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Economics, Development and Human Cooperation Theory

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Abstract
Developmental economists have always been concerned with how the gap between developed nations and some developing nations could be bridged in terms of the manner the former's economies have expanded. While some believe that cooperation between these economies is needed in order to aid these poor nations surmount their predicament, yet there are others who think that deep seated cultural factors affect the ability to exploit science, technology and markets, to which we agree from the perspective of lack of the use of culturally appropriate language to imbibe knowledge and the utilization of appropriate innovation techniques. It is also acknowledged that these poor nations require the pivotal role of their own institutions in giving their citizens the right incentives for innovation and good governance.
Utilizing the deductive approach, the article provides useful premises and definitions by which other propositions or theorems are deduced from for further consideration and analyses. The deductive method is a sure scientific method where scientific knowledge could be procured and later tested empirically by scientists. The propositions are then proved with observation, empirical materials, and reasoning. As a result, economics and human cooperation theory is obtained.
When comparing divergent economics outcomes between nations and societies, we think that the use of the original language (mother tongue, culturally appropriate language) of that particular society or nation may have an important role to play. Appropriate incentives and right innovation techniques in addition to good infrastructural developments must be adequately developed in order to ensure superb development and cooperation in this wider context of development. The new theory of cooperation economics illuminate on these essential lights as utmost important and vital ingredients.
Keywords: *Economics, Development, Cooperation theory, Behavioral, Innovation techniques, Managing interdependence, Global public good, Language and Communication.*

Introduction

Science is a unique aspect of man's progressive development, as it has generated constructive thinking that has altered the face of the physical world through the development of quantifiable hypotheses and theories, especially, during the last century. The scientific method, which was championed during the enlightenment era and more lately during the period of industrial revolution, has been the most assured technique devised by man for controlling the flux of things and establishing stable beliefs. The principles of science did not endeavor to impose the desires and hopes of men upon the flux of things in a capricious way. It was enormously utilized to satisfy the desires of men. But as a method, its prosperous employment depended upon seeking, in a deliberate way, and irrespective of what the individuals' wish was, to detect, as well as to seize the advantage of, the structure which the flux possessed. It is the scientific method which was used to investigate how to live with one another in this planet and as a consequent, made a unique step forward in international cooperation and

institution building in the area of development in the post-World War II. The method of science has provided the most important opportunity to question certain long-held beliefs that were accepted by people so many years ago without critical examination.

Therefore, the employment of this unique procedure to help develop cooperation theory could energize development among the less developed communities, through the appropriate use of language and communication apparatus and the availability of infrastructural developments. The purpose of this article is to develop cooperation theory which will complement other already-developed theories in economics regarding cooperation and human development.

Statement of the Problem

This article endeavors to develop human cooperation theory in the domain of developmental economics, utilizing certain salient factors such as language communication, the interconnection states have with one another, the use of scientific tools such as scientific theory and its appropriate employment of systematic procedures in searching for knowledge. The geographical environment and its human capital as well as its corollary infrastructural development and natural resources, are also stressed as strategically essential factors, which are required for successful and adaptive developments.

Method

Using the deductive method, the study presents some useful principles and definitions by which other propositions or theorems are deduced from for further analyses and discussions. The deductive method is a sure scientific method where scientific knowledge could be procured and later tested empirically by scientists. By this design we shall offer premises in the form of axioms or propositions and then use observation, empirical materials, and reason to prove them. We will therefore premise these axioms with definitions, for as Aristotle saw this clearly, the basic premises of demonstrations are definitions [1]. With the definitions and the premises, we can then move further to deduce the theorems for our new human cooperation theory.

Limitation of the Study

The internet age, which has with it information traveling through super-information highways to all people at the different corners of the globe, has made it possible for those that thirst for relevant knowledge concerning development to be capable of procuring it. Still, there are those nations that are buried in ignorance and do not know that developing a nation requires certain vital ingredients in order to make it possible and come to fruition. Our study is therefore limited in that, there may be other essential hidden factors that developing a modern nation requires which may be obscured to us; this study cannot cover such areas simply because they are obscured or do not at the moment find it necessary to be included.

Significance of the Study

Third World countries are still struggling with development in the areas of economics, adequate functioning financial sectors, technology and acceptable scientific innovation to push ahead their microeconomic and macroeconomic development. It is essential that an appropriate formula be designed to aid nations come out from their obscurity to the limelight, which only science and modern technology could offer to them. The study will therefore generate important knowledge which is rudimentary to all forms of modern development and advancement in science and technology.

Economics, Human Development and Cooperation

Economics, in a broader sense, is understood to include environmental sustainability; this is probably the fundamental reason why countries in this modern world cooperate with one another in order to safeguard the world. Nowhere is this depicted crystal clear than the three interrelated

dimensions depicted in the objectives of the institution of the United Nations. In the interrelated dimensions of this great body, international cooperation is encouraged and the cooperation is asserted to be geared toward human development which is essential for the sustainability of the environment and earth as a whole. The first of these dimensions is peace, which links between development and peace; the second is human rights, which links between development and economic, social and cultural rights, focus of work on rights approach to development; and the third is development, which has two meanings concerning development of societies in industrial and developing countries as well. Therefore, cooperation that goes on in the world with regards to human cooperation for development, which also forms the preamble of the assembly of nations, employs international machinery for the promotion of the economic and social advancement of all people. The three aims are deduced from this and clearly consist of: 1) managing interdependence; 2) Furthering the development of societies; and 3) gradually overcoming the asymmetries that characterize the world economic system, which affect in particular the developing countries[2].

Cooperation: In Which Forms

In the first form of cooperation, which concerns the interdependence, the concept of "public good" of the world is used and its comprehension in a wider sense goes beyond the traditional definition of welfare economics. These goods comprises not only goods that are non-excludable and non-rival in consumption, but also goods and services which have high externalities but whose benefits can be privately appropriated, as well as global or regionally shared commons. These goods, put in large perspectives, comprise cultural diversity, the fight against international pandemics, environm-ental sustainability, human knowledge, the regulation of the utilization of global and regional commons, laws which regulate international economic transactions, financial stability and world macroeconomic and, lastly, international peace and justice.

