Review Articles

Relevance of some of the theories of Ibn Khaldoun in his "Al Muqaddimah" to contemporary medicine

A personal interpretation

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ABSTRACT

The subjects in this paper include Ibn Khaldoun's thoughts on writing, and their implications on today's medical writing. This paper discusses why people write, plagiarism, "Original" and "Copied' writings and where history writing goes wrong and how this can be applied to Medical writing today. The paper also discusses the nature of Science and Knowledge as viewed by Ibn Khaldoun, the anatomy of intelligence, types of thought processes, and effects of environment and craftsmanship on intellect. Ibn Khaldoun's definition of the "Medical" profession and its social standing is discussed as well as his emphasis of the importance of exercise, diet and climate on healthy living. Ibn Khaldoun has clear and advanced concepts on education and methodology of education. He emphasizes 3 stages of coaching, and the importance of travel in consolidating and clarifying knowledge attainment. He abhors coercion as a method of educating the young. Developing the interest of the pupil in the art he is studying, is thought by Ibn Khaldoun to be the central theme of good education. Relevance of all this to contemporary medical education is discussed. Ibn Khaldoun has fascinating ahead-of-time views on the influence of peer pressure and what is now known as "Emotional Intelligence" and he rejects the idea that intelligence is ethnically determined. Instead, he emphasizes the environmental, social and craftsmanship influence on human behavior. He stresses that the method of education has alot to do with the 'apparent" intelligence or "stupidity" of pupils.

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Ibn Khaldoun was an Arab writer who lived in the 14th century. He was born in Tunisia in 1332 and died in Cairo in 1406. His ancestry emanated from Yemen in the Arabian Peninsula and emigrated, 700 years before his birth, to Andalusia, Spain, where successive generations of his ancestors, including his father, were born and lived. He was arguably one of the most original thinkers in history. He is universally recognized as the founder of Sociology, Science and Philosophy of History as articulated and expounded in his famous "Muqaddimah" (Mq) which means, "The Introduction" or "The Preface". In this he delves into human nature, the nature of groupings, group dynamics and environmental effects on human and group behavior, which he calls Al-Asabbiyyah. He discusses in depth and in an analytical fashion, the rise and fall of dynasties and the causes thereof. Although he is primarily known for his massive and unquestioned original contribution to history and sociology, some prominent scholars consider that he, and not Adam Smith, is the father of modern day economics with clear and well-articulated views on,

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by today's phraseology, "work ethics", "supply and demand" 373, 5-19[1] (for this reference and other references, indicating page, chapter and section, see reference one in detail) and the government being the biggest market, "work worthiness", "transnational trade", "effect of taxation" "Co-operative work within societies". "Value chain of products" 369, 5-14[1] marketing as affected by "profit" and "loss" and "recession", commodities 367, 5-12[1] stratification of products into premium, medium and low quality. He advocates going for the middle quality product to maximize customer base.

Ibn Khaldoun was a devout Moslem. Indeed, his upbringing was highly religious and he has worked and lectured as a Moslem scholar with devout belief in the teachings of Islam. He was a liberalitarian who believed that governments should not suppress people and that suppression and injustice by a regime leads to its downfall. His theories in education, explained below, are extremely innovative and forward looking even by today's standards. Ibn Khaldoun knew that he was establishing a new science "this is a new science which, unless I am mistaken, I have not come across before. We have been led to this new science by the Grace of God. This is an independent science with a subject matter; namely, human civilization and sociology and has purposes; namely, what symptoms and conditions occur to it, the society, in succession. This is the basis of all sciences." 42,1/1[1] At the very end of the "Mq", he writes "we have almost gone beyond our purpose in this first book which is on the nature of civilization, perhaps someone coming after us gifted by God with sound thinking and distinguished knowledge may delve deeper into its problems than what we have written for it is not incumbent on the originator of a new science to detail all its problems but, only to specify its subject matter and classify its branches, and it is for those who come later to add to it, bit by bit, until it is perfected I completed this first part containing Mq, in 5-months" 614, the final paragraph.

