Comparative education

France has a extremely organized educational system. which is divided into primary. secondary and third (college) instruction. Primary and secondary instruction is normally imparted at public schools although a strong web of private schools besides exists. All educational plans in France are regulated by the Ministry of National Education. Schooling in France is compulsory as of age 6. the first twelvemonth of primary school while secondary instruction consists of college for the first four old ages after primary school and the secondary school for the following three old ages.

The baccalaureat is the end-of-lycee sheepskin that pupils must achieve and is comparable to British A-Levels and American SATs. Students have a pick of sitting for the baccalaureat general which is divided into 3 watercourses of survey. the baccalaureat technologique or baccalaureat professionnel. Higher instruction is funded by the province and fees are really low. Students from low-income households can besides use for scholarships.

Academic councils called academies are responsible for oversing all facets of University instruction in a given part. ANALYSING TECHNOLOGY EDUCATION THROUGH THE CURRICULAR EVOLUTION AND THE INVESTIGATION THEMES France Twenty old ages ago. many of them started with this new construct: introducing engineering instruction (TE) in our course of study. From this point. we developed many undertaking implementing this new capable country and we built increasingly meaningful to this country.

The purpose of this paper is to show this development from the Gallic point of view with some involvement to compare with foreign experiences. We present this development through two positions: the curricular development

and the topographic point ofinvestigation. Briefly. we can detect through the Gallic national course of study a stage of Epistemic boundary line. followed by a stage of activities definitions. geting. late. to a stage of activities defined as applied scientific disciplines without hapless nexus to the initial epistemic definition.

Over these factual dimensions. we can analyse this development as the failing of the cognition meaningful expressed in the national course of study. failing that reinforce the failing of the TE in forepart of other topics as math. literature. foreign language… Many plants tried to analyze this peculiar attack but their audience ne'er truly acquire out the small domain of TE research workers. A birthday is more the juncture to open position and project some thoughts and the experience taught us that the place of TE is more a inquiry of societal placement through the cognition than a inquiry of purposed activities' involvement.

1. CURRICULUM EVOLUTION IN FRANCE The purpose of this paper is to show you some facets about Technology Education in the Gallic school. Gallic schooling has two degrees. Primary school starts at the age of three and lasts until the age of 11. in three rhythms: the initial acquisition rhythm (kids three to five old ages old) . the basic acquisition rhythm (five to eight old ages) . and the cardinal acquisition rhythm (eight to eleven) . Secondary school is divided into two chief rhythms: in-between school (ages eleven to fifteen) and high school (15 to eighteen for general instruction or 15 to nineteen for vocational preparation) .

Technology instruction was implemented at each of these two degrees in the early 1880ss. 1. 1 THE FIRST CURRICULUM 1. 1. 1 Some elements about the general background The chief thought of Gallic schooling is the progressive amplification of the different school topics. Understanding the universe of kids goes manus in manus with forming that universe in different cognition countries. from the general position to the peculiar description given by the different topics. Technology instruction. like that of scientific discipline. history. or geographics. appears as a school topic particular to the in-between school degree (Ginestie. 2001a) .

The 2nd thought of Gallic schooling is the construct of undertaking teaching method. The debut of this teaching method in the Eighties was a going from a traditional thought that the academic and dogmatic transmittal of cognition is the exclusive attack to learning. Under the force per unit area of a monolithic rise in figure students in center and high schools. undertaking teaching method was presented as a possible solution to run intoing the demands of the diverseness of students. turn toing their single demands. and developing pupil liberty (Ginestie. 2002) .

It was in this context. in 1985. that engineering instruction was introduced in France as a portion of scientific discipline and engineering instruction in simple schools. as a new topic for all students in in-between schools and as an optional topic in high schools. We can observe four phases of organisation of engineering instruction between 1985 and today. 1. 1. 2 1985-1991: the execution of the first course of study Technology instruction was conceived of as a new topic and took the topographic point of MTE (manual and proficient instruction) in footings of hours. schoolrooms. and instructors.