Furthering the development of societies is the second procedure of cooperation, and this is comprehended as increasing the different dimensions of development, which has been the subject of most conferences and summits organized by the international assembly which has its Headquarters in New York, that is, UN. The UN has other subsidiary offices all around in the different continents of the world, including Africa. Overcoming world economic asymmetries is the third form of global cooperation for development, and this explains that just as the distributive action by state is essential at the national stage to preserve equality of opportunity, national efforts can fully succeed at the global level if they are accompanied by international cooperation designed at gradually surmounting the basic asymmetries of global order. According to Ocampo,[3] the third aim and the second aim of cooperation have something in common, which is that economic development is acknowledged to be at the domain of the nation-state. Here, cooperation in international level is confined to the forming of network of Multilateral Development Banks (MDB), Official Development Assistance (ODA) and technical cooperation by the MDBs, UN Agencies and regional and national institutions, and to special and differential dealing given to developing countries in treaties involving trade. This "special and differential treatment", which is granted to the nations on the verge of becoming developed, is increasingly becoming weaker and weaker[4].

Two Problems of Global Cooperation for Development

There are two difficulties which cooperation in the world stage faces:

Firstly, there is a huge gap between the growing recognition of global public goods, in the wider sense of the term, and the limitation of the existing structures seen at the international level. According to Kaul et al.,[5] and Kaul et al.,[6], this

has to do with decision making, financing and management which guarantee that they are adequately provided. Secondly, the imbalanced progress of international cooperation. Though this has advanced significantly in other domains, in certain domains it has not. There seems to be significant deficits in most areas of the economies. The responsibility of this function is in the nation-state and yet it is still entirely absent in most countries. There are gaps in climate change, global macroeconomic and financial stability[7].

Economics, Development Cooperation and Social Capital

Within any society, there are indicators which allow cooperation to exist and also function as a carrier for efficient performances in economies. Institutions are the controlling powers of all societies and they permit all functioning economies to exist. It is the humbly devised constraints that mold interaction among human beings. As a controlling power, institutions also mold incentives in exchange between humans in the political, social and economic spheres. Within societies, institutions manifest themselves in contract enforcement, protection of rights concerning properties, the rule of law, government bureaucracies and financial markets. Here, the researchers shall briefly state what an institution is and show how it functions or plays the basic roles in any functioning economy in order to foster strictly cooperation leading development.

Institutions are made up of habits and beliefs, norms, social cleavages and traditions in education, which are regarded as informal institutions. According to North[8], the crystallization of informal institutions is what is termed formal institutions. These consist of social norms in the realms of gender, class and caste, for example, which determine rules of political participation and representation, procedures of economic exchange, and inclusion of different groups in society[9].

The role of institutions in fostering cooperation and social capital in society is essential, especially, when it is that type of institution which attracts development[10]. When that is the situation, institutions that are conducive to development will see to it that greater self-expression, free flow of information and the formation of associations and clubs exist. These enable the formation of prosperous social relationships, which then become favorable to greater economic interaction as they increase levels of trust and wider availability of information. Furthermore, because of the presence of democratic institutions, the sharing of resources is greater. They also use the state to minimize the risks which are attached to economic activities. The welfare state could be mentioned as an example. This is an institution which musters resources in order to hinder the negative effects of business cycles on incomes and unemployment. When institutions are conducive to development, it pools its resources to grant investments in education, health and infrastructure which function as the basis of economic interaction and are essential and complementary to private investment[11]. Informal institutions form the foundation of any viable economy, which consist of agencies, trade unions, community structures and professional associations. These make up the framework that determines the response to laws and government decisions. They mold these outcomes themselves in a regular manner.

Economic Behaviour, Language and Communication

An interesting work that has shown that there is connection between language and the positive influence on economic behavior is M. Keith Chen[12]. This scholarly investigation was undertaken in a famous institution in the USA. The work, which was published in the renowned *American Economic Review* (2013), is entitled "The effect of language on Economic Behaviour: Evidence from Saving Rates, Health Behaviors, and Retirement Assets." Chen was of the view that languages differ widely in the ways they encode time. So he set out with the hypothesis that

language which grammatically associates the future and the present (weak-FTR languages, like German), foster future-oriented behavior than language which does not associate the future with the present (strong-FTR languages, English). Utilizing data from different groups of language, Chen found out that speakers of such languages, that is, those that connect future and the present, retire with more wealth, smoke less, practice safer sex, and are less obese. This holds both across countries and within countries when comparing demographically similar native households. Chen concludes his study:

"Overall, my findings are largely consistent with the hypothesis that languages with obligatory future-time reference lead their speakers to engage in less future-oriented behavior. On savings, the evidence is consistent on multiple levels: at an individual's propensity to save, to long-run effects on retirement wealth, and in national savings rates. These findings extend to health behaviors ranging from smoking to condom use, as well as to measures of long-run health. All of these results survive after comparing only individuals who are identical in numerous ways and were born and raised in the same country."

One important issue in interpreting these results is the possibility that language is not causing but rather reflecting deeper differences that drive savings behavior. Data available provides preliminary evidence that much of the measured effects found by the researchers are causal, for several reasons that have been outlined in this paper. Mainly, self-reported measures of savings as a cultural value appear to drive savings behavior, yet are completely uncorrelated with the effect of language on savings. That is to say, while both language and cultural values appear to drive savings behavior, these measured effects do not appear to interact with each other in a way one would expect if they were both markers of some common causal factor.

In addition, differences in the use of FTR do not seem to correspond to cognitive or developmental differences in the acquisition of language. This suggests that the effect of language measured occurs through a channel that is independent of either cultural or cognitive differences between linguistic groups [13].