Throughout his book Ibn Khaldoun emphasizes rational thinking and reasoning as an approach to the study and analysis of problems. He kept emphasizing that this rationality is in keeping with Islamic teaching and repeatedly quoted verses from the Quran to support this view. The contemporary historian, Arnold Toynbee described Ibn Khaldoun's work as "a philosophy of history which is undoubtedly the greatest work of its kind that has ever been created by any mind in any time or place." In this article I will discuss some of his theories as applied to contemporary medicine from a personal interpretive point of view.

Writing. Thousand of articles are written in Medical Journals and books every month. It is estimated that the number of journals currently indexed is 4000.[2] It is worth reflecting on Ibn Khaldoun view as to the reasons for writing, objectives, "the legitimate purposes for writing are 7, other purposes ought to be dismissed" 529, 6-35[1] 1. Deduction of Scientific Facts this would be equivalent to original papers in today's medical literature. 2. Acquaintance with Previous Writings-this could be equated to today's review articles and medical textbooks. 3. Correction/modification of Previous Writings-equivalent to repeating and verifying experiments. 4. Completion and Advancement on Previous Writings-taking an experiment a step further. 5. Classification and logical organization of Science knowledge bibliographies-indexing. 6. Collection of the Same Science topic from Scattered Sources-review articles, textbooks, overview lectures. 7. Summarizing of excessively long texts with deletion of repetitions abstracts, pocketbooks. He warns, however, against deletion of information of importance "lest the original thesis is malpresented." 530, 6/35[1] "Excessive summarizing of a subject is obstructive to learning," some authors are fond of shortcutting methods in their writings by using few words to expound many meanings, their supposed purpose is to aid memorizing, but leading to difficulty in understanding, this is corruption of teaching and leads to misunderstanding and lessens learning especially in those at the start of the learning process." 531,6-31[1] One can see that many modern-day medical Journals have sections, reflecting Ibn Khaldoun "reasons for writing". He states that outside these, writing is unnecessary. He has strong condemnation of plagiarism, which is not unknown in today's medical literature.[3-5] "In plagiarism, it is pretending that other people's writings are one's own and merely change the wordings or rearrange from last to first, or vice-versa, such is a sign of ignorance and impudence".530, 6/35[1] He abhors unnecessary additions or omissions in writings. The intrinsic motivation for writing remains true today. "Writers are keen to record what is in their mind in manuscript and books, so that benefit can be spread to those "absent" or those that come later these are the authors." 528, 6-35[1] This can be reflected in today's keeness to see one's writings, and name, in print. In a similar vein, Ibn Khaldoun has renowned and penetrating views regarding "how to tell truths from falsehoods in history writing" and why history falsification remains propagated. 34 1/1[1] These views could well be applied to medical writing of today. To assess the validity, truthfulness, of written history one should be aware of "rules and laws of politics, nature of existing things, differences in peoples, places, lives, behavior, religion and conditions. It is important to understand the present and relate it to the past. To understand basis and reason for the origins of dynasties so that one can understand the cause of all events and news it is only by this that one judges the events, as narrated, on the basis of solid scientific laws and if it, the narrated, history agrees

with the scientific basis then is true, and if not then one should ignore it".

Why is history falsified? According to Ibn Khaldoun this may be due to: 1. "Bias to ideas without scrutiny". In medicine, too, we see this often. We try to overcome this bias, however, by using "controls" and "double blind" experiments but in our day to day practice we are often influenced by bias and anecdotes.[6] 2. "Unwarranted confidence in writers". It is not unknown that even respectable medical journals will "pass" with little scrutiny works of famous professors only to be proven wrong at a later stage.[7] 3. "Ignorance of applying "conditions" on "events". Not using the test of reasonableness and rationality in analysis; namely, non-critical thinking. 4. "Ignoring purposes, causes, reasons for events". Not delineating and specifying objectives in a medical endeavor be it clinical or experimental. 5. "Pleasing people in high or beneficial positions". Bending results or statistics to obtain conclusions pleasing to the boss or the sponsoring body, namely, pharmaceutical company"[8] 6. "Ignorance of effect of "culture" and "civilization" on events in history, every event has an intrinsic objective propelling it along" this is the most important in Ibn Khaldoun's view. The importance of ascertaining the cause and effect relationship.

