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**THE METHODOLOGY OF QUESTIONNAIRES TO
DEVELOP A WORLD WIDE SPACE EDUCATION
PLAN**

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THE METHODOLOGY OF QUESTIONNAIRES TO DEVELOP A WORLD WIDE SPACE EDUCATION PLAN

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ABSTRACT

The questionnaires methodology is here developed closely connected to the education contents. The questionnaire is seen as a means to learn the people's mind, but also as a means to transmit concepts, thus strongly and declaredly invasive and infective, as to ideology.

The space agenda pays nowadays an heavy delay, therefore the education action shall be strong and clear, even running the risk to make some supporters of the "politically correct" to turn up their nose.

I start by defining **what should be the content of the education** and follow on defining **who should educate who**.

The method of the questionnaires is seen as a many-to-many analytic communication means, able to make many and decisive steps ahead on the path of space.

The first chapter discusses the current political system: people votes locally and is called to discuss local problems while is faced to global problems; how the space matter can relate to or affect such a situation.

The second chapter sketches the basic education needed to break some cultural walls, to interface different social subassemblies, and how to use questionnaires to make it.

The third chapter provides a draft of the Space Education Plan and some sample-questionnaires.

GENERALITIES

Terminology

In this paper I use some terms (most of them derived from the informatic systems culture) that could appear not so obvious to not informaticians. Thus a small legenda is required.

Communication – two or more (intelligent) entities are put in communication each-other when an information transport means exists and works between them. Information transport means could be: air (when entities are near), paper mail, telegraph, telephone, fax, internet, optic fibre, satellites, ...

Interface – two or more (intelligent) entities are interfaced when some systems (human or electronic protocols, or both) are provided (upon the communication transportation layer), able to make the communicating entities to understand each other, to use the received information, to enrich their cultural setup by the received information, to work together.

Link – a link between two or more (intelligent) entities is created when some drivers, inside such entities, are activated, in order they can develop connections to be used by the interface systems and the communicating entities.

Driver – a driver is an active agent, able to define the parameters of the interfaces and to connect different intelligences among themselves. A driver lives and works inside a social ensemble, an economic entity, a company. He/she is a person sensitive to the external spurs and able to create new links.

About the author

Adriano Autino is an entrepreneur, president of ANDROMEDA s.r.l. (<http://www.andromeda-srl.com>), a small Company producing hard real time systems, tools and methodologies for the Aerospace Industry. A. Autino is also the president of the Vector "Technologies of the Frontier" (<http://www.tdf.it/>).

Technologies of the Frontier on the web is a philosophical and scientific site, aimed to promote a new humanist philosophy and a new development paradigm.

Technologies of the Frontier, keeps cooperation relations with Space Age Associates (UK), SpaceFuture (Japan), Frontier Status (USA).

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A PLACE FOR SPACE FLIGHT IN THE PEOPLE'S AGENDA

Relevance of education in the global electronic society

The discrepancy between the national politic systems and the great development themes perceived by the people was never so evident as during these days (middle of 2001). In recent politic elections we still were called to vote on nation limited programs: how to fight the unemployment, how to reduce the public expenditure, and so on. But people is worried about other, global, themes: how to continue the human development - vs. the planetary limits - is the very basic specific problem, that all the Terrestrials feel in their bones, even if most of them are not aware of it. Opening the space frontier is the obvious answer to such problem: firstly it can give hope, and the awareness that we (as a species) are working for a project, to break the planetary cage and to gain our freedom in space. But such a solution is not so obvious for the most part of Terrestrials: **we have therefore a problem of education**, and a political problem too, since neither the world politic leadership is really aware of the relevance of

a serious space project. In fact we see that they keep on choosing other priorities, instead of space, even when space could give a winning answer to critical situations. A very actual example is the one of the US energy crisis: solar power orbital plants could solve the problem for next centuries and millennia, but the US administration chooses some obsolete energy sources (nuclear, coal). At the same way, if the public institutions do not provide up-to-date suitable channels, the people find old ways to express their confuse aims, on the global topics, as it is another time demonstrated by the so called Seattle movement.

