatever is processed by the brain, be it animal or human, that is *action*, we observe now important moves toward the rehabilitation of action. A recent book by the French psychophysiologist Berthoz illustrates that trend: *Le Sens du Mouvement* (1997). To make a long story short, let me just say that the metaphore of the robot is substituted to the computer. Organisms are not just processing infor-

mation impinging upon their sensory receptors, they engage in motor action. In fact, it would be pointless to process information be it not to guide action. And more than that, information processed is actively captured, not passively recorded. From the very beginning, *taking information is acting*.

As a reaction to behaviourism, cognitivism in its more extreme forms had given exclusive consideration to mental life, minimizing the interaction with the environment. This excess has been corrected, mainly under the influence of ecological approaches, which eventually have pervaded cognitive research, reestablishing the balance between what humans have in their head and what they face in the world around them. Simple and well-known examples come to mind, such as ecological approaches to memory, the now popular concept of contextual effects on memory, perception, problem solving and the like.

Biology and culture: a persistent tension

Extreme functionalism, in the sense the word has in Johnson-Laird's theory, has been another excess of psychology in the last 25 years or so. Exclusive emphasis on highly abstract, purely computational models, had isolated psychology from biology, and so to speak had cut the mind from the brain, not to speak of the rest of the body. This has been corrected, or is on the way to be corrected, in the joint venture with neurosciences. Brain studies are progressing so fast that it is absurd today to claim, at least in many sub-fields of psychology, that psychological research must be carried out in complete independence with respect to neurosciences. In fact, there might be a risk in the opposite direction, that is to say, the neglect of the social dimensions of human behaviour. Functionalism (again in Johnson-Laird's sense) was not especially focussing the social and cultural factors, but traditionally, (human) psychology had been viewed by many as the difficult science of organisms whose specificity consists in being rooted both in biology and in culture. Uncritical enthusiasm for neurobiology might lead to forget the cultural ingredient composing our nature. Obvious as it is, these two aspects seem awfully difficult to combine in scientific thinking, and it remains a challenge for the future. There

has been throughout the history of our science, and there still is today, a tendency to oppose them, in a dichotomic thinking, rather than integrate them. On the occasion of the celebration of Piaget's centenary, a congress on Piaget and Vygotsky took place in Geneva. The opening session was unusual: a group of the scientific organisers, after welcoming the audience, read a text in the form of a manifesto (Bronckart et al.,1996). It was a plea in defence of giving more consideration to socio-historical factors in the study of human psychology. The reference was, of course, mainly to Vygotsky, but the position advocated was clearly more suspicious toward biology than the russian psychologist was in his time. The authors went as far, at the methodological level, as to deny the possibility to "explain" human conduct with the traditional tools of science, and resorted once again to the old opposition between *explaining* and *understanding*, which has been one of the crucial points of disagreement among psychologists, especially opposing some schools of clinical psychology to experimental psychologists. The question remains debatable, and is being debated: is the socio-historical nature of humans inevitably leading to reject the general scientific rules?

Human nature and diversity

Our scientific practices in psychology are of course largely subsumed by our conception of man, and therefore of what we are looking for. As a transition to some reflections on the applications of psychology, I would like to comment on two aspects of human nature, which have been underlying most research in the past. One is the search for the ideal "average" human being; the other is the believe in the stability of human nature through time, be it at the individual scale or at the scale of the species.

It is a tradition in psychology Faculties to impose on the students a tough training in research methods and in statistics - which has become, as is well known, the most popular and preferred course. A large part of that is aimed at reaching the core of human nature, by neutralizing all those variations which, in spite of our ingenuity, keep contaminating our results. As we are not able to get rid of variations, interindividual and intraindividual, we do all efforts at least to minimize their influence on our data.

We look at central tendencies, ignoring variations. All that of course is orthodox practice in scientific method, and no one would object to it.

A Belgian scientist of the last century, a very famous mathematician, Adolphe Quételet, is partly responsible for that. Psychology students should express their gratefulness by erecting a statue of him in the yard of their Faculty building. He deserves credit in the history of science for major contributions, among other things, to probability theory and to the applications of statistics to social problems. For example, he is the father of statistical demography. Confident in his method, - and he had good reasons to be satisfied - he extended its use to the knowledge of human nature, arguing that statistical analysis would permit to get rid of all those uncontrollable sources of variations and provide us with the true, pure picture of human nature. He exposed his view in a famous book, which gained large audiences in the last century, significantly titled *Essay on social physics*. The average man, abstracted from statistical central tendencies, was the real man, the authentic image of human nature. Statistical instruments clarified the blurred and confused picture of human diversity and instability.