Nature of science and knowledge. Philosophical Sciences, he includes medicine in this category, are universal and traverse all cultures and concern all humanity, unlike religious science or 'historical records' which can be nation specific." 462, 5-19[1] "Human Science, starts with articulation of facts, then comes proof or disproof of the fact by associated observation either by intermediate fact or without. Once a scientific "image" has been established, then it is mandatory to pass on to others, either by teaching or debate. This in itself will cause thoughts to be generated to correct it further" This generally terms what happens in original medical writings, a hypothesis is considered and then is proved or disproved by observers. Most medical scientists have an urge to document their findings by writing in periodicals, teaching/lecturing in medical gatherings, or debating in medical conferences, and often this leads to further clarification and correction of their findings. In observing facts and making conclusions, Ibn Khaldoun has clear concepts regarding rationality and reasoning. "Know oh learner, that I shall give you a benefit, advice, for your learning if you accept it and hold on to it you shall acquire a great treasure and honorable weapon" p533, 5-37[1] "Human thought is a unique facet given by God, found in the middle atrium of the brain that sometimes, allows initiation of organized and orderly human actions it allows the acquiring of knowledge this is carried out by considering its, 2 extremes and facilitating its proof or disproof by interaction of thought process 533, 5-37[1] thus sees various aspects of an action and thoughts and takes middle action in the blink of an eye. Some people have this facility of reasoning even without formally learning the science of reasoning". Ibn Khaldoun divides knowledge, into mental, intellectual, includes philosophy and wisdom in this category, and "copied" science, which includes the study of religion. Natural mental science is further divided into 4 types-of which medicine is a branch.406,6-4[1] Interestingly, he classifies knowledge into that which is required for its own need, purposeful knowledge, and that which is intermediary, for those end purposes, such as learning Arabic language for religious studies or logic for philosophy. "The delving too much into the latter, is unnecessary and a "waste of time". Medicine and the natural sciences he includes in "purposeful" knowledge science. Enhancement of brain power 399, 5-33[1] can be a product of learning a craft, according to Ibn Khaldoun. "Profession imparts on its owner enhanced brain power, mental acumen, especially the profession of writing and mathematics". 399, 5-33[1] "For mental prowess to express itself, it does so by learning and understanding physical things first, through theoretical understanding until it becomes actual understanding. Thus, experience becomes intellectual undertaking as in learning a profession so, similarly, does understanding the whole civilization, for it is, in essence, a collection of professions such as home keeping, mixing with peers, learning of for example art and performing matters of religion, all these are learning organized as knowledge and thus increase brain and mental prowess. Evidence leads to more evidence; thus one moves from clues to real evidence. This jump, from clues to facts, enhances wisdom. 400, 5/33[1] This theory can be clearly applies to medical practice and to organized and questioning minds, in general. A medical curriculum based on relating disease events to pathological/physiological events is more likely to produce better doctors, with higher "mental prowess", than that which accept facts at their face value. Arguably, also professional endeavors in generally increase brainpower and usage. "To grasp knowledge, be superior in it and use in, can only occur by understanding its basis and principles and absorbing its various aspects and deduce its branches from its roots and principles; otherwise, real command and wisdom in that art will not happen. We find that knowing a specific problem in a specific art is possible, even, to the beginner and to the accomplished scholar. However, talent, in the art can only occur in the scholar who understood the principles, of the art, and can differentiate "branches" from the "root". Therefore, talent is not the same thing as mere knowing or being 'aware' of a problem, it can only accrue by what has been described at the beginning of this paragraph." 402, 6-2[1] Again, being verse in principles and having the ability to deduce important conclusions from apparently unconnected