Language, Thought and Behaviour

In psychology, philosophy and linguistics, the notion that language can influence the manner in which people think and behave have been debated for a while. The founder of structural linguistics and semiotics, Saussure[14] has characterized reality as unstructured phenomena which is discretized and arranged by language. "If words stood for pre-existing entities", according Saussure, "they would all have exact equivalents in meaning from one language to the next, but this is not true." Another philosopher by name Wittgenstein[15], who made a name in research concerning language propounds a theory of language in his book entitled *Tractatus Logico Philosophicus* and states that language is a means by which human beings imagine as well as reason concerning reality. His dictum "Where of one cannot speak, there of one must be silent." This idea that language can have great effect on human cognition has become known as the Sapir-Whorf Hypothesis (SWH, Whorf, 1956); and has since led to several areas of investigations in modern linguistics and psychology[16]. This has also been stated clearly in the works of Porta, Lopez-De-Silanes and Andrei[17], [18]. Recently, Chen[19] has used it in his article to connect language structure and to help individuals' decision making.

But as strong as this hypothesis involving the notion that language has influence on how people think and behave is, there are many prominent scholars who contend that the idea that cognition is molded by language is untrue. The leading scholar of this camp is Noam Chomsky who in his influential work, *Syntactic Structures*[20], contends that individuals have an innate set of mechanisms for learning language, and that this constrains all human language to adhere to a "universal grammar". Another scholar who thinks similarly like Chomsky is a Harvard Psychology Professor

by name Stephen Pinker. Pinker[21] has shown in his book *The Language Instinct: How the Mind Creates Language* published in 1999 and thinks that language does not affect cognition, since he argues crystal clearly that individuals do not think in the language people speak, but rather in an innate "mentalese" which comes before language. Moreover, he posits that there is no scientific proof that languages dramatically mold their speaker's manners of thinking. The debate on language has not been ended by the criticisms received from these two prominent scholars; Chomsky and Pinker.

Economics and Language Importance

Does language study manifest itself in economic analysis? How does it function in the discourses of economics as having a role to play concerning development? Fundamentally, the focus of language and its use in economics has been whether language either by evolution or design, maximizes some objective function. This emphasis appeared as early as in 1965 in the work of Marschak[22], who questioned which traits will be chosen as language evolves, and furthermore, what aims policy makers should possess in mind when molding a language, either directly or through policy in education. Rubinstein[23] also investigated a model in which policy makers utilize language to both perceive and verbalize decisions. It was found out that restrictions on the worth of a language can provide interesting restrictions on the set of economic policy maker's admissible preferences. This, which was termed "expressibility effect", intimated that language has the ability to affect beliefs and individuals behaviors.

Language, Early Development and Cooperation and Continuity

Language has had an important role to play during the early stages of human development and survival on the planet earth. Such knowledge could throw light on how a revert to its history and role could enable modern man take advantage and utilize the noble experience connected with it. Therefore, in this section, we shall deal with how fundamentally the human organism's confrontation that occurred with harsh climatic conditions and difficult environments in early stages of human development triggered the use of the brain in a charged manner to overcome immediate and mediate *strictus* (stress or pressure)[24]. There can be a higher concentration of *strictus* and a lower concentration of *strictus*. *Strictus* here can be defined as those critical factors that impinged on the organism's brain to compel him/her to take a crucial stance to muster all physical and mental energy to overcome his complex situation. *Strictus* can denote pressure; it can be likened to a cyclone that may engulf the human organism if appropriate measures are not taken. These acted as charged stimuli which in the case of the animal, instinctively made it flee from one environment to another for acute protection. But in the case of the human organism, the *strictus* naturally advises him to strike back, for he has no other choice than to deal with his frustration, fight for his survival, or succumb to death. In such occasion there is no opportunity for the brain to become displaced, inactive, or idle, as displacement will mean death or extinction. Besides rationalization, there is no alternative for the organism, as he is considered trapped and has no other choice than to continue rationalizing. But this early rationalization that occurred with the organisms was devoid of proper instruction or the use of methods as these came later with education and the introduction of science. The habit of rationalizing to deal with many immediate problems (eg. better adapted housing, weather-adapted clothes, means of primitive transport, weapons for defense, cleanliness inside cold houses, activities to withstand the boredom) will later prepare the mind to adapt easily to the use of reason in the sphere of science and instruction. This was not the practice with those living in less challenging regions where *strictus* was not concentrated or intense (i.e., lower concentration

of *strictus*). *It can therefore be hypothesized that the advantage that those in higher concentrated strictus has over against those in less concentrated strictus presently is that the former has a probable access to primary intelligence, which may or may not be the case with the latter.* Language, as we have partially mentioned above, helped human organisms to prepare for a much better adaptation to the environment. It was not only in imitation or unguided apprenticeship that language became necessary, but also language was important for the organisms to transfer knowledge of some of the acquired characteristics; that is, those that need external communication. The use of native language gave them the necessary lead to both preserve and transfer knowledge to their offspring. Judging from the intensity of *strictus*, knowledge preservation was in a much higher standard probably almost equal to that of the use of certain basic methods and instruction. The necessity of using ones' own language is seen from the manner in which people who have been conquered by another nation detest the use of foreign language and regard it as a curse, for it impedes progress, original thinking, and innovation. Foreign domination not only introduces language; it uses people as slaves and laborers. This contrast could be seen that the periods of slowest development were in the later Bronze Age, the slave societies of 300B.C. to A. D 700, and to a lesser extent the feudal society of the Middle Ages. These societies squandered the minds of the population, reducing them to mere tools of a small ruling class. The freedom to use the human organisms' own blood language made early development easier, as they did not have to strive to comprehend what was being transferred as knowledge through imitation [25].