The course of study emphasized the industrial environment. go forthing small room for place economic sciences and workmanship (COPRET. 1984) . It had two different elements that made these mentions plain. On the one manus. the general portion of the class described the overall ends. context. and purposes of engineering instruction in France. The purposes were in footings of pupils' attitudes towards engineering (as related in many documents. e. g.

de Vries. 1994 ; Jones. 1997 ; Compton & A ; Jones. 1998 ; Gardner & A ; Hill. 1999 ; Dugger. 2000) and in footings of the societal and professional universe of industrial production (this thought can besides be found in many documents all over the universe. e. g. Kantola et Al. . 1999) . It offered a wide position to fix students for professional preparation. At that clip. the in-between school became the intermediate rhythm where students had to do their ain personal program for school. and engineering instruction was responsible for bespeaking possible calling picks. On the other manus. general ends were broken down into constructs and accomplishments.

This 2nd component of the course of study described the organisation of constructs based on four spheres of mention: mechanical building. electrical building. and economics direction and computing machine scientific discipline. Clearly. the chosen mentions oriented engineering instruction in Jacques Ginestie Analyzing Technology Education the universe of industry towards electro-mechanical production. to the exclusion of other possibilities (Ginestie. 2001b) . The chief job in presenting the TE course of study has been to associate the general purposes to the specific Fieldss (Sanders. 1999 ; Ginestie. 2004) .

These troubles appeared with in-service instructor preparation plans. Earlier. the Gallic Ministry of Education strongly affirmed the rule that TE was non a collection of a small mechanics. a small electronics. and a concern direction with different facets of computing machine scientific discipline as a binder. To associate these topics together. instructors have had to link general purposes and specific constructs into an overall pedagogical undertaking (Ginestie. 2005) . Many in-service instructor preparation plans develop this orientation instead than taking merely for the acquisition of specific cognition.

The execution of engineering instruction has non been reduced to the simple permutation of cookery or handcraft lessons by lessons in mechanics. but the true building of a " new world" (Ginestie. 2003) . Many original course of study experiments were conducted at the same clip to develop new learning attacks (differential teaching method. independent work. concerted work. personal undertakings. etc.) and to incorporate the new mentions to industry. the market economic system. and new labour organisations by taking into history the demands. design. production. selling. usage. and principle of industrial methods.

The major program was to unite the pedagogical undertaking with a theoretical industrial undertaking method (IPM) . We can observe comparable enterprises in the UK at the same clip (e. g. Hennessy & A ; Murphy 1999) . 1. 2 THE CURRICULUM EVOLUTIONS 1. 2. 1 1992-1999: Introduction of the Industrial Project Method (IPM) At the beginning of the Nineties. IPM appeared to be a good solution for implementing TE in the in-

between schools. Surely. IPM has taken an overpowering topographic point in TE go forthing no other options for forming engineering instruction classs.

This place was made official with different add-ons and alterations to the initial course of study. The chief determination to utilize IPM was published in 1992 by the Gallic Ministry of Education. This method allows for the coincident definition of content and method for forming the learning acquisition procedure in TE. Everything was done so that each TE teacher programs and organizes a new undertaking each twelvemonth for each group of students. 1. 2. 2 1999-2004: The 2nd course of study Three jobs arose that reduced the function of the undertaking in TE.

First. undertakings were chiefly individual production undertakings without any existent patterned advance from one twelvemonth to the following. Second. the teachers' profile evolved well during this period. with a big addition in new alumnuss from the advanced technological universities. Third. the brotherhood of industrial scientific discipline and technique. with instructors exercising force per unit area to open the course of study to new engineerings and new forms of labour organisation. The execution of the new course of study took four old ages. from 1996 until 1999.

These alterations tried to form the relationship between the several functions of the undertaking and the constructs. For the first three old ages of in-between school. students have to do different faculties of the whole undertaking. but they do non hold to do all of it. The teacher's undertaking is to concentrate the attending of the students on specific points. During the last twelvemonth. the students have to make a complete undertaking

(Ginestie. 2001c) . The IPM is ever a really strong frame of mention for TE in in-between school (Ginestie. 2002) . 1. 2. 3 2005: And so long. another alteration.

There is really a new stage of course of study alteration. The Ministry of Education wants to advance the students single picks about their hereafter and by effects the survey they have to make. We can detect a existent decrease of the TE as general and Jacques Ginestie Analyzing Technology Education Page 3 cultural topic. The general facets are more and more developed as applications of scientific disciplines ; the general method is non the procedure of design and engineering but more and more the procedure of observation and experimentation (as we can happen it in scientific disciplines instruction) .