The electronic society holds some jarring discrepancies: the government politics (and the public expenditure) is heavy, particularly in the space domain; a real free world-wide market (opened to all the Terrestrials, enclosed the pre-industrial ones) finds many difficulties to see the light, due to both, government and lobbies, barriers; the military expenditure is increasing, with nearly no politic opposition. In few words: the Terrestrials finally have the technological means to globally communicate and to put the basis for an

unprecedented economic and civil growth¹, based on the opening of the space frontier. **The key to really open such path is education.** Instead of strongly invest on such (life) option, we keep on investing in death tools and we follow leaders that do not understand the relevance of transforming the poor pre-industrial people in new (active) markets and culture producers. All the above is not (only) due to the foolishness of the political and economic leaders, but also to their supposed economic interests: they think that it is safer to make business with few pre-industrial feudatories than with new entrepreneurial classes spreading around the world: their idea of free-market is – in fact – a *very well controlled* market. But the electronic age character, the real new figure of such age, is the increasing (and inexorable) social transformation of the previous industrial classes in a nearly no-classes society, where the number of companies is continuously growing up and the relation between number of companies and number of individuals is continuously growing up. An example: 1961's census counted 600,000 companies in Italy, recent census counted 5 – 6 millions, while the individuals population only passed from 50 to 55 millions. Most of such new companies work in electronics and informatics. Such a process is made possible by the electronic revolution, that lowered the capital threshold needed to run a new company. There's no reasons why such a process could not extend to pre-industrial countries, whatever the opposition it can find on its path, by economic and political powers or by the so-called Seattle people. And there's no reasons why such a process could not find, **at the same time**, its natural path to the stars.

But, though natural², such a path is not automatic nor discounted: the meanness of Terrestrials (as a global social ensemble composed by short-sighted leaders and people unable to change them) could abort such a process, or prevent it to go over the critical threshold needed to really ignite.

The need to interface different social ensembles by means of a systemic approach

The task for educators is therefore very complex and difficult: no authority will collect them together nor promote any coordination or elaboration. They should firstly recognize themselves one by one, to put together their materials, to elaborate a strategy and then act nearly as a political current inside the institutions. In fact it is no more time to break groups and to build anything **against** something else. Groups will anyway split in smaller and smaller groups: new composed groups will take place only at cultural layer, no more at structural

¹ Only a continuous economic growth can allow the development of the pre-industrial people, and only if they get enough economic means the pre-industrial people can give their (potentially enormous) cultural contribution to the continuation of the civilization. Moreover, if the economy pie will be growing the competition will be less ferocious, and our culture will make steps forward. The above is the ultimate rational for the opening of the space frontier (or for the "extraterrestrial imperative").

² The word "natural" is used here on purpose: I believe that the task of intelligent life is to disseminate itself in the universe.

layer, as it was during the industrial age, and neither at political layer, at least as it was known in the past century. It is not interesting to work to break: it is very much more interesting to work to open the systems, to interface social ensembles, groups and cells of the electronic society and of the pre-industrial societies. Also it is no more interesting to work at the communication itself: optic fibres and satellites tie up the planet like a ball (maybe even more than really needed)!

Contrary to the end-to-itself communication, **interfacing** is much more an analytic work. To transport information is more and more a job for intelligent machines. To interface human groups is a job for human analysts, endowed by a **good questionnaires methodology**. This work will of course use the new communication technologies (as the industrial age activities used telephone and fax), but not only: to me, it is very important to meet people face to face, to really start working together. And education really takes place when a direct human relation is established between a teacher and the students.

A ww-space education project: justification, theory and personnel

Such an interface-education project shall encompass the real meaningful topics that the most culturally sensitive people perceive as urgent and no more deferrable: from philosophic themes to economic and politic ones.

It could sound strange that such a philosophic wide project is conceived by a particular cultural human ensemble, the one dealing with space, and not by other currents: have we the right to do it? Thinking another time about it:

- a) it is not strange that people working in/for space was currently the only cultural current able to think about future in terms of evolution of the human civilization;
- b) all the environmental currents of the so-called "sustainable development" (nowadays majority) think in terms of recession and regression of human presence on Earth;
- c) our solution is (also) a long-term solution for the environmental problems – the only solution "sustainable" for humanity, because it does not require a regression of the human development, and therefore the only ethic solution – because it will reduce the human pressure and burden on planet Earth, without reducing the human (physical and cultural) dimension.