Imitation, Talents and Adaptation

The Processes

What were the basic approaches the talented and many others that imitated utilized in acquiring their knowledge from the sources, or those that innovated or brought out some new simple techniques? How were they transferred to other people? Was there anything that portrayed that there was more than extraordinary ability involved in transferring this knowledge?

The first approach was that the individual that had innovated something, be it techniques or ideas, allowed others or neighbors he trusted and certainly liked to come and freely observe (*Observation approach*) those ideas or innovations, and then copy them[26]. This approach was very common in the early periods and it was not regarded as something that needed to be hidden. The innovator consequently became very happy as people that were allowed to come, showered their blessings and admiration on him. But those that were not allowed to observe it freely, or were in a way hindered but had money, purchased (purchase approach) those things themselves and then, through their common knowledge, unassembled these simple tools or machines, and through curiosity build their own tools or machines by copying them.

But where the human organism was not allowed to freely watch the workings of the tools or given the opportunity to buy those tools the next approach was to steal it with his senses (*stealing approach*). And in those days once a person had just walked by and seen this person using his tool or machine, the talented could steal with the eyes and keep the operation of this tool or machine in his memory. The ear was another sense organ of the organism that was employed to steal this new innovation, especially where there was no attempt to have any form of contact with the innovated thing. It should be mentioned that high concentration of the *strictus* meant that both the talented and all the people were pressured to come up with something new in order to survive. We can liken this to the time of the Grecian Empire, where people were curious to hear some new stories or something new just to calm down curiosity in those days.

Though this may not have been rampant, there was more probability that some organisms went as

spies (*the spies approach*) in order to discover new knowledge and then return and build their own. By this way they prevented the situation whereby they had to constantly depend on this talented individual or group, and thereby avoid becoming a servant or a slave to him or them.

There was also the *genius approach*. This person, like a dreamer, heard that someone had built a machine or tool like so and so, and in his dreams could imagine how it looked like the tool someone only described to him. He set out and built his own tool without having to have contact with the original innovator. His tool may be much better or inferior to the tool the talented had built. But that would be improved upon as time went on.

Finally, there was the *agreement approach*, where the originator agreed to transfer this particular knowledge to other people who he wished to meet, and so he helped them and they all acquired this knowledge. The agreement approach benefited those that went and worked as apprentices. The originator was paid as part of the requirement to transfer his knowledge.

"Crises Situations" and "Aggressive Behaviour" as Necessary Familiar Notions in Development and Adaptation

The human organism's survival in the environment required behavior that could be well described as an aggressive disposition. Here the *strictus,* as used in the manner of external pressure that was ready to engulf the organism was important. This force that was exerted from outside of the organism played an outstanding role in order for adaptation to gain a better direction. This usually took the form of wars or an extreme crisis situation that the organism was subsequently drawn into, probably not of his own accord but due to other external unexpected factors. These different kinds of tensions still appear in this modern day now and then, so for the organisms that had lived all their lives in the cold climate, this is not something new. Thus during wartime or crisis, houses would be destroyed and those valuable things the organisms had could be taken away by force or stolen. Even the farms that supplied food for the multitude of people could be destroyed. Sometimes the source of water supply could be cut off. The human organism through his past knowledge had to begin afresh and build again. This was the usual manner of *strictus*, as pressure or a force exerting on the organism was experienced or manifested, and this did not occur only once or twice, this occurred on successive periods. All these different forms of distractions had to be accommodated by the organism in the cold climate, that is, became used to how to build quickly when they were destroyed. Also how to improve on the crude weapons they had, a better manner of preserving food in times of war, and how to make better war clothes, and so on. The result of these unpredictable situations made it possible for them to deal with tensions, and also to expand their experiences, which was the direct source of prudence.

In those difficult times trust was not entertained for the neighboring organisms, and if they lived as very distant groups, there was always suspicion as these enemies could make a surprise attack on them. Organisms that adapted well had to be kind to their neighbors, used the alliance principle of getting married from the other neighboring organism's community, and being opened to themselves while maintaining secret strategies of how to defend themselves in case of war or crisis. The Solomon code was very commonly practiced among many organisms in these warfare zones. The latter is defined as a way whereby in times of development any group or society maintained some secrecy while sustaining a low profile of openness to the outside community. It was to prevent infiltration into their private programs that made the hordes organize themselves well to prevent any suspicion. Unity among the people was important, and a brief knowledge on what the people intended to carry out was communicated to its people. They spread that information in regard to the sacrifice they had to make if they were to survive. The sacrifice was for the future children even if they lost and could not succeed. Foreign

organisms among them were to be people that were in marriage alliance; otherwise they could not be trusted.

Usually it was in crises periods that the talented (geniuses) could think properly and come out with innovations and better ideas[27] These ideas or inventions could then be worked upon during the wartime and after the war, that is, peacetime; a considerable amount of time would be spent on developing the idea better. Inventions can, therefore, be viewed as actions or the products of a crisis situation; that is, people could come out with better ideas when they were pressured during dire situations. Crisis behavior was the one thing that compelled many developed nations to lead or commence major concrete developments. Therefore any land or society that intends to develop should firstly, be very aggressive; secondly, development should be seen as the only way it can get out from modern-day slavery; thirdly, it should be seen as a challenge rather than "give us some aids," or "loans to develop," or "cure our illnesses"; and fourthly, develop a suspicious character; by this I mean to reserve trust for only the few that one knows very well. It should commence in such a way where by people accept that perhaps they should forgo all aids, humanitarian aids, loans, expect to be on their soil and determine what they want to offer. The people should be conscious of infiltrators, because not all may be willing to see them get out of their dirt. Enemies prefer that people become slaves forever so that they could point their hands at them always, "Look at those people!" There should be some sacrifice that should tell the people in question that "yes, we would even allow some of us to die if we can go hungry for some days before we get on our way." Any attempt to develop without becoming aggressive will not work. Politicians should spend little time in Parliament and instead, organize those groups that can start any moment they are ready. They should start with a 10-year plan program, and then complete the next 5 years, and they will see the difference. All the inhabitants of the land in question should be informed about what the government intends to carry out and the sacrifices it wants to make, and how long the program will take.