However, there might be more to variations than undesirable accidents which should be eliminated. This idea has been given increasing attention under the influence of biological thinking, from Darwin to modern biology. Variations are part of biological nature. They are the condition of species diversification and survival. Interindividual differences reflect the diversity of the genetic pool within a population and the complexity of phenotypic expressions resulting from the interaction of the genetic endowment with the environment.

Psychology has been slow in recognizing the status of diversity. For years, and until very recently, differential psychology had no place in general psychological theory, no place in introductory or advanced textbooks of "general" or experimental psychology; it was rejected in the field of applied psychology, which clearly meant that variations were accepted as a regrettable fact to be taken into account in real life, in practice, but are irrelevant when building theoretical constructs (see Richelle, 1995). One

major figure in giving differential psychology its respectability (yet not always recognized however) is Maurice Reuchlin (whom your Faculty has honoured with an honour degree some years ago).

This move toward recognizing the place of variations does not result of course in getting rid of statistics - I am sorry to say for students who don't show passionate love for it; on the contrary, it leads us to a different use of statistical instruments, even more refined and more sophisticated.

Human diversity at any given time is a basic fact for psychology. This observation at the synchronic level should be completed with a similar observation at the diachronic level: human individuals throughout their life, and the human species throughout history, do change. Development is not simply, as it used to be viewed, the evolving of an achieved and highly stable adult personality that would be maintained until death - unless a deteriorating process occurs in old age. It is a life-long dynamic process - as expressed by the phrase "life-span developmental psychology" - with emphasis on changes as well as on stability. At the intergenerational scale, changes in cultural practices are equally recognized as shaping new, unprecedented human behaviors, which raise the question: how permanent through historical time is human nature?

These are major steps towards an integration of biological and socio-historical approaches to human nature, which hopefully will take us beyond the dichotomy still expressed in the Geneva manifesto mentioned earlier. By founding a general psychological theory on a biological science and a science of human culture which give equal importance to diversity and change, we might eventually reach a new unity for psychology. This does not mean that there are no "universals" of human nature, nor that we should turn to "absolute relativism". It means that we must include diversity and change as part of human nature, whatever stable in time and universal in space some features might be.

More important than that, I think this approach is most promising to meet the challenges of the next millenium. We feel equipped now to indulge into some futurology.

FORTHCOMING CHANGES

Having experienced so many changes, for the better and the worse, in human environment during the past century, we are ready to face further changes in the next millenium. How far is human nature able to adjust to change, we don't really know. How far is it prepared to adjust to some kinds of changes, we don't know either. Some changes are already on their way in our physical and social environment: predicted deterioration of the atmospheric layer, increasing pollution, exhaustion of resources, threat of propagating diseases in spite of medical progresses, demographic explosion, shortening of distances in the village Earth - with consequent global economy and politics -, drastic disruption of traditional family structures, uncontrolled bursts of violence at different social scales - in small groups, communities, regions, nations , - crisis in the distribution of labour, poverty and hunger, etc, etc. All these problems are of such size that we, psychologists, might feel any attempt to influence them hopeless. And perhaps such pessimism is just realism.

Other changes are only beginning and it is difficult to foresee where they are driving us. What sort of modifications in individuals' cognitive and emotional system, in interindividual relations, will result from the fast progress of computers communication? Still more intriguing, what changes will human nature undergo as a consequence of virtual reality - if I may use this paradoxical phrase? Symbolic function has, in the past, developed in humans a wide range of internal activities extending reality in the domain of imagination. New technologies are proposing a new kind of reality, a sort of second degree reality, by building an artificial network of sensory information which might become, for humans of the future, the main source of information, that would in fact shape their personality and conduct, instead of the action of "real reality" as we have known it until now. Colonizing other worlds might raise another challenge, maybe reserved, as is the case now for astronautes, to the happy few, to a selected elite; but who knows? by the end of the millenium, or by the end of next century, crowds might take the way to other worlds, perhaps for leisure, as we now fly to Bahamas islands or Indonesia, perhaps

as labor force, as slaves were taken from one continent to another not so long ago.

Admittedly, we cannot really predict what kind of human nature next generations psychologists will have to study or to help. We hardly can prepare ourselves, I mean the next generations of our students, to what they will have to face. But no doubt, psychology will have to be very flexible if it is to meet such and other challenges.