The chief cognition decently identified as technological cognition is banished and the first bill of exchange of this new course of study promote the links with the scientific cognition. The IPM is still a mention but it is more an object to analyze more than a method to utilize with students. 2. Conditions OF STUDY IN TECHNOLOGY EDUCATION As we can see briefly. the TE course of study is unstable as we can observe through these major alterations since the first authorship.

These alterations are non linked with the technological development but chiefly due to the deficiency of understanding about the topographic point of TE in the general systems and to the misconstruing about the purposes of this topic and the cognition taught. This deficiency of knowledge's definition is patent when we observe the construction of the course of study. This

inquiry of cognition is non so easy to work out. Entry through analyzing the conditions of survey about TE's cognition supposes. in footings of inquiries for research. a strong understanding with two points: O There is some thing to analyze in engineering instruction ;

O There would be multiple survey conditions. possibly different. These two points don't make grounds. A bulk of sentiment is that TE is merely a sort of mix between handcraft activities and elements to foreground vocational preparation picks (Ginestie. 2000 ; Chatoney. 2003 ; Brandt-Pomares. 2003) . In this position. all the cognition comes from scientific disciplines and TE is merely a inquiry of activities or applications. Obviously. this sort of entry weakens the place of TE as school topic and the recent Gallic developments must be understood like this.

It is the extremist antonym we choose to work in our research lab. First orientation we choose is to understand the significance of the anthropological attack. 2. 1 THE ANTHROPOLOGICAL APPROACH The anthropological attack allows registering cognition in a theory of the activity and in a societal field identified. The articulation between undertaking and activity is uncomplete if we do non talk about the mode to do. The mode to do alleviations of the technique employed by the individual to gain the undertaking. that it is appointed by the state of affairs or by him.

The articulation between the undertaking and the technique defines a know-how that expresses the mode to gain a determined undertaking type (Ginestie. 1995) . To acquire off this private organisation either to history for the activity. or to clear up the mode to do. say the use of linguistic

communication mediation. To state the mode to do necessitate proceeding to an extraction of the single practice to lucubrate a praxeological administration. important of the mode to gain the type of undertakings and the context in which these undertakings are registered.

In fact. it concerns to give the senses in the typical articulation between undertakings and techniques by lucubrating a field of intending in connexion with a engineering. possibly with a theory. It is this amplification of significances on the pattern that defines. in the anthropological position. cognition. This attack allows rendering history administrations of cognition as relationships between practice. taken in the senses of the activity oriented to conclusiveness. and a field of meanings that allows mentioning pattern to a engineering and/or to a theory (Ginestie. 2001c) .

The epistemic entry is interested in the nature of cognition (good evidently in the elicited anthropological position above) and to the limit of a field of mention (Ginestie. 1997) . Some articulations allow believing these Fieldss. objects to cognize that are fastened at that place and the mode of which they are or been able being. taken into history in the model of a engineering instruction: I. The universe of proficient objects. their manner of being and societal organisations by and in order that these objects exist so as to register the technological instruction in the human and societal activity field ;

two. The articulations between working. map. construction. signifier in the senses of a lighting of mutualities and the different manners to depict an object ; three. The articulation design. production. use notably for Markss

given on procedure put at interest in each of footings. but every bit. of a more planetary mode. either in a specific attack on an object. or from an evolutionist point of view. in a position of an history of proficient activities ; four.

The articulation object. activity. linguistic communication in an ergonomic lettering (from the thing to the object. the object to the tool. the tool to the instrument) as revealers of the bonds between gestures and techniques. techniques and engineerings. The study to techniques is thought in this model as a limit ; the study to linguistic communications notices the amplification of symbols (in a relationship significance. meant) but every bit tools to believe the universe of proficient objects and to move in this universe.

Well evidently. this making of Fieldss is a spot harsh. it needs to be specified. notably if we want to be able to read existing curricular administrations. possibly to suggest development of these organisations. The curricular attack is one manner to understand the knowledge's organisations for learning intents. The job is non the heterotaxy of practice but the heterotaxy of praxeological organisations. It is non hard to inquire to pupils doing something. but it is hard leting them to build the meaningful on what they make.