Language, Development Economics and Cooperation: A New Theory

Empirically, it has been established that some similarly-situated nations and societies differ so much in their economic development and wealth. How could this be explained using economic tools? Some geographers, for example, such as Diamond[28] account these differences as mainly due to geography, climate and the ecology of animal domestication. But Landes,[29] on the other hand, believes that deep seated cultural factors affect the ability to exploit science, technology and markets, to which we agree from the perspective of lack of the use of culturally appropriate language to imbibe knowledge and the utilization of appropriate innovation techniques. Acemoglu, Johnson, and Robinson[30] in their influential article "The Colonial Origins of Comparative Development: An Empirical Investigation," published in *American Economic Review* (2001), and later in a separate book by Acemoglu, Daron, and Robinson[31], *Why Nations Fail: The Origins of Power, Prosperity, and Poverty* (2012) have stressed for the central role of institutions in providing the right incentives for innovation and good government.

In terms of development, when comparing divergent economic outcomes between nations and societies, we are of the view that the employment of the original language (mother tongue, culturally appropriate language) of that particular society or nation may have an essential role to play and this could be added to Chen's significant findings concerning his main hypothesis which was investigated in 2013 that, for example, people who speak weak-FTR languages (who speak the future and present identically) would save, exercise, and plan more, and spend, smoke, and over-consume less. We, the present researchers, also agree with Acemoglu, Daron, Johnson, Robinson[32] and

Acemoglu, Daron, and Robinson,[33] that appropriate incentives and right innovation techniques in addition to good infrastructural developments must be adequately developed in order to ensure superb development and cooperation in this modern world. The following theory may throw essential light on these vital ingredients[34].

Preliminary Notes

Here, the Axioms and definitions are presented in explicit manner with some scholium (comments), which should be regarded as premises to be worked upon in the next section.

Definitions, Axioms and Theorems

Definition 1

By language I understand the method of human communication, either spoken or written, consisting of the use of words in an agreed manner. It consists of a style or the faculty of expression and the use of words or signs.

Definition 2

By the language of the blood I comprehend that it is the language that an individual is born with which, if it were to be dissected, it could be described as flowing in his veins together with his blood. This language is "fixed" in the individual, and it is transmitted to successive generations through procreation.

Scholium

For it is understood that both parents of the child, or at least one of the parents speaks this language. It is the language that naturally comes out from the mouth of this child as he/she begins to speak. Because the parents, by bringing up the offspring, do not consider any other language as theirs except that which they have inherited from their own parents, and comes naturally from their lineage. It is also understood that both parents have consciously and through effort tried to propagate this language to the child and believe themselves that it could be the language that the offspring should be educated with. And so the offspring, by acknowledging this language, neither have to suffer or undergo some difficulties in comprehending this language.

Definition 3

The learner is the individual who through agreement either between his parents and the education authorities or between him and the authorities directly undergoes an apprenticeship. The individual is taught by well-trained teachers who help with communication to both impart knowledge to the individual and he, the teacher, reciprocally gains from this interaction.

Scholium

Educators usually consider education to be a kind of apprenticeship where the individual learns to practice, and through this, gains knowledge. This knowledge that the learner acquires is a benefit to the state and to the learner in that while the former spends money on the latter, the latter intends to utilize this knowledge to serve the state and in return gain something for his livelihood. Learning itself is knowledge acquired by study, either independently or through the help of an institution.

Definition 4

Comprehension of something is the meaning the learner makes of what is being communicated to him by the instructor or teacher. It is the perception of the meaning of what is being asserted or what one is observing.

Definition 5

Description is the manner of stating the characteristics of something and through this, be able to portray how that thing being described looks like or appears to be in reality

Scholium

For by this word one is able to carry out meanings from something one has perceived to another person or to oneself. It can be presented in written

form or orally. As description involves analysis of some kind, it is very vital for the learner to be able to describe and analyze.

Examinations are usually performed through this means, and many tasks that the graduated learner undertakes are carried out through this means, either by description, or analysis, or both.

Definition 6

By originality, I mean the power of thinking or creating creatively. It denotes newness or freshness, which concerns the idea of bringing something new into existence or discovering it.

Definition 7

I understand accuracy to be exactness or precision resulting from careful effort. It denotes the degree of refinement in measurement or specification

Scholium

By this word we understand the manner in which one carries out responsibilities without making unnecessary errors. By this we also understand the human effort of persevering and trying all means to be precise and exact. It does not come automatically, but with effort.

Definition 8

Sharpness or alertness means being attentive/awake and able to catch the meaning of any sign or movement made by another party. It means the individual is not dull, but bright instead.

Definition 9

By Secondary Law of Intelligence (SLI),I comprehend the employment of the scientific method to acquire knowledge. It is the approach that uses the systematic manner to gain knowledge in the sciences, which includes economic science. The method ensures that knowledge is gained through the utilization of appropriate well-defined methods confirmed and encouraged by science theory.

Scholium

Even though prudence, which is attained through experience, is said to be "useful", according to Hobbes, science, which is knowledge of consequences, is "infallible". To this famous pioneer scholar "as much as experience is prudence, so is much science sapience." The use of the scientific method as tools to aid one gain knowledge is imperative as this quotation illustrates:

"The ideal of science is to achieve a systematic interconnection of facts. Isolated propositions do not constitute a science. Such propositions serve merely as an opportunity to find the logical connection between them and other propositions." [34].

"Science does not desire to obtain conviction for its propositions in any manner and at any price. Propositions must be supported by logically acceptable evidence, which must be weighed carefully and tested by the well-known cannons of necessary and probable inference.