observations differentiates a scientific innovative doctor from an ordinary one. Despite his logical mind and rationality, Ibn Khaldoun was scathing with regards to chemists of his age. He was clear that their practice is merely of magic, and superstition 522, 6-33[1] and described Ibn Hayyan, a famous Arabian chemist, as the Head of Magicians. 482, 6-28[1] He had no time for their work and described their work as full of puzzles and difficult to understand as "they have no basis to what they say and purposely make their writing puzzling and mysterious". "They take up this profession as they are incapable of others-they are full of vice and greed". His writing in this respect is concentrated on alchemists' claim of making gold out of silver. "They pretend to do so to steal money from people". He, however, differentiates "misguided" chemists from those who abuse people's ignorance and greed. Ibn Khaldoun's view was "blinkered" by this aspect of alchemy and he could not absorb the great work of Ibn Hayyan the chemist who wrote 70 treatises including ones on basic chemical interaction and is renowned as the founder of chemistry. This hole in Ibn Khaldoun's otherwise logical reasoning is difficult to explain.

Medicine. He defines medicine as, "a craft that looks into human body as it ails and as it becomes healthy, and its practitioner tries to protect health and cures and prevents disease, 478, 6-25,[1] they may single out a specific organ for study and make out of it, a 'specialized' science, such as the eye and its world. Medicine is a branch of natural sciences which is a branch of philosophies". He also says the study of healthy organs, physiology, is not really branch of medicine, although many physicians do learn it. "As for medicine, it is for preservation of health and prevention of disease. It is a branch of Natural Science its subject matter is the human body." 375, 6-23[1] "Medicine is an industry, whose demand is increased by "affluence" and civilization." 378, 5-29[1] "This profession is essential for cities and urban areas due to its beneficial results, being for the preservation of health for the healthy and cure of the ill, such that they are rid of their disease". 378, 5-29[1] "Doctors collaborate with nature and help it along. For it is nature which is the 'organizer' of state of health or disease." You can see from his definition that: 1. He stresses that it is part of a doctor's job to prevent diseases, preventive medicine. 2. That basic biological sciences; namely physiology, although useful for a physician to know, is a separate specialty and body of knowledge. 3. That sub-specialties in medicine exist, he refers to ophthalmology in this regard. 4. When affluence national income or increases so does medicine as a craft. This can be seen as a fact in the correlation of standard of medicine to national incomes and affluence. 5. Nature is central in health. He classifies some professions as being "noble", and includes the medical profession amongst those." "Noble professions are facilitators and causers of mixing with kings and people of influence in their, they therefore impart honor to these, 'noble' professionals not found in other professions". 372, 5-18[1] The medical profession still bestows good social standing to doctors in most societies. "Noble profession gets eroded as civilization falls within a society, but the degree of erosion is inversely proportional to depth and duration of the civilization". 372, 5-18[1]

Generally, and this is repeated throughout the Mq, "professions flourish and become more sophisticated as civilization and urbanization flourish, and as people move from basic needs and simple necessities to the purchase of goods of appearance". Industries, are 'mental' and 'manual' - the latter are acquired by apprenticeship and the former by teaching, "the better the teacher, the better the student". 371, 5-17[1]

Ibn Khaldoun is clear in his mind regarding the importance of exercise, fresh air and diet on health. "Moreover, in cities the air is contaminated with fetid vapor due to the presence of much waste, contamination. Fresh air activates the "instinctive heat" necessary for digestion. Moreover, exercise is lacking in city dwellers for they are often inactive, for this reason, the incidence of diseases increases among them and to that extent there is increased need for medical profession. On the other hand, Bedouins, desert dwellers have less diseases as they eat simple foods in lesser amounts, exercise more and breathe fresh air and for these reasons there are fewer doctors there." From the above, one can see that Ibn Khaldoun: 1. Realizes that food produces waste products through metabolism. 2. Diseases are increased (a) by too much food. (b) By unsuitable food. (c) Lack of exercise. (d) By poor contaminated air. 3. That there is geographical, environmentally induced variations in incidences of diseases. Indeed we can see even today differences in "urban" and "rural" dwellers in disease incidences related to sound habits as described by Ibn Khaldoun.