Surely. the of import instability of our course of study is based on this trouble to lucubrate this meaningful. Furthermore. the curricular entry is envisaged here as one of the phases of the didactic heterotaxy procedure: that the arrangement in text of learning objects in an prescriptive aimed that has to

form the instruction activity. to the comprehensiveness of the production of these learning objects in the model of the category to lucubrate some objects of survey for students. objects of survey that are traveling to find activities of students.

This arrangement in text defines the affair to learn and bring on the mode to learn it. 2. 2 SCHOOL INSTITUTIONALIZATION We can therefore detect the specification and designation work that operates in this procedure of scholastic institutionalisation. School establishment is characterized as the arrangement of interactions. surely tensenesss. between three poles: the student. the professor and the cognition. Equally shortly as we wish to depict these interactions. we are confronted with a job of methodological analysis. methodological analysis that derives of class the model in which topographic point our survey.

Therefore. analyzing the conditions of the survey is traveling to concern us in what the school establishment puts to the survey and the mode that's this survey maps. This crossing of analysis remainders on the articulation between undertaking and activity: O The undertaking is important to the cognition put at interest in the detailed state of affairs by the instructor in the model that is fixed (curricular organisations. conditions of exercisings. peculiar restraints. etc.) ; o The activity is important to the work undertaken by the student to come on in the undertaking that is appointed it by the instructor and representative of the knowledge's larning procedure.

Jacques Ginestie Analyzing Technology Education Page 5 It concerns to specify a model of analysis that allows looking the operation of a instruction

state of affairs (Ginestie. 1992) . The initial model. elaborated by these analyses method. does non prejudge of: O Knowledge put at interest. their presence or non and their school signifier ; o Organizations elaborated by the instructor so as to form conditions of the survey of these cognition ; o Activities developed by the student that are induced by the organisation put in game for this survey.

These two cross analyses. undertaking and activity. qualify the interactions between three complementary bing logics but that can besides look as challenger: the logic of topic. the logic of instruction and the logic of larning. The first one follows from cognition administration and requires an epistemic survey ; the 2nd one takes in history the professional activity of the instructor sing his administration. his manner. his mode to make. the professional gestures he develops ; the last one can be highlight by the acquisition theories. specifically the point of view of socio-constructivism theories.

Many plants have shown the incidence of these logics on the school state of affairss and how they are inscribed in different mentions and different temporalty. In fact. emphasizing these three logics in a school establishment can be looked of different manners. But. for ourselves. we are truly interested by what it happens in a category ; specifically. we try to analyse the effects produced by this arrangement in tenseness (Ginestie. 1996) . On the one manus. this attack allows the designation of the organizational and structural elements that act and interact in the procedure of teaching-learning.

In this position. the undertaking appears as the discriminatory look of the teaching's logic. It express at the same time what is at interest. the context in which it is situated. what it is waited and what it is necessary that the student makes to accomplish the undertaking. In this senses. the undertaking is a concentrated look of a entirety of values. theoretical accounts. elements of theories. cognition that base the subject's mentions and that identify the instructor in a teaching population. The analysis of the undertaking is hence important how course of study is implemented. in the peculiar familiarity of a specific category.

It is every bit important activities that it induced at students. It is besides characteristic of the epistemic. curricular. didactical or pedagogical presupposition (Ginestie. Brandt-Pomares. 1998) . On the other manus. the transition to the existent supposes to set in interest an analysis of the activity of the student. His perusing of the undertaking. the mode he has to form its activity and to point its actions. what it takes in consideration and what it does non see even. let characterizing his acquisition procedure.

In this position. we can detect troubles that he meets. the mode whose he processes them. adopted schemes and the planning of his different actions (Ginestie. Andreucci. 1999) . Reading activity through the description of the undertaking allows continuing pupil's activity with some precise characteristic elements of the undertaking. We can value troubles met by the student and place which are relevant to the context (the preparation of the undertaking. the organisation of conditions of the survey. the usage of theoretical accounts. stuffs. etc.) and which notices obstructions to the acquisition (Amigues. Ginestie. 1991) .

3. SCHOOL ORGANISATION AND PUPIL'S WORK Organizations implemented at school. in the schoolroom and by the instructor have a direct influence on the work of the student and on the consequence of this work. Refering the engineering instruction (but it is non specific for these topic) . it is of import to stipulate and to specify what is waited from the student. recourses he disposes to acquire at that place. the mode whose he gets at that place.