Threats of the future as behavioural issues

Let me draw some lines for an efficient strategy, keeping in mind that psychologists of the future will be confronted with two very different kinds of challenges, as can be derived from the non-limited list of examples used earlier. Some of the challenges are clearly threats to the wellbeing of humans, perhaps to their survival. Huge environmental, demographic, resource issues are in that category. They call for rapid solutions which obviously are, to a large extent, matters of behaviour as much as of technology. Control of the demographic explosion, improvement of public health and control of epidemics, preservation of resources, control of violence, and the like require appropriate behaviour in all humans, which do not derive automatically from the technical solutions, when such solutions do exist. It is essentially an educational issue; and it is largely a question of prevention; it has been successfully dealt with in that way in some cases, but there is still a long way to go. Psychologists and specialists in education have already contributed to these problems; I think they should engage in them more decisively, and develop adequate training to that end.

One common factor of those "threat issues" is that the threats are usually distant in time, and the behaviour that would eventually reduce them are in contradiction with behaviour induced in the immediate present by many other causes. How are we to encourage the behaviour appropriate for reducing big cities pollution while everything is done to promote the sale of cars? How can we hope to spare natural resources in a society based on incentives to consume? We are facing the modern version of the old opposition between pleasure and reality principle. It is typically a problem of

time perspective, of having people act with concern for future generations. It is obviously a psychological problem but which requires a concerted approach from many others outside psychology.

Pluridisciplinarity

It seems that more and more, psychology is to develop as a partner in a multidisciplinary venture. The object of its study, the individual human, is no longer perceived by psychologists themselves as a reality that can be isolated from the global physical and social systems in which it is acting. And pragmatic efficiency of psychology is possible only if psychologists learn how to sell their skills and knowledge to other specialists. The last twenty five years have seen a very positive multiplication of interfacing fields; psychologists have opened new applied orientations, gaining attention and interest from colleagues in other fields. To the classical areas of psychiatric clinics, industry and school, psychology has fastly moved into many other fields, various branches of medicine (oncology, cardiology, Aids, and so on), to law, to politics, to social issues such as addiction, violence, to leisure activities such as sport and art. This widening of the range of activities which contrast with the self-limitations of applied psychology in the past is a very encouraging sign. It is certainly a condition for a successful approach to problems ahead of us.

Pluridisciplinarity is more than ever a priority for the future of psychology - which does not mean that psychology doesn't have its specificity. But specificity is not self-isolation.

Communicating within psychology

Another priority is communication and interaction *within* psychology. On other occasions, I have insisted on the importance for psychology to go beyond the compartmentalization that has been the result of monolithic theories in favour during a large part of our century. A critical approach to different schools of thought, more often than not still marked with ideological connotation, should be systematically proposed to our students, providing them with a sense of history and a non-naïve awareness of epistemological problems.

Propagating psychology

Finally, a third priority is a better propagation of psychology in the public. We are far behind medical and biological sciences in popular knowledge, let alone physical sciences or astronomy. The concern for more efficient information of people at large has been recently expressed by the belgian national committee of psychological sciences, but it is a widespread concern around the world. In our days, of course, better information depends largely upon the media. There are several conditions to make a breakthrough. One is the availability for media people of clear and palatable material, providing them with something straightforward to be transmitted in newspapers, on the radio or TV. We are sent back to the intelligibility and consistency of psychological data and theories.

Another condition is the receptivity of the audience. Here we are confronted with the problem of irrationality and the attraction of magical practices. The success of astrology, numerology, parapsychology and other occult sciences is real, testifying that humans are more prone to believe in the irrational than in the rational when their own person is at stake. It is always difficult to know whether they are irremediably so, or whether they are encouraged in that direction by the media themselves. The latter show a contemptuous underestimation of their audiences - which perhaps reflect their own level. Some years ago, I was invited by the local TV to participate in a debate on parapsychological practices, as an expert in experimental psychology, to bring the critical scientific point of view. I had to decline because of other commitments, and proposed one of my young coworker. However, I took occasion of my conversation on the phone with the TV man to ask him: "Why is it that you, at TV, put so much of parapsychology on your programmes, while you give almost no space at all to psychology? After all, psychology has many fascinating things to offer to a general audience, and some of them no less entertaining than parapsychological material." His answer came, unhesitatingly: "We are aware of that, but we think our audience is not ready for it; we try first to capture its attention and its interest in what fits its level of understanding, and shall eventually move to scientific psychology when it will be ripe for it". I am afraid they have not moved yet, and their programmes do not seem really efficient to raise the audiences' level. The spiral

is going downward. This is real challenge for psychologists. They should make efforts to advertise better what they have to sell. Too bad that Watson is no longer with us, who was so successful in publicity after being fired from Johns Hopkins University!