On the topics of the human future in space (philosophy, ethics, economy, politics, anthropology) several groups produced and are producing excellent materials around the world during the last years: those materials shall be taken, organized, rationalized and transformed in education lecture notes. Of course it will be a **developing science**, because we cannot claim to have any **definitive** cultural base, on the topic of the human development beyond our birth planet: our dear teachers were the science-fiction writers and the space pioneers scientists and philosophers. Now it is time to transform all that in living science and philosophy to be taught and communicated to young terrestrials: the *natural* target of such stuff.

Our goal should not be the one to re-invent the space philosophy starting from scratch, but the one to put together and to organize the conspicuous existent materials, connecting such science with the aims, projects, culture of the real people. In fact, human society already produced, at least in some post-industrial countries, some evolutionary future-oriented pro-space groups: they are a precious source of philosophic and politic elaboration, and should be used as inspirers and first generation of space-teachers.

The questionnaires methodology can be of great help and play a key role, at least in:

- collecting analytical data about the existent materials directly from the tenths of pro-space groups and associations that work on planet Earth and publish issues on the web;
- collecting suggestions and ideas among the space community (space scientists, technicians, entrepreneurs and workers) about how to reach all the space-oriented terrestrials with a coherent proposal and how to coordinate their education aims and efforts;
- collecting people's aims, projects, know-how and thoughts about how to use their know-how in space related activities;
- collecting people's suggestions about how better coordinate the dawning space economy (which services or products they will need or aim to provide in such a context);
- sketching a draw of the current space market (companies working in it, segments, market architecture, etc...);
- collecting information about space-knowledge repositories in the agencies archives;
- collecting availabilities to teach, study and research in the future space universities.

If someone is thinking that to develop such an education plan is a bit similar to build a political party... is not so far away from the truth. We (ethical space supporters) are carriers of a new philosophy, and I think our duty is to bring it -- as the highest contribute -- to solve the humanity's problems, in the most advanced way, having learned and metabolized the positive and negative lessons of the past century, and of the industrial age (rightist and leftist collectivism, ecologism) and being finally able to understand (because we can compare different advanced societies) many of our philosophic limits.

A role for space agencies and other space dealers

Agencies are also – of course – big repositories of history and science materials. Surely, if the project proposed by this paper will find supporters and investors, agencies will claim they are the best to carry it on. They will likely also say that they are “already doing it”.

But, if they are the best, and they are already doing it, why we never had – at least – regular visits and lessons by agencies teachers in the schools and universities? Why don't we see agencies go around the countries promoting space education institutes? Why don't we see their powerful outreach structures (paid by our public money!) continuously appear on media, to promote the space education, publicize books and materials, directly speaking to people? The answer is obvious:

notwithstanding the good will of single individuals inside, agencies are bureaucracies, and they tend to do the minimum effort needed to conserve their desks. Furthermore, agencies are ruled by governments, and governments do not look favourably to the liberalization of space, because they would lose the military control of it. The analysis about the space agencies is obviously bigger and deeper than so, but this paper is not the site to develop it.

Here I will limit my considerations to the following ones:

- a) space agencies exist, and they represent a big investment made by the human species (though not so big as the military one, several magnitudes bigger);
- b) space agencies hold a meaningful concentration of space know-how and culture, it is our patrimony, and should never be dispersed;
- c) many individuals inside agencies are honestly aimed to promote space development and culture, even if the agencies politics results rather an obstacle to the development of a free space market.

To be short, my opinion is that agencies should not be fought, but involved, opened, interfaced and used for their big know-how.

What it should be clear is that the leadership of the education project shall never be given in the hands of the agencies: the education project should find supporters and financial means, create proper structures, and be an independent institute, well seen by agencies and by all the space dealers.

Agencies should help – by their most motivated people, by their financial means and their materials archives – to create open space universities in all the countries of the world, targeted to research, explore and colonize the extraterrestrial space, planets and bodies of the Solar System (as a third millennium goal).

The same applies to all the industries and commercial ensembles currently dealing with space: they have also a direct economic interest to increase the process by education. Properly designed questionnaires should be directed to such kind of companies as well, aimed to investigate about their availability to participate in the education project.