Education and training. Education and training have been discussed thoroughly in Ibn Khaldoun's "Mq". Some of his views have immediate relevance to contemporary medical education and Deans of medical schools would do well to heed his advice, which, he elaborates in a chapter entitled "About ways of correct teaching of science". 531, 6-37[1] 1. "Know that teaching students is only of benefit if given gradually step by step in small amounts starting with basic talks on, principles of, the various branches of that science. The approach is to start by exploring through generalization while taking into account in the delivery the mental prowess of the students, their capability of understanding, until all the art of the science has been covered". "This will result in the student acquiring talent in the science - albeit partial and weak its purpose, at this stage, is that it lays the foundation for his understanding and gathering of the, sciences, queries". 2. "This should

be repeated, but this time at a deeper level with introduction of controversies until all branches of the science are covered again." 3. "The 3rd stage is repetition again but with full explanation of its, science, misunderstandings; hidden facts and 'mysterious,'controversial, aspects". He concludes, "this is how beneficial teaching should be and as you can see it occurs in 3 repetitions". "Some students may require less repetition according to their receptivity". "Some teachers are ignorant in the way of teaching. They start with difficult matters thinking that this is better for the training of the brain, they think they are doing the right thing-nay they cause the student, not understanding the subject, to become lazy and non-receptive-all because of poor teaching methods". "A teacher should not impose more than what the student is capable of absorbing-for interest, in a subject, develops from its understanding and thus hunger for learning increases. Otherwise, he gets confused thus, bored and despairing of knowledge retention and thus abandons science of learning." "Know that recognized sciences are of 2 types-those acquired for their own end purposes, primary, such as natural sciences and those that are intermediary, mechanisms, methods, for the primary science, such as learning the Arabic language to study the Quran. 535, 6-38[1] One should not delve too deeply for the latter type of science, students have to be alerted to its true purpose, then it is up to them to further themselves in the subject if they feel they have the personal drive or capacity to do so. 536, 6-39[1] "It is necessary for you, the teacher, not to prolong gaps between teaching as this is a cause for forgetfulness and non-connectedness of subject matter, as retention of knowledge occurs through repetitiveness". "Do not teach 2 sciences together. This leads to the mastery of neither". Thus, Ibn Khaldoun's basic principles of teaching are: 1. Repeat teaching of the subject 3 times. 2. Start with principles and basics; start easy then build up consolidating. 3. Receptiveness of students differs so approach each student according to their receptiveness. 4. Interest develops from understanding the subject matter. If the teaching approach leads to non-understanding this leads students to abandon science. 5. Do not prolong gaps between teaching sessions. 6. Teach one science at a time. 7. Use examples and parables, especially in physical areas, to ease understanding. 8. He differentiates between primary science and methodologies that help attain knowledge in that science. The latter should not have much time spent on it in teaching, however the student, if so inclined, can himself delve further into.

In today's medical education, the trainee doctor has to go through stages of learning finishing with specialization when even controversies and debatable issues are discussed. Teaching the basics and principles and using examples form the basis of good medical education. It is crucial the teacher should incite the interest of the pupils in the subject-the springboard for further exploration of the topic. In another place, Ibn Khaldoun is scathing of teachers 538, 6-40[1] who use coercion and harshness on pupils. Indeed, he goes as far as saying that this affects society's very nature and attitude. "Harshness on pupils, especially young ones, is harmful to them. Whoever is reared using harshness and coercion is liable to develop laziness, falsehood, deviousness and pretence, eventually, it leads to uncivilized unsocial behaviour". This is clearly a very modern concept in teaching methods. The current custom of exposing doctors to various consultants and to different academic centers nationally and internationally as well as importance of hand-on-apprenticeship would have been appreciated and blessed by Ibn-Khaldoun. For he says 539, 6-41[1] in a chapter entitled: "On travel in pursuit of acquirement of knowledge and meeting renowned scholars enhances perfection of learning. 539, 6-41[1] "The reason for this is, whereas learning develops on the one hand by teaching and lecturing and on the other hand by imitating and the latter is better, and is more liable to cementing and permanence. This is proportional to the number of scholars exposed to, terminology used in the education process may be confused with being part and parcel of science itself. It is only by being exposed to various teachers that the student is able to dissect out terminology from the body of knowledge itself and thus realize that they are merely methods of teaching and communicating knowledge, ravel in pursuit of knowledge is essential in order to meet scholars". The first part of this comment is reminiscent of Osler's "to learn medicine without books is like going to sea without a compass and to learn medicine without patients is like not going to sea at all."[10] Today we observe that approaches to medical practices differ from one practitioner to another and it is only by learning from many that an intern or resident can realize that approaches are not necessarily part of unrejected medical practice. It is a well-established practice to enhance medical training to rotate among different consultants and to travel abroad to seek excellence in training.