It follows that the method of science is more stable, and more important to men of science, than any particular result achieved by its means."[35].

"General propositions can be established only by method of repeated sampling. Consequently, the propositions, which a science puts forward for study, are either confirmed in all possible experiments or modified in accordance with the evidence. … By not claiming more certainty than the evidence warrants, the scientific method succeeds in obtaining more logical certainty than any other method yet devised."[36].

"The method of science is thus essentially circular. We obtain evidence for principles by appealing to empirical material, to what is alleged to be 'fact'; and we select, analyze, and interpret empirical material on the basis of principles. In virtue of such give and take between facts and principles, everything that is dubitable falls under careful scrutiny at one time or another."[37].

Axiom 1

Let it be granted that learners who utilize the secondary law of intelligence (SLI), in addition to their employment of the blood language (BL) in imbibing knowledge, are capable of developing qualitatively well in intelligence in a higher degree that ensures the acquisition of the learner with originality and accuracy in carrying out responsibilities than those who concentrate only on the BL.

Theorems

Theorem 1[28]

If any nation C has a neighboring nation F that had already been successful in their development, the nation F that had already developed will serve as a mentor that will inspire the novice nation C; through imitation and adaptation, the novice nation C will assume a new role regarding the originality with their products, and this nation will sooner or later be reckoned with as a serious nation by the world.

Proof

The agreement approach in the theory of imitation and adaptation states that a nation that intends to develop could seek help from a mentor that has already been successful in imitation or a wealthy nation that will be willing to give support. In the case of the former, it means, technology will be transferred in return for money to be paid or rewarded in short. With regards to the former, money could be supplied to help get important machines or help build important infrastructure. Therefore, in the world of development the agreement method functions well. But by Theorems 26 and 27, the use of SLI and BL[38] should be coupled with the principles analyzed in the primary, secondary and main *frontis* to ensure easy imitations that will follow what is practiced in the academic circles. The interactions with other important countries as mentors will help gain recognition in the world of developments. These will also provide them with originality and self-confidence (Theorem 15).

Therefore our theorem follows immediately from Theorems 26 and 27. Q.E.D.

Corollary 1. Therefore nations that border a neighboring nation that has successfully developed will have a greater advantage to surge ahead in development.

Corollary 2. Nations that have no contact with a neighboring mentor nation that has already developed will face serious problems in development unless they work hard to put themselves forward.

Corollary 3. All the developed nations in the world had access to at least one talented nation that was their mentor or model in terms of development.

Theorem 2 [29]

Let any nation choose a nucleus language as BL (spoken by the majority of its citizens, and not a foreign language), and let that nation make the central decision to employ only SLI to solve its problems; if now this particular nation gathers all its talented/geniuses among them to solve these problems at a special locality or an institution, and entrust them with these; wesay that they will be able to solve this particular problem in a shorter period or at a later date.

Proof

By Def. 2 the BL is to be employed and by Def. 9 the SLI will be employed. The strength of the whole idea of BL is that all the people in the country have accepted to use it for the education of the whole population. The fact that the majority of the land speaks this BL, signifies the possibility of developing this language that is already flowing in the veins of many that will shine to a higher degree. Within a number of years, the BL will be developed such that everyone in the country will identify with it as the BL that flows in his or her blood or veins. This is a major advantage in that whiles a foreign language as BL cannot be developed properly to the satisfaction of the people, (because it will cost a lot of money and resources and, moreover, there are not people who

originally possess this language that can make them to shine and to able to be develop to a better standard) the nucleus BL can be developed because there are people in who's veins the language flows.

But by Theorem 15[39] when people utilize their BL and employ at the same time the SLI it will attain originality and accuracy in a higher degree such that it will enable them to solve many of their immediate and mediate predicaments. This will accord them a greater amount of self-confidence based on their previous surmounting of their problems. Since the property of having a better understanding and gaining the analytical methods from the use of the SLI, the talented among them will be capable of solving any problem whatsoever entrusted to them by their governments or superiors.

Therefore the desired conclusion follows immediately from Def. 2, Def. 9 and Theorem 15. Q.E.D.

Scholium

The proof of the theorem above can be treated more fully as follows. Nations that depend on other peoples' language to educate their citizens have such a huge challenge that it is unclear whether they can visualize the consequences. Take for example the use of the English Language by a group of people to educate their citizens. If there are at least one hundred people of English origin that live in the vicinity and speak the language, the original language will be heard frequently and studied correctly. Hence, there will bea development of this particular language. But where a group of people using this language had none of the native people around to ensure the correct usage and imbibing of the language, it will create a major problem. Therefore, nations that have numerous languages should choose a nucleus one that is spoken by the majority and also understood by them. Within a reasonable period of say twenty years, this language being a native language will be learnt by everybody and the consequences will be unity of the entire society as one people with a common language. In the next hundred years, these different people will identify with this particular language, which will make them learn easily and communicate well. As every business is conducted in this language it will increase knowledge and productivity of the nation in question. No longer will just two million be involved, but the whole 22 million inhabitants of the country will be involved in nation building. The people will not be naive any longer as they will follow what is being taught in public and everywhere in the society, and all the books being written in this language, will make it easier to imbibe knowledge and also scrutinize the sciences in their own blood language to help them in major development. This is what has made many developed nations succeed in development and provided them with self-confidence because the whole society understands each other and read and write in their blood language (i.e., the language that the majority speaks, which is culturally adapted).

Main Results

Formal Statement of Cooperation Theorem (Integral Co-op Theorem)

Suppose that there is a nation that had made plans to develop; and while at the primary frontis seeks help from a wealthy developed nation; and let DA be this developed nation and SF the novice nation and let SF choose a BL and make it their sole aim to employ SLI in their development; then, if SF decides to maintain its BL and use SLI at the same time, we say that it will develop faster than another nation FA who neither employs its BL, SLI, nor had no DA as mentor nation or aid.