Be sure of the following: everywhere in the agencies, the companies and the existing institutions, there is people paid to have ideas like the above. It is possible that, someone of them, reading this paper, will start thinking about realizing something like this. They will be sure they can *do it better*, but their directions will allow maybe a small percent of this project, and we will never see any sensible result. Why? Because they don't really believe in the potential of humans. To really put in place an investigation large analytic system is a big work, and they take their wages even if they don't do it. And, they are sure – since they belong to a big organization – they don't need to ask anything to anyone: they are sure to hold – by definition – any needed knowledge. They are not aware that, having maybe something to teach, they also have many to learn, by people. Their questionnaires are therefore conceited, and give to people the role of subjects, not of leading parts, and are not really interested in the people know-how, aims, projects: in few words, they are destined to fail.

Just to avoid misunderstandings: I have not the presumption to say that all what is going on inside the official space community is destined to fail. I just observe that many (on the paper) excellent initiatives are going on since years, they hold meetings during congresses and symposia, they change presidents, they make call for papers... but we never see anything on TV and newspapers: it means that they remain inside the "authorized personnel" and never reached the real society.

They keep busy the good will people, but what we had up to now is: NO RESULT. A deep analysis and critic balance should be made, of the major and most interesting initiative (I just mention here the 21 Century initiative, that some years ago launched a very ambitious and interesting program: the World Space Program).

BREAKING THE CULTURAL WALLS

Some ethic achievements

From the extreme confrontation between man and nature, that's going on in our age, we should also learn some basic lessons. In nature usually the winner destroys the losers. In many animal species, the winner even kills the cubs of the looser, and this is a law of natural biologic evolution.

We shall now learn a quite new law: in order to survive as a civil species, man shall win nature³, but no more to destroy it. This is the first law of the intelligent life evolution, and it can be extended to our main social activities: we can't suppress competition, but we shall learn to **win and then to make better than the losers, and not to destroy the losers.**

Applying such law to education, it is clear that, in education activities, some competition aspects are embedded. When someone approaches someone else with the aim to educate, always some questions are "in the air", though often unexpressed, by the side of the educated ones:

- "do you really have something to teach me?",
- "after your education, will I still be myself?",
- "what will I loose, following your teaching?",
- "and will the new learned culture really compensate my loosen culture?"

In our presumption, we post-industrial think that the results are self-evident: our culture allows us to travel by jets, while the pre-industrial cultures often do not allow people to survive. But the same thing is not so evident for those people: regardless how much is poor, their culture is something they had from their parents and elderly, thus is something precious for them. Consider also that some cultivation methodologies – for instance – were really effective in desert lands: are we sure we have nothing to learn, and that we can pass over those old know-how? If we will have to cultivate the Mars ground, it could be that some of those old knowledge could be useful too. A better method should be therefore to study such cultures, then try to apply them in more systematic and extensive ways: people will keep and increase their dignity, and educators will gain a position of true (recognized) leaders.

³ If we will not overcome on nature, expanding ourselves on other celestial bodies and artificial orbiting buildings in space, nature will sooner or later suppress our species, by several possible means: killer asteroids or comets, epidemics, climatic changes, earthquakes, etc...

Of course the education project should cover also (and maybe first) the post-industrial societies: the problem is not so different. Also here we have to compete with several cultures and backgrounds, with people proud of their achievements, that surely will put the above mentioned four questions, and often reject our proposal because they think it is not worth, and the balance will not be positive. In all the social and economic situations, it is very important to set a basic principle: "Our education will of course change the life of the people, and will be very infectious and invasive, but it will not steal any cultural tool to anyone. It will add new tools, and, more important, it will take up and integrate in the methodology the valid tools previously owned by the educated people."

The goal, thus, will be: to win (a leadership position) **by doing better** and **in order to do better** (better than nature, better than the old pre-industrial cultures, and even better than the old *industrial* cultures). The methodological approach follows up:

- (i) to analyse cultures and environments (by means of questionnaires, channeling the collected information in well organized relational databases);
- (ii) to make demonstrator experiments (applying our project culture, helped by selected people) on small scale (use questionnaires to test how the experiment was acknowledged by people);
- (iii) to win (confidence of people, and leadership positions);
- (iv) to do better, on large scale (applying the results of the experiments);
- (v) to educate on large scale (on the base of the developed project).

As we can see, education properly said is only the fifth step of the project, but how much we will have learned, during the whole process!

As anyone can see, my concept of *space community* is very large, and includes not only the scientists of agencies and the technicians of the space industry, but also the wide galaxy of the pro-space groups. As many separations, also the one between space community and rest of society is only a cultural separation. In the reality, some *drivers*, able to break such separation and to interface the two worlds already exist, and they are exactly the pro-space groups: many well aimed people, visionary and dreamers, sure, but ready to make their part, in a finalized project. Space community is already linked to society: it will be enough to activate the interfaces, and start speaking in a loud voice.