In this connection, Ibn Khaldoun 375, 5-23[1] stresses a person can only excel in one profession. This is a call for present day 'specialization' in medicine. The importance on methods of education on intellectual development of pupils is strongly stressed by Ibn Khaldoun: "Fez and other centers in Maghreb, Western, North African, Arab countries, became devoid of good teaching it therefore became difficult to be good in sciences, the way for this is by debate and discussion on scientific matters for this makes understanding easier. They have not used this, method, in Meghreb and concentrated on memorizing more than is necessary so their students wasted their time. Not speaking or debating, this is a waste of

learning and lives. In Morocco the course takes 16 years, this long period is merely a reflection of poor quality of teaching. "On the other hand teaching is better in Al-Mashraq Eastern, Asian, Arab countries, students are developed better so much so that some people from Maghreb think that their, Mashraq students, brains are more developed and more perfect and are of high intelligence by nature. Nothing can be further from the truth. It is merely a reflection of more advanced civilization and of better teaching, methods. 404, 6-2[1] Intelligence increases with increased abilities talents, in professions and teaching. "Unnecessary details and multiplicity of terminologies are hurdles to retention and acquirement of knowledge." 527, 6-34[1]

Human nature and psychology. "Social standing, position of influence, 361, 5/5[1] is useful for becoming rich. It also leads to avoidance of troubles and bringing about benefits, a person in high position is served in many ways by people seeking his pleasure and avoiding his displeasure, trying to get close to him to fulfill their needs."[11,12] "Happiness and profit befall those with submissive and obsequious nature towards people in authority, and this manner of behavior, is cause for happiness and accumulation of wealth. Most people with riches and happiness have this behavioral trait. On the other hand, we find that those with integrity and aloofness, from using the above behavior, never attain high social standing and depend on meager income and always became poor and needy financially. 365, 5-7[1] Their aloofness from such behavior is because of imagined sense of perfection and their sense that they are superior to others in manners or knowledge, or both, they never attain high social standing and depend on, meager income and always became poor and needy financially and lack happiness." 365, 5-7[1]

This rather disparaging psychological assessment by Ibn Khaldoun of the "proud educated" people may have its basis in Ibn Khaldoun's own personal life experiences. He held many high positions only to be forced out of them often by jealous less worthy opponents with closer ties with the Emir poisoning the Emir's opinion regarding him. He never became wealthy and had, on a number of occasions, to flee, sometimes in a hurry, to avoid imprisonment or execution. I have a strong feeling that Ibn Khaldoun did not 'suffer fools gladly'. "Let there are many equivalent examples we see in today's everyday life where it appears that hypocrisy and licking up to people in high positions seem to cause people to achieve higher positions and incomes even in the medical field! "Action and deeds reflect on personal psychological makeup and human nature. 370, 5-15[1] Traders, by the nature of trade requiring, as it does, pretence, unbecoming, persistence deception, and imitation of others leads to defective personality and also to dishonesty "deeds eventually reflect on psychology, good deeds produce intelligence and 'bad' deeds the opposite, eventually after prolonged period of repetition, of the deeds. 370 The exception to this obnoxious behaviour amongst traders is in those who have obtained money suddenly as by inheritance or by their sudden association with powerful people, in government, which imparts fame to them these function, in their trading, above the, bad, direct ways of trading by hiring others to do the dirty deeds, except what occurs behind close doors necessitated by the inevitable contact with these, hired, agents, but this often does not appear on the surface for everybody to see". 371, 5-15[1] Surely we observe this often in some of the unethical aspects of private medicine when some doctors have unethical approaches. Moreover as Ibn Khaldoun mentions many doctors in private practice try to persuade themselves and others that they are actually providing a good service to society. They, of course, have their own agents at the reception collecting the money and pretend that they are really above such financial matters. On collaboration between people, Ibn Khaldoun clearly grasped the importance of collaborative work within a society, "It is not possible for one person to obtain his needs and wants however simple they are, they only happen by collaboration between people. Once cooperation occurs in actual fact, needs are met in excess and purposes are created beyond needs'. 46, 1/1[1]