Early education in psychology: why not?

One line of attack on that issue is educating early to psychology. Is it not surprizing that psychology is still almost completely ignored as a subject matter worth teaching in the elementary and secondary schools? I contend that important parts of it could easily be taught in a very attractive way to young kids and even more to adolescents. It is certainly no less attractive to study perception, memory, learning, attachment in mammals , social compliance, etc. than to study optics, gravity, molecular structures, or the living cell. It is certainly no less useful. It would give everyone another look at psychological sciences. This is a real challenge, which we can meet from now, hoping it will not take the whole millenium.

WILL PSYCHOLOGY SURVIVE?

My reflections today have been based on the assumption that psychology is now part of the world, and that it will continue to be. Because we take interest in what we are doing, we feel confident in its future. Since we exist, we hope we shall survive. However, cultural and biological evolution might take a completely different way. For example, mankind might show to be unable to control aggressive conflicts and fall into chaos, let alone disappear, with no place left for psychologists. More unlikely, I am sad to say, it might reach a state of general happiness by the magics of some unpredictable miracle that would eliminate any need for psychologists, at least in their most frequent office today, that is helping people in solving their psychological problems. What would be left would be a few specialists of psychology working in basic research for the pure pleasure of knowledge, comparable to specialists of art or literature today. A third possibility, not quite unrealistic, already alluded to above, would be the generalization of "virtuality". People, possibly all genetic clones, would grow without any contact with

what we now call the environment, but with exclusive interaction with the artificially built *virtual reality*. They would construct their sensory experience from virtual sources, smelling virtual perfumes, tasting virtual food, making virtual love. Occasionally, they would feel virtual discomfort and call for help a psychologist, a virtual psychologist of course. In that case, all what we can do to prepare the third millenium is to define the ideal virtual psychologist, so that it can be implemented in the store of virtual objects, ready for use, when the time comes.

Abstract

Taking advantage of the millenarist mood at the approach of the year 2000, the author presents some reflections on the present state of psychology and on future prospects. In spite of the fragmentation of psychology into multiple subfields, some signs leave hope to recovering unity. Attention is given especially to current trends towards restoring the importance of emotion and motivation, of action and of environmental factors, the place of which had been reduced or neglected by extreme cognitivism. Although the traditional conflict as to the roots - biological or cultural - of human nature is still with us, a new way to look at variations, both interindividual and intraindividual, offers a possibility to reconcile the biological and socio-historical dimensions, and also to face the many problems challenging applied psychology in the future. Emphasis is made on the increasing need for pluridisciplinarity, for better communication within psychology, for more efficient and earlier information and education of the public at large as to what psychology is about. Given the impossibility to predict what changes human nature might undergo during the next centuries, recommendations are made to maximal flexibility, and readiness to deal with humans fully shaped by virtual reality, eventually in need of virtual psychologists...

Resumo

O autor apresenta algumas reflexões sobre o estado actual da psicologia e as suas perspectivas no futuro, partindo da disposição milenária de abordar o ano 2000. Apesar da fragmentação da psicologia em múltiplos subcampos, alguns sinais permitem esperar a recuperação da unidade. É dada especial atenção às tendências actuais que restabelecem a importância da emoção e da motivação, da acção e dos factores do ambiente, cujo papel foi reduzido ou negligenciado pelo cognitivismo extremo. Embora o conflito tradicional sobre as raízes - biológica ou cultural - da natureza humana continue presente, uma nova forma de encarar as variações e intra-individuais, possibilita a reconciliação entre as dimensões

biológica e sócio-histórica, ao mesmo tempo que permite enfrentar os muitos problemas que irão desafiar, no futuro, a psicologia aplicada, é salientada a necessidade do aumento da pluridisciplinaridade para melhor comunicação no seio da psicologia, e para uma informação mais eficiente e actualizada do público em geral sobre o que é a psicologia. São sugeridas algumas recomendações, dada a impossibilidade de prever que mudanças ocorrerão na natureza humana nos próximos séculos, no sentido de maximizar a flexibilidade e a prontidão para lidar com seres humanos moldados pela realidade virtual e, eventualmente, com necessidade de psicólogos virtuais...

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