Proof

By Theorem 1 a nation can seek co-operation with regards to development from a mentor country (DA) that has been already successfully developed or a wealthy nation that can contribute to development in the form of money or resources. This is the agreement approach

(AG), which is commonly depicted in the theory of imitation and adaptability. But part of the requirement for development is that the novice nation employs its BL and has access to the utilization of SLI (Def. 1 and Def. 9). This will ensure the novice individual's easy assimilation of ideas or innovation, as well as the necessary scientific technology to aid this development. Consequently, by Theorem 1 the access to these ingredients will augment the better behavioral characteristics that will provide self-confidence to the novice nation SF. As these ingredients are the main prerequisite for a successful development, SF will likely develop faster than the naive nation FA that has no access to these powerful ingredients for development. It is likely that SF will have all the needed personnel or experts that will be willing to share their experiences and ideas concerning this particular development (Theorem 2); probably gathered at a special locality or an (scientific) institution.

The desired conclusion follows at once from Theorems 1 and 2. Q.E.D.

Mathematical Analysis

According to our own proposition, the processes in imitation can be divided into three phases: (1) the primary *frontis (Pf),* which is considered the initial phase of imitation; (2) the secondary *frontis (Sf),* where a new phase of development leads to originality of thinking and a distinct better product; and (3) the main *frontis (Mf),* which supersedes the first and second phases, gives the imitator omnipotent control over that which is being produced or developed.

The Primary Frontis

This is the initial phase of imitation where the human organism begins to order his memory and those innovations it wants to copy. It comprises such activities as plans to secure appropriate materials, at what price, and whether the acquisition will have to involve normal agreement or observation of the products to be copied. If the plan has to encompass the stealing approach or spying, what steps are needed in order to accomplish this? Where the purchasing approach has to be followed, the organism will have to weigh whether it has to depend on other organisms or people to help get some intricate materials (either finished products or raw materials) from them. At the primary *frontis,* it is always better that the organism co-operate with other organisms who can supply basic materials to help beat down the cost of materials or save time. The products at this level are considered to be regular and produced in quantity.

The Secondary Frontis

This is the phase where the organism has successfully imitated products or innovation. They have come to the stage where its neighbors know their products. Though they have succeeded in penetrating the market, still people are not used to their products, only those who can afford them because of its cheap prices. These cannot afford the high quality products that are expensive. Nevertheless, at this phase of secondary *frontis*, the organism has attained originality and even though people reject them due to their cheap prices in relationship to the original innovators. The significant development of this stage is that there is no difference between the imitator's products and the original innovators. There is originality, quality, and quantity in the performance dimensions. These products of the former are able to compete with the latter, and this is where conflict can ensue, especially if the selling prices of the former are less than the latter (e.g., China). The process whereby the products at the secondary *frontis* become available to consumers shall be termed proximity**.**

The Main Frontis

The organism has reached the omnipotent control in imitation, and this has superseded (in Latin *supersedĕre* 'be superior to') both the primary *frontis* and the secondary *frontis*. This stage has become possible through an energizing principle known as the social referential comparisons. This,

which is the appraisal of an individual or groups' own behavior, requires comparisons among three major information sources, namely performance level, internal standards, and the performance of others. In the normative comparison, standard norms based on representative groups are used to determine one's relative standing. Social comparison involves comparisons among associates, neighboring societies, or people in other settings engaged in similar endeavors. Self-comparison is where ongoing performance is judged. It supplies the measure of adequacy. Finally, collective comparison is partly one's own behavior taking other forms in society organized around collectivist principles. It is group performance rather than individual accomplishment that is evaluated and publicly acclaimed[40]. But, though this phase is ideal, yet it can be the stage where the organism, because of competition with imitators at the secondary *frontis* could lose market for its perfect products. Because it has attained some measure of standard, the prices of its products have soured in relation to its high quality. Since it cannot sell cheap, it may be compelled to take a soft attitude towards its competitors; otherwise it will lose market and revenue. Where it takes the unpopular steps of intimidation and threat, it may lead to disastrous conflict unless an agreement is reached where both organisms from rival countries can maintain a stable relationship in the market (e.g., Sweden, Germany, and USA)[41].

Developmental Economics Theorem: Co-op theorem

In Developmental Economics, Co-op theorem (Integral theorem) in Cooperation theory says that co-operation between Wealthy Nations or Mentor countries is very essential[42],[43]: The novice nation that chooses the agreement approach should decide how much it is to pay the mentor nation, and how long should the agreement approach last. The novice nation should make sure that the agreement terms are appropriate and should not cripple future children in debt. Both countries, that is, mentor and novice should gain in this venture so that whenever the mentor nation is called upon again it will not hesitate. The agreement approach is ideal for many developing countries that are isolated from mainstream Europe [44].

A preliminary Co-op theorem and Integral formula for this theorem can be written like this: If *SF* were the novice nation that intends to develop, *DA* the mentor nation, *BL* the Blood Language, *SLI* the appropriate Scientific knowledge, technology and approach, AG the agreement approach which include a distinctive particular innovation, Ct^2 cultural context, *Im* imitation and *Ad* adaptation methods, *PF* the primary *frontis*, and *t*or *T* the time taken to accomplish the specific development and the kind of stage, *ds* being the product being produced, and *equal to* (=) could mean the cost of the whole collaboration, and supposing that we have all the below-mentioned appropriate conditions being satisfied.