In an early penetrating understanding of peer pressure, Ibn Khaldoun mentions that much of why young people go astray in their behavior is due to their association with the "bad lot."[13] Mental thought processes, as classified by Ibn Khaldoun has a bearing on development of human behavior and psychology: 1. "Differentiating Mind"- organization of and connectedness of matter and deeds. This is basically original thinking in relation to original thinking - Ibn Khaldoun elaborates an intriguing and most interesting theory.438,6-11[1] "Thinking, perceives sequencing of events by their nature or condition, to understand this 'cause' 'effect' and 'condition' should be understood. One should not put the "later event" first or the "preceding event" last, an event apparently "primary" may in actual fact be "secondary" to another event that should be discovered. Thus, one should consider the end event, first, and think backwards to discover the chain of causation's. If he thought of establishing a roof, for example, his mind should move to the walls that support the roof and then to the foundation on which the walls are upheld - this being the end of the "causation chain" thinking process. Having made this intellectual sequencing, now he can work on the foundation, then the wall and then the roof which is the end of the act. First, thought is normally directed at the result, which is last in the action. 2. "Experimental Mind" - requiring understanding of opinions and benefits, advantages, of actions among people. This is learnt by experience and exposure to

people. It is with this that a person knows how to behave. This leads to a person knowing what is required of him to do and not to do. People differ in how long it takes them to acquire this talent. For those who do not learn this or its imitation or neglect it, his condition will be corrupted in his living and among his peers and society". 439, 6-11[1]

Ibn Khaldoun's "experimental thought process" just described is very much like 'Emotional intelligence' advocated and written about today.[14,15] It is now thought that emotional intelligence, being able to "team play", relate to people, having no "attitude problem' is of more relevance and iducive of getting on well in life than intelligence quotient. 3. "Theoretical Mind" Between the above 2 mental process comes "the theoretical mind" which Ibn Khaldoun does not delve into but he describes as "imagery of matter" absent, imagined, and present, physical. 439, 6-11[1] Ibn Khaldoun has a chapter entitled "on the influence of climate on human behavior"83, 4th intro in it he says "People from Africa have an inclination to "music" and "dancing" and are inclined to levity. Ibn Masood looked into this and tried to explain it but came with nothing, except quoting from Galens and Yacub Al-Kindi that this is as of weakness of their brains and with subsequent weakness of their intellect. This is a talk with no value and has no evidence to support it. 84, 4th intro. Ibn Khaldoun's view to different human behavior is largely due to environmental influence including climate and he attributes inclination to dancing and music in Africans to the hot climate 83, 4th intro. "Heat leads to hot air entering the body which leads to increase in "inherent bodily heat", which leads to expansion of the spirit in the heart, which leads to dancing and music and joy. We see this in those who have just left who enjoyed a hot bath-you may find them spontaneously dancing and singing" Therefore, you find people from hot countries more likely to be happy and "open" then people from cold countries, this is as heat leads to expansion of animal spirit"