Space education shall enter the national education systems

A connection that cannot be delayed anymore is the one between the space community and the different national education systems. The education system seems to be simply not aware of the space sciences, of the human history in space, of the contemporary and leaving philosophy. Furthermore, the education system is not finalized to great projects, and does not communicate to the young the charm of space (and science) adventure. Also, the education system seems not to be aware that 30 years of automation systems design and engineering are gone, and does not even try to call project leaders and project managers over 50 years aged to dedicate part of their time to education. All the above should be reversed, and fundamental disciplines, as Astronautics, Astronomy, Astrobiology, Real Time Systems, should be introduced into the programs of schools and universities of every order and degree, together with the history of science, and history of scientists, forerunners, space pioneers and philosophers.

We cannot be amazed when we listen some journalist to say nonsenses about space: nobody never taught them anything about space!

The border to exceed

But the real border that the education should break, as soon as possible, is the one of the distrust.

The real limit of all the social and market studies is the depth of the analysis. The reality, in fact, always exceeds, of many lengths, the "focal length of the analyst's glasses".

The only way to break such wall is to involve more people in the analysis, using the method of the inquiry and of the analytic questionnaires. Note also that it is not always enough to make a questionnaire to circulate and "automatically" to collect the answers. In the electronic age we should learn as soon as possible what can be automated and what not. Real very good results occur when the questionnaire is used as a trace for a live interview (and not only as an automated inquiry motor on the web). During a live interview (as during a good lesson, kept by a keen teacher) something of magic can occur: the spark of creativity ignites a big fire.

The trust is the first feeling that an educator should learn and apply, with candidates to education: if we are trying to educate someone, is because we think that, after education, he/she will help us in our tasks. Therefore we have confidence in (i) his/her ability to learn (ii) his/her previous know-how, that (big or small) can be integrated in our education disciplines.

Most of all, all researchers and educators should know that each approached individual can add some bits of information about the reality, and that the reality (especially if we are dealing with social and economic matters, but often also with project matters) is not knowable nor understandable in other ways: only talking with people!

Too many times an excessive trust, instead, is given to a single individual (often an adviser), who claims to know all what is to be known (this is already a good pun!), and makes large studies investigating... his library, and interviewing himself. Nowadays, by the internet, one can

make an almost good work even investigating the web, but, if you want to give a chance to the creativity spark, the face to face interview remains the only mean.

Who should educate who?

Speaking about education the main criteria to choose educators should be the one of culture. But speaking about space-education we owe to add some other criteria. A first rough collection of requirements and criteria could be the following one:

- a) It is not enough to be sitting at a desk to be a good teacher.
- b) It is not enough to be working in a space agency to be a good space communicator.
- c) The first goal in space education and outreach is to break the walls of indifference, to make the message pass through the hundreds of commercial advertises, to get the attention of the people and make them understand that the space proposal is not "one of many alternatives".
- d) To achieve the above goal – the real communication – really motivated, inspired and passionate people are needed.

If the above requirements are true, we'd better look for educators in different social ensembles, and not only in the most obvious ones. The social reality of the electronic age is very complex, and the key to analyse it is no more only the economic one (as it was during the industrial age). Nowadays, several *cultural keys* should be added to the tools kit. To put it simple, at the very end of the analysis, our aim could be the one to identify, in the society, the ones that Wendell Mendell, some years ago, used to call "expansionist" supporters. He also called "high" the aim of the supporters of the expansion of human civilization, and "low" to define the aim of the regression supporters⁴. I think these are exactly the correct way to call the two aims: high and low. Working together with high-aimed people, we could than make other people to recognize the logic and the beauty of the high path. Among the people interested to space, we can identify the following categories (each one defined by a level of awareness):

- A) The ones who see clearly that the only ethic solution – in order to continue the development of the human civilization – is the expansion into space.
- B) The ones who follow the space activities due to their scientific and/or cultural curiosity.
- C) The ones who take the space news as an amusing change.
- D) The ones who earn their salary by space activities.

Categories A shall definitively educate. Categories B and D can educate, if well leaded and coordinated by A. Category C members are very precious, as enthusiast supporters.