Therefore, let the designations on the left side represent the variables on the right side:

Fr = good infrastructure
Tp = trained personnel
Ct = ∫ fr + tp
Ks = krisis situation
Ab = aggressive behavior
Tc = variations of techniques
Ad = ∫ ks + ab + tc
Rh = rehearsal of techniques
Bt = borrowing techniques
Ag = Agreement approach/method
ψ = mentor nation
Im = ∫ ψ + (Rh + bt + ag) Imitation is any act of development, say, between the points 0 and ∞, is integral ∫ ψ + (Rh + bt + ag)
∫ Im + Ad = ∫ ψ + (Rh + bt + ag) + ∫ kr + ab + tc
De (Ξ) = development
Im (Z) = imitation
Ct (Π) = cultural context (Ct2 is for larger context of space)
Ad (∀) = adaptation

$\Xi = Z + \forall / \Pi$
Dp = displacement
Pf = primary frontis
Sf = secondary frontis
Mf = main frontis
St = strictus
Steo = science theory
Smt = science methods
BL = Blood language
Int = intelligence
Pθ= primary intelligence
Sθ= secondary intelligence,

We can easily integrate Co-op theorem as follows:
$\int DA + SF\ (BL)\ dt = \int (DA + SF\ (BL) + AG + \int \frac{Im+Ad+SLI}{Ct^2} \frac{Pf}{dt}\ ds = 0$

Co-opth: $\int (DA + SF\ (BL) + AG + \int \frac{Im+Ad+SLI}{Ct^2} \frac{Pf}{dt}$
$= \int (DA + SF)\ dt\ ds = 0$

[Co-op: Nations Integral + Technology Integral + PF x (Product)/Ct² = Cost of total collaboration]
While for a successful development or unsuccessful development to take place, one needs the following propositions:

Proposition I
$\int$ *- (PθInt + SθInt) = Dp; Formula for intelligence displacement*
Where there is absence of primary and secondary intelligence, intelligence for development as a whole will be deficient.

Proposition II
$\int$ *St + PθInt =* $\int$ *PθInt; Formula for primary law of intelligence*
Primary intelligence depends on the existence of strictus/pressure and the difficult experiences emanating from the human organism's surroundings.

Proposition III
$\int$ *Steo⊗smt + BL =* $\int$ *SθInt; Formula for secondary law of intelligence*
The secondary law of intelligence is dependent upon the study of the principles of science and its peculiar methods of inquiry and the absorption of learning with the use of the blood language, otherwise known as culturally adaptive language.

Proposition IV
$\int$ *St (Pθ+ Sθ) + BL = Int; Formula for intelligence*
Intelligence as a whole is dependent upon the presence of strictus, primary and secondary laws of intelligence and the utilization of the culturally appropriate/adaptive language
Therefore, for a successful development to take place this formula is needed:

$\int Int = \int st\ (P\theta + S\theta) + BL \int \Xi = \frac{Z + \forall}{\Pi} + \int \frac{dPf+dSf+dMf}{dt\ \ dt\ \ dt} = 0$

Successful cooperation development is dependent on the presence of strictus, primary and secondly laws of intelligence, while there is at the same time imitation and adaptation which occur at the cultural context under the supervision of a mentor nation: these consisting of adequate infrastructures as well as educated personnel, and they must follow the primary, secondary and main frontis stages with inadequate time periods.

Where *Ct²* being the larger context of space for both the novice and mentor's cultural context. The *ds* being the kind of product being produced, and *equal to* being the cost of the whole collaboration.
Corollary 1. Therefore nations that work in co-operation with others develop faster as against those that work on their own without co-operation with others.
Corollary 2. If a nation trusts in its ability to work with its own Blood language, and gathers its geniuses with the intention of championing self-reliance development when they have access to scientific technology, they will surely succeed and this will boost their self-confidence.
Corollary 3. Hence, given the principles provided in the Primary, Secondary, and the Main *frontis*,

nations that become serious will surely develop and their people shall not face the improper treatments that are often directed toward people that have not been able to develop their milieu.

Discussions, Conclusion and Implication

In the foregoing discussions, the cooperation structure theorem states that the value of any cooperation is built exclusively on the use of natives' culturally adaptive language and communication, exploitation of science and technology through good innovation techniques, and systematic contribution of a mentor nation either through an agreement approach or simply scientific collaboration. And this is irrespective of weather both parties earn something immediately for themselves or not, which is a key to globalization idea in market and cooperation economics. The theorem in its simplest form is based on the idea that with certain assumptions in place, cooperation between wealthy and non-wealthy nations could take place which could affect global economy and market in a positive manner.

Furthermore, the use of the blood language or culturally adapted language undermines the theory of superior species, as well as the theory of Lower Races. It is employment of the language of the blood that makes many less-bright people look bright among the so-called developed nations. All are not intelligent as it has been believed or traditionally proposed. It is also the absence of the use of the blood language that obscures the geniuses in the developing nations and the majority of the Third World Nations. When the latter is righted or corrected, though the latter societies may not be as developed as they are now, still the differences between them and the developed nations will be marginal. The use of the blood language will see to it that knowledge will not be wasted on the learner, as the latter will shine and be able to challenge his society and the world at large.

Countries that are serious in making a turn in order to employ their own blood language or culturally adapted language will surely see the benefits in their microeconomics and macroeconomics development. They will increase their productivity and a nation that happened to employ the services of two million of its inhabitants will after employing the Blood language utilize all its twenty million inhabitants. This is because there will be increase in knowledge that will not only be attributable to formal education but also informal education that takes place in the community and also through mass media such as Television sets and Radio. If all educated discussions are conducted in the blood language, seldom will we discover those who are not educated or gained formal education as are seen in the financial and domestic markets when trading is taking place. In the informal and formal markets, progress will be registered. This will help the country in question and they will never be underestimated in anything as they will utilize their blood language to scrutinize the sciences, and with adequate innovations in order to find solutions to their pressing problems, they will make headway forward in terms of development which results from cooperation. Unmistakably it is the blood language or culturally adapted language which makes the study of rigorous subjects such as physics, chemistry, biology and mathematics become easier and that has made many developed nations surged ahead as compared with the less developed countries. Any attempt to make some changes and introduce innovations in these areas, coupled with the building of adequate research centers and institutions, will set developing nations on the road to a successful development and they shall become well enlightened.

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