Metabolism and diet. "Bedouins and people living in areas where there is less food have a clearer color, their appearances are better and more perfect and their manners further from immoderation and their mental agility is superior". 85, 5th intro "The reason for this is that too much food, too much meat produces corrupted waste products whose humidity which, cover the brain, results from dirty vapors rising to the brain, resulting in stupidity and moving away from moderation in general. Even in matters of following religious teaching, you find rural people more dutiful to religion for the same reason". When famine ensues, it is the people used to too much eating who succumb and die earlier. "Bodies get used to what they eat, what doctor say that reducing diet is a killer is not true-this is only so if it happens suddenly but if carried out gradually it does not lead to much harm. Conversely, it is important that one should increase his intake, of food, gradually. "Know that hunger is better for the body than excessive eating, we here seen that excessive meat eaters, their children grow in a similar fashion." 87, 5th intro On 384 5-29[1] Ibn Khaldoun states" Know that the origin of all ailments is diet, the explanation is that, food after digestion becomes blood suitable to the parts of the body of flesh and bone, it is taken up by growing tissue to become flesh and bone and digestion means the cooking of food by instinctive heat step by, till it becomes in reality part of the body The explanation is that in the mouth the mastication causes, by the heat of the mouth, a little cooking of the food and causes the food's constitution to change a little. The heat in the stomach cooks the food further until it becomes the essence of that food which is then passed on to the liver; and it sends what has precipitated through the intestine to be excreted by the 2 outlets, namely rectum and urinary tract. The liver, then, cooks this food essence further until it becomes pure blood, the precipitated parts, at this stage, is excreted as jaundice. Instinctive heat is unable to cook the thick, hard, part of the food. The liver sends it all to the blood vessels, where it is taken up by the instinctive heat cooking there, the pure blood forms hot humid vapor sustaining the animal spirit and the growing tissue takes its requirement from the blood to form flesh and bone. The body then sends what is in excess of it needs waste products, as sweat, saliva, sputum and tears". "Inherent, instinctive, heat may not be sufficient to "cook" "ripen" the food, for utilization, because of too much food more than can be handled or by, rapid, re-eating. The stomach may, then, send uncooked food to the liver whose instinctive heat cannot handle it. If this happens, then waste products increase, in the blood, and can be excreted through excreta pathways, if not possible this leads to increase of their content in the body leading to putrefaction which causes "fever". The treatment is to stop eating. Fever can occur in one particular organ." "Eating ailments are more common in city dwellers because of too much, too often too complexed, varied, food intake with improper timing, of food intake, moreover, the climate in cities is corrupted by fetid vapors, moreover exercise is lacking in cities, as of this the incidence of ailments is increased in cities and to that extent, they need this craft, medicine." 386, 5-30[1] From the above one can conclude that Ibn Khaldoun appreciates that the diet goes through important changes in the gut and the liver that makes it suitable for absorption and digestion. He also appreciates that the result of all this is to produce end products that are carried in the blood to provide "energy " and "building blocks" for growing tissue. He, however, put a great deal of emphasis on the central role of "instinctive heat" in this process. If this word can be changed to "metabolic process

requiring energy expenditure", much of what he mentions above will make sense even by today's knowledge. He also stresses the importance of the by products of these processes, waste products, and that they are the cause of disease, hence, diet to him is a cause of all diseases. Hence illness depends on the amount, frequency and types of food taken. He clearly knew that the body has a limited capacity to handle these foods. Besides diet, he stresses the importance of exercise and fresh air in aiding these "metabolic processes" and preventing disease.

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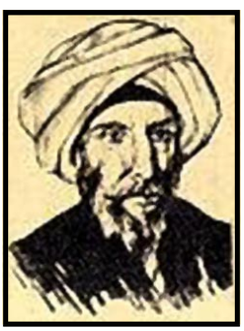

Abu Zeid Abdul Rahman Ibn Khaldoun

Abu Zeid Abdul Rahman Ibn Khaldoun was born May 27, 1332 in Tunisia, to a family known for its vast knowledge. He received a thorough education and served at several courts. While in seclusion in what is today's Algeria from 1375-1379 he wrote his famous Foreword (Al-Muqqadimah), the first volume of his Universal History. The Universal History is a central source to knowledge of the history of North Africa, and the Berber people. It is his Foreword (Al-Muqaddimah), where he outlines his philosophy of history, where he underlined that dynasties have a tendency of lasting for a period of 3 generations, whereafter a new dynasty wipes out the old one. Al-Muqaddimah has been a center of interest to scholars of sociology, history, philosophy and political science. He is considered the founder of sociology and the father of social political science throughout the world. In 1382, Ibn Khaldoun received a chair at the Al-Azhar University in Cairo, acting as a judge and a teacher in Islamic Law. He lived to the age of 74, of which he spent 30 years in Tunisia, 24 years in Egypt, and the rest in Fez, the capital of Morocco and Granada in Spain. In 1406 he died and was buried in Cairo. *(Editorial office)*