Thus the first goal of a wide questionnaires strategy should be the one to find out, and encourage to link together, the largest number of category A members. I repeat, members of A category are not necessarily already in the ranks of the space community. Therefore,

⁴ Please see the paper "Three Levels for Astronautics", by Marco C. Bernasconi, at http://www.tdf.it/english/3astr_en.html

the diffusion range of the first questionnaire should be large enough to find out sincere and passionate people,

even if the *professional space advisors* will howl for the scandal.

A PROGRESSIVE INVADING PLAN

The methodology of the questionnaires

Making, diffusing and using intriguing and stimulating questionnaires, if approached in a scientific way represents the key to go through the steps of a very far reaching plan.

The key, very very important, never to be forgotten: each step, each detail, each activity, shall always be closely **linked to the social promotion aims and goals of the interlocutors.**

From the above a very basic rule follows: each questionnaire shall be addressed to individuals, and shall include questions about how the addressed person sees him/herself in the plan, and how he/she expect to improve his/her social and economic conditions. The above is valid and true in all kinds of society: from the most advanced electronic society to the poorest pre-industrial society. And, to develop the plan, it shall mean to socially promote the participants to an higher social degree, **up to the highest one:** the ethic space educators, the builders of the path to the stars. Therefore the plan must very early hold a good financial platform. The persons who will believe in such a plan shall never be left alone, and never they have to learn the cynic rule that we so often had to learn: "Are you interested and passionate? OK, invest, alone, your time and money, than we will see". Of course we will ask people to invest, according to their possibility, but the plan shall have means to give support to the enthusiasts that want to dedicate most of their time to the plan.

Follow few requirements and rules to design a good questionnaire:

- a) The design of the questionnaire shall include first an analysis phase:
 - a.1. The main goal of the analysis is to detect the specific (social and economic) characters of the addressed persons.
 - a.2. The analysis shall lead to include proposals of social promotion for the addressed persons (they could be: new chances, marketing sinergy, customers, tools and opportunities to improve their current activities or directly job proposals).
 - a.3. Of course the proposal of social promotion shall never look like the coarse invading noisy e-mail propaganda ("here's your new life" etc...). The proposal must be well formulated inside the questionnaire, and of course the candidates will be tested (culture, skills, aims, experience) before to be accepted.
- b) The questionnaire shall be aware of, and propose ideas for, solution to the hottest and advanced social problems, thus:
 - b.1. The initial analysis shall include a deep enough social analysis, and such analysis shall include the social and economic situation of the

countries where the questionnaire is to be diffused.

- b.2. Since each period has its more progressive social ranks the analysis should also detect the social ranks that has the newest problems and the highest: this is usually the more interesting social ensemble, most sensitive to new paths, technologies, methodologies. As an example: during the first years of the electronic age, a large ensemble of people, composed by new small entrepreneurs and informatic technicians; they pay a lot of taxes, they are the backbone of the economy, but the institutions do not acknowledge them, and are still oriented to the obsolete industrial schemes. Of course different situations and velocities exist, among, e.g., USA and EU. The designers of the questionnaires shall take such differentials into account.
- c) The questionnaire shall be addressed to single individuals: categories cannot take quick decisions, while individuals can, the SEP cannot make proposals to "categories", while it can make concrete and sound proposals to individuals.
- d) The questionnaire shall include references to individuals to be directly back contacted: SEP is not a new bureaucracy, but a live ensemble of individuals, aimed to interface and work together with other sincerely motivated individuals. The SEP runners shall not be afraid to add many new one-to-one links to their agenda. If and when the work will become more a one-to-many work they should start to worry. If and when they will start answering to people things like "We cannot do it, because then everyone will ask for it" they will be going to be a new bureaucracy, something is wrong, and shall be corrected.
- e) Each questionnaire shall be designed knowing very well what is the current situation and what is the goal to reach by means of the questionnaire itself. E.g.: we are 10 persons and, by means of this questionnaire, we want to get 30 new persons to work with us. Or: we have no contacts in the rockets industry, by means of this questionnaire we want to get contacts in at least 3 rockets constructor companies (entrepreneurs); by means of another questionnaire we will approach the technicians, in the same environment.
- f) In order to start thinking by their head, and start to really aim high, people need to be addressed by the really important questions. Such questions shall be direct and devoid of any ambiguity, doesn't matter if many will feel hurt by some questions: to be hurt is (specially for the one mind oriented people) the only way to realize that there are problems and discrepancies in what they believe.