Therefore. we have to understand the rating the Jacques Ginestie Analyzing Technology Education Page 6 nature of the end. the mode to acquire at that place but besides the breach of the end ; everything that allows to convey in front understanding about the procedure of knowledge's transmission-appropriation. From this point. we are non in a curricular attack that has for object to specify contents of learning and to find ends to make ; we discuss ends fixed by the establishment. their institutional applicability. their coherency in a scholastic organisation data point.

Of class. the enticement is great to believe that we could hold act on prescription as to cut down these spreads. The development of course of study shows that this sort of actions is limited because it enters in societal dialogues that the research can light to desert to animate them. even to impact them. 3. 1 TASK ANALYSE Our entry by the state of affairss is an analytic point of view to render existent state of affairss of classify or in a prospective position to believe possible development. For that. the crossed analysis task-activity presents a good model.

The task's analyze gives some understanding about the arrangement in text (or the arrangement in word) of the object of survey. This arrangement in

text constitutes one of the last phases of the didactical heterotaxy. phase in the class of which the instructor anticipates and executes the production of the object of survey that it makes return in its category. Many indexs allow characterizing some ingredients of the administration that it counts to set in topographic point:

o The nature of cognition that he exhibits. o The show of the consequence expected at the terminal of the sequence. o The spacial and temporal organisation type that he puts in act. o The schemes that he gives to orchestrate the activity of students. o The different degrees of rating on which he counts to tilt (evaluation his activity. the advancement of his sequence. the activity of students. the breach of consequences) . o The devices of mediation and redress that he envisages. o etc. Others indexs allow to detect explicit or inexplicit theoretical accounts that he uses for the organisation of this production:

o theoretical account of the logic of student larning organized around acquisition of competency noticed to the comprehensiveness of important discernible behaviors versus a constructivist attack based on the amplification of cognition ; o Model of the activity of students harmonizing to a logic of smooth away troubles versus a logic of confrontation to obstructions ; o Model of the instruction administration harmonizing to a logic of counsel of the action of the student versus a logic of problem-solving ;

o Model of the organisation of cognition mentions that one can ape in a binary option: in engineering instruction. there is nil to cognize versus there

is merely cognition. The building of these theoretical accounts supposes the amplification of a strong theoretical mention by which we can foretell the visual aspect of the objects of survey and how they become into school administrations.

Of class. we front three different viability hazards: one is an instant hazard about what's happen with the class that is traveling to blossom here. at this hr. in this schoolroom. with this instructor and these students ; second is a patterned advance hazard about what go on in the continuance of the category. the articulation of the different Sessionss and their sequence ; third is lastingness hazard about the permanence of a instruction at such degree. in such category. in such context. harmonizing to development. development. interaction with the other topics as a sort of general educational ecology. Jacques Ginestie Analyzing Technology Education Page 7. 3.

2 ACTIVITY ANALYSE The analyse of the activity. as for it. attempts to understand the logic of students in their development to accomplish the undertaking that is confided them and the mode of which they adapt conditions organised by the instructor. Retained indexs refer straight to theories of the apprenticeship. notably through: o The scheme they adopt. o The mode to form their actions. o The mode to notice and to expect troubles and to get the better of them or to avoid them. o The mode to detect or non restraints imposed by the state of affairs and to take into account them or no. o etc.

Analyzing the activity of students is a powerful tool that allows to detect. to measure up and to valorise spreads between what the instructor waits them. what they obtain truly and the mode that they use to make this consequence. It concerns. on the one manus. to give index of efficiency of a device refering acquisition and. on the other manus. indexs on the mode to gestate program.

To follow a standard of efficiency of program put in topographic point by instructors is non easy. That supposes to put the inquiry of the acquisition of cognition by students to the bosom of the educational act. what is non without effects in TE. This challenge is of import if we want to reenforce the place and the function of the TE as a general instruction topic. Through our Gallic experience. but besides through some related experiences in different states. we have alteration of period. The first clip of invention and execution is definitively done.

Many states know a lessening period with alienation for TE: lessening of budget. decrease of school clip devoted to the topic. At the same clip. more and more squads develop probe in TE. May be. we have to spread the consequences of these probes and to develop the support that we can supply to the instructor but besides to the course of study interior decorators. this is our challenge to convey our part to TE. ICT and Education in Indonesia Harina Yuhetty I.