The Space Education Plan

Here follows a rough sketch of the Space Education Plan:

1. PHASE A

- a. GOALS:
 - i. to interface different pro-space environments;
 - ii. to get a first call-up of communicators and teachers;
 - iii. to get a discussed and shared theoretic platform;
 - iv. to get a research financing, to develop phase A.
 - v. to collect funds enough to develop phase B.
- b. STEPS:
 - i. To prepare a first questionnaire, addressed to the highest category (ethic space supporters).
 - ii. To get a first ensemble (let's call it E1) of motivated, skilled and passionate persons, a first call-up of educators.
 - iii. To complete a deep discussion inside E1 about the goals of the project, the base materials, the materials to be developed, the working plan for the follow up (Space Education Plan).
 - iv. To discuss the basic topics: space philosophy, ethics, politics, research priorities, exploration priorities, space industrialization goals, how to interface the electronic society to extraterrestrial environments, how to interface the pre-industrial societies to the highest tasks of humanity.

2. PHASE B

- a. GOALS:
 - i. to interface different social environments to the Space Education Plan,
 - ii. to get a second call-up of communicators and teachers,
 - iii. to enlarge the discussion on the space topics into the society.
 - iv. to collect funds enough to develop phase C.
- b. STEPS:
 - i. To select social/economic ensembles and to study the main characteristics, paths and (social and economic) goals of each one.
 - ii. To prepare new questionnaires, made to reach a larger ensemble of people (E2), addressing the selected social ensembles, commercial environments, entrepreneurial categories. Each questionnaire will be specifically designed on the requirements and characteristics of the addressed ensemble.
 - iii. To form a new larger layer of communicators, teachers and *drivers*, selecting the most motivated persons inside the connected ensembles.

3. PHASE C

- a. GOALS:

- i. to get institutional acknowledgement, financial contributors and investors;
- ii. to interface as many people as possible to the Space Education Plan, in all societies and social ensembles (E3);
- iii. to develop the space education in the whole world;
- iv. to run the world-wide education plan toward young students (E4):
 1. to give lessons in all the existing schools and universities,
 2. to open new space schools and universities.

Some key questionnaires

Hereafter a list of possible questionnaires for the PHASE A:

- a) Questionnaire on the current education systems.
- b) Questionnaire on ethics.
- c) Questionnaire(s) on space flight (scientific research, exploration, inhabiting, astronautics, economy, politics, social, ethics).
- d) Questionnaire to make an holographic picture of the existent space philosophy texts and materials.
- e) Questionnaire on most the urgent politic problems (for electronic age ranks).
- f) Questionnaire on most the urgent politic problems (for pre-industrial oucasters ranks).

And, as examples, some key questions follow, under some of the above topics.

Questionnaire on the current education systems

- 1) **Technological Professional Experiences/Skills - > Education System** - How much of the professional experiences in key fields did pass in the education system, in your Country or situation? Do you think that it would be useful if the education system invited experienced technicians and managers (let say, over 50 years old) to dedicate at least half of their time to teaching? Does it happen in your Country? Do you think that a greater migration would be useful, in both senses, between the teaching and the productive worlds? If the above was undertaken, would you be available for teaching? And for learning?
- 2) **Education System -> Technological Professional Competences** - How much is the education system useful for the productive world, the companies, the professional culture of the persons? Was your school useful for your job? Could you mention some virtuous case of large usefulness/tuning of the education system with the productive world?
- 3) **Great Projects and Education System** - Our planet has begun to show its limits, in supporting alone the intelligent life, being this last increasing both numerically and culturally. This requires a wider vision of the world, to go over the physical limits of our world, to think about great projects: the opening of the space frontier, but also the reclaiming of deserts, the colonization of sea, the food research... to work on the frontiers, to exceed them with intelligence. Do you think that the education system should achieve such visions, and to setup in

order to form new generations in such direction? Which are the existing disciplines to empower, in such direction? Which are the new disciplines to institute, in this vision? Which are, if you share such vision, the great projects which the education system should encompass?

- 4) **Social Changes and Education System** - The advanced societies passed from industrial age to electronic age, but few people are aware of such a social change. Do you think that the education system should deal more with social analysis and studies?
- 5) **Lacking or underrated Matters of Education** - Astronomy, Astronautics, Ethics, History of Science, Philosophy of Science are lacking in the education programs. Are some of the above matters in the educational programs in your country? Was some new matter recently introduced, due to modern vision? Do you agree to insert at least such matters in the scholastic programs? Which matters should be added in the scholastic programs?
- 6) **Cultural Discrepancies and Education System** - The most famous and more discussed case, is the one of the split between Scientific Culture and Humanistic Culture. Do you think that such split is source of social lacks of balances and that it must be recovered? Do you think that in the ongoing education reform programs there are measures aimed to overcome such separation? How should the education system setup in order to fix such discrepancy? Could you mention some other social harmful cultural discrepancies?
- 7) **Cross-Fertilization and Education System** - Do you think that the inter-disciplinary cross-fertilization (obviously made with judgment) is useful or harmful? Do you think that the education system should setup and educate in this direction? Could you mention some cases in which the cross-fertilization was very useful or very harmful?
- 8) **Scientific and Technological Research and Education System** - Could you contribute, by your experience, to draw the picture of the current state of the relationship between scientific research and education system? In your known fields, does it exist a relationship between university and research? Do you think that the development of technological research commitments for private customers by university departments is useful for the students education and in order to motivate the teachers to keep themselves always uptodate? Do you believe that the current method of education on scientific matters is sufficient to transmit to young people the curiosity to make researches? Do you believe that only the result of the researches is to be taught, or also the procedure that carried to the discoveries and the human/social profile of the scientists? Do you believe that the history of the scientific search is sufficiently present in the schools programs?
- 9) **Personal Aims** - Would you be interested to work in a big world-wide education/outreach plan? What kind of help could you give to the plan: professional full-time / professional part-time / voluntary? What is your current job? What are your skills and experiences? What are your personal points of

excellence? What could be your original contribution to the mentioned education plan?

- 10) **Other Questions** - What did we forget? Could you add some meaningful questions?

Questionnaire on ethics and ideology

The questionnaire invites to check, for each proposed item, three squares: Useful / Unuseful / Noxious. A space for comments is given for each item.

1) Ethics and Freedom

- 1.a. Freedom is the supreme good.
- 1.b. All the human beings have equal right to freedom and happiness.
- 1.c. In a complex society, the relationship between freedom and organization is a complex relationship, necessarily theme of research and evolution.

2) Ethics

- 2.a. Planet Earth is a finite amount of materials and resources: such limits to the human development shall not be forced.
- 2.b. The most deserving virtue is the sacrifice.
- 2.c. The most deserving virtue is the success.
- 2.d. Task and destiny of human kind is the one to conserve and preserve the nature, even at the cost of the self sacrifice of the human species.
- 2.e. The interest of nature is to be taken higher than the interest of the human species.
- 2.f. Task and destiny of human kind is the one to diffuse the intelligent life into the Cosmos.
- 2.g. To continue the human development the help of everybody is needed: six billions of intelligences and more.
- 2.h. In order to recover the planetary ecologic equilibrium, the human kind shall decrease its number.
- 2.i. The human kind is a parasite, infesting the planet Earth, and shall decrease.
- 2.j. The human kind is the maximum expression of nature, and the sole case of intelligent life in the known cosmos, and shall grow.

3) Ethics and Economy

- 3.a. Only a growing economy allows the continuation of the human development.
- 3.b. Six billions of human beings are the greatest richness that mankind never had, if is able to involve it and value it.
- 3.c. Credit shall be lent to the people which do not have any money, in order to give them a chance to exit poverty and to create new economy and new market.
- 3.d. Credit shall be lent only to people who offer warranties to give it back.

4) Ethics and Freedom

- 4.a. Only a new vision of the world, open and growing, gives to the Terrestrials the chance to be really free.

- 4.b. The freedom shall be defended by weapons and force.
- 4.c. The freedom shall be diffused by involving the people and by turning their skills and capabilities into account.
- 4.d. The very basis of freedom and development are: information, education, open horizons.

5) Ethics and Science

- 5.a. The cause of the ecologic problems are science and technology, and they shall decrease.
- 5.b. The cause of the ecologic and resources problems is the success riched by the human species in a closed ecologic environment. It shall be opened, using science and technology maximum expression of our culture.
- 5.c. Science and Technology are needed to continue the development of Humanity, after it exceeded 6 billions of individuals.



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