Introduction In the beginning globalisation is to the full believed to be able to take to greater economic development in the sense of greater market graduated table. which in bend will increase the gross national merchandise.

So people believed that hapless states or 3rd universe states will develop faster. therefore the economic spread between the rich developed states and the 3rd universe states will decrease. However. facts show the contrary. It is true that the gross national merchandise of states will increase. but the spread between the income of the rich and hapless states is besides acquiring wider.

The chief ground for this spread is the extra-ordinary growing of information as a consequence of the development of communications and information engineerings in northern developed states which have full control of these engineerings. This information roar enables transnational companies to vie with alterations in market demands. new merchandises and new engineerings. which in bend can hike the economic system of a state. increase its efficiency and win planetary laterality.

On the other manus. in 3rd universe states which are besides known as southern hemisphere states. they have troubles to seek. to have. to procedure and to bring forth information. The deficiency of appropriate information at the right clip will ensue in low productiveness. low quality research works. and waste of clip to prosecute information and even to make research which really had been done by others or in other states.

Indonesia as a 3rd universe state has a great concern over this lack and believe that the digital divide should be reduced so that there will be an economic recovery. The Indonesian authorities is determined to use the information engineering efficaciously to back up attempts to increase the national fight. This aspiration is reflected in the Indonesian Presidential

Decree Number 50 twelvemonth 2000 about the constitution of the Coordination Team of Telemathics of Indonesia. This squad consists of all the curates in the cabinet including the Minister of Education.

Its undertakings are among others to specify the authorities policy in the country of telemathics ; to make up one's mind the stages and precedences of development in the country of telemathics and its utilizations in Indonesia ; to supervise and command the execution of telemathics in Indonesia ; and to describe the development of telemathics in Indonesia to the President. The authorities realizes that the success of the development and use of telemathics depends largely on the substructure which can supply easy entree. and besides guarantee handiness of information and topics.

To run into these three commissariats. a competent human resources is a necessity. That is why the readying of qualified human resources is given precedence. because it requires difficult work and takes clip. Meanwhile. we besides know that scarceness of and low quality human resources in the country of Information and Communications Technologies can detain command of communicating and information engineering. As such. the authorities through the Minister of Efficiency of State Apparatus as Head of the Coordination Team of Telemathics of Indonesia in his missive figure 133/M.

PAN/5/2001 had drawn up a Five-Year Action Plan for the Development and Implementation of Information and Communication Technologies (ICT) in Indonesia. This program among others includes a program for the execution of the usage of telemathics in the country of instruction get downing from

2001 until 2005. which includes: * Develop coaction between ICT industry and ICT educational establishments through preparation and R & A ; D coaction. and found a web for accomplishment and capacity development * Develop and implement Curricula of ICT.

* Use ICTs as an indispensable portion of the course of study and acquisition tools in schools/universities and preparation centres * Establish distance instruction plans including engagement in Global Development Learning and other webs * Facilitate the usage of cyberspace for more efficient instruction and larning From this action program we can see that the accent of human resources quality betterment is particularly geared on the proviso and enlargement of instruction of human resources in ICT country.

Besides that. use of ICT for instruction and acquisition intents. as an attempt to make full digital divide. which in bend is hoped to be able to better the national fight to resuscitate the economic system is another emphase. II. ICT in Indonesia As mentioned above. the success of use of ICT is among others depends on the substructure which includes the telecommunication web. the handiness of cyberspace installations and the usage of cyberspace.

In general the development of ICT in Indonesia nowadays is less encouraging compared to the developed states. or even compared to neighbouring states such as Singapore. Malaysia. Thailand and others. To give a general image of the ICT status in Indonesia allow us see the informations quoted from the Center for Research and Application of Information and Electronic Technologies of the Office for the Research and Application of Technologies. 2001 as follows.

A. Public Telephone Lines for 203. 456. 005 public 1. The figure of Telephone kiosks 228. 862 2. The figure of Telephone booths 345. 307 3. Telephone frequenters 6. 304. 798 B. Internet 1. Internet Service Providers 40 2. General Access Speed rate of ISPs 15 KBPS 3. Patrons of ISPs 511. 000 with 1. 980. 000 users (& lt ; 1 % of Indonesian population) .