

1: Evolution of human intelligence - Wikipedia

Contents Symposium on The Origins and Development of High Ability, held at the Ciba Foundation, London, January
The topic of this Symposium was proposed by Professor Michael J. A.

Intelligence , Archaic humans , Behavioral modernity , and Early human migration Around , years ago, Homo sapiens first appeared in East Africa. It is unclear to what extent these early modern humans had developed language , music , religion etc. They spread throughout Africa over the following approximately 50, years. This reduced the human population to less than 10, breeding pairs in equatorial Africa, from which all modern humans are descended. Being unprepared for the sudden change in climate, the survivors were those intelligent enough to invent new tools and ways of keeping warm and finding new sources of food for example, adapting to ocean fishing based on prior fishing skills used in lakes and streams that became frozen. Rapidly increasing sophistication in tool-making and behaviour is apparent from about 80, years ago, and the migration out of Africa follows towards the very end of the Middle Paleolithic , some 60, years ago. Fully modern behaviour, including figurative art , music , self-ornamentation, trade , burial rites etc. These group dynamics relate to Theory of Mind or the ability to understand the thoughts and emotions of others, though Dunbar himself admits in the same book that it is not the flocking itself that causes intelligence to evolve as shown by ruminants. In addition, there is evidence to suggest that the success of groups is dependent on their size at foundation, with groupings of around being particularly successful, potentially reflecting the fact that communities of this size strike a balance between the minimum size of effective functionality and the maximum size for creating a sense of commitment to the community. As evidence, Dunbar cites a relationship between neocortex size and group size of various mammals. The exceptions to the predictions of the social intelligence hypothesis, which that hypothesis has no predictive model for, are successfully predicted by diets that are either nutritious but scarce or abundant but poor in nutrients. Another hypothesis is that it is actually intelligence that causes social relationships to become more complex, because intelligent individuals are more difficult to learn to know. Social Exchange is a vital adaptation that evolved in social species and has become exceptionally specialized in humans. This adaptation will develop by natural selection when two parties can make themselves better off than they were before by exchanging things one party values less for things the other party values for more. However, selection will only pressure social exchange when both parties are receiving mutual benefits from their relative situation; if one party cheats the other by receiving a benefit while the other is harmed, then selection will stop. Consequently, the existence of cheatersâ€”those who fail to deliver fair benefitsâ€”threatens the evolution of exchange. Using evolutionary game theory, it has been shown that adaptations for social exchange can be favored and stably maintained by natural selection, but only if they include design features that enable them to detect cheaters, and cause them to channel future exchanges to reciprocators and away from cheaters. Thus, humans use social contracts to lay the benefits and losses each party will be receiving if you accept benefit B from me, then you must satisfy my requirement R. Humans have evolved an advanced cheater detection system, equipped with proprietary problem-solving strategies that evolved to match the recurrent features of their corresponding problem domains. Not only do humans need to determine that the contract was violated, but also if the violation was intentionally done. Therefore, systems are specialized to detect contract violations that imply intentional cheating. For example, if only individuals capable of remembering what they had agreed to were punished for breaking agreements, evolution would have selected against the ability to remember what one had agreed to. Sexual selection in human evolution This model, which invokes sexual selection , is proposed by Geoffrey Miller who argues that human intelligence is unnecessarily sophisticated for the needs of hunter-gatherers to survive. He argues that the manifestations of intelligence such as language, music and art did not evolve because of their utilitarian value to the survival of ancient hominids. Rather, intelligence may have been a fitness indicator. Hominids would have been chosen for greater intelligence as an indicator of healthy genes and a Fisherian runaway positive feedback loop of sexual selection would have led to the evolution of human intelligence in a relatively short period. This means that less attractive individuals will find other less attractive individuals to mate with. If

attractive traits are good fitness indicators, this means that sexual selection increases the genetic load of the offspring of unattractive individuals. Without sexual selection, an unattractive individual might find a superior mate with few deleterious mutations, and have healthy children that are likely to survive. With sexual selection, an unattractive individual is more likely to have access only to an inferior mate who is likely to pass on many deleterious mutations to their joint offspring, who are then less likely to survive. That human female breasts typical mammalian breast tissue is small [22] are found sexually attractive by many men is in agreement with sexual selection acting on human females secondary sexual characteristics. Sexual selection for intelligence and judging ability can act on indicators of success, such as highly visible displays of wealth. Growing human brains require more nutrition than brains of related species of ape. It is possible that for females to successfully judge male intelligence, they must be intelligent themselves. This could explain why despite the absence of clear differences in intelligence between males and females on average, there are clear differences between male and female propensities to display their intelligence in ostentatious forms. While sexually selected ornaments such as peacock feathers and moose antlers develop either during or after puberty, timing their costs to a sexually mature age, human brains expend large amounts of nutrients building myelin and other brain mechanisms for efficient communication between the neurons early in life. These critics argue that human intelligence evolved by natural selection citing that unlike sexual selection, natural selection have produced many traits that cost the most nutrients before puberty including immune systems and accumulation and modification for increased toxicity of poisons in the body as a protective measure against predators. Thus, widespread, virulent, and archaic infections are greatly involved in natural selection for cognitive abilities. People infected with parasites may have brain damage and obvious maladaptive behavior in addition to visible signs of disease. Smarter people can more skillfully learn to distinguish safe non-polluted water and food from unsafe kinds and learn to distinguish mosquito infested areas from safe areas. Smarter people can more skillfully find and develop safe food sources and living environments. When people search for mates based on their success, wealth, reputation, disease-free body appearance, or psychological traits such as benevolence or confidence; the effect is to select for superior intelligence that results in superior disease resistance. Ecological dominance-social competition model[edit] A predominant model describing the evolution of human intelligence is ecological dominance-social competition EDSC, [27] explained by Mark V. Geary and Carol V. Ward based mainly on work by Richard D. According to the model, human intelligence was able to evolve to significant levels because of the combination of increasing domination over habitat and increasing importance of social interactions. As a result, the primary selective pressure for increasing human intelligence shifted from learning to master the natural world to competition for dominance among members or groups of its own species. As advancement, survival and reproduction within an increasing complex social structure favored ever more advanced social skills, communication of concepts through increasingly complex language patterns ensued. Since competition had shifted bit by bit from controlling "nature" to influencing other humans, it became of relevance to outmaneuver other members of the group seeking leadership or acceptance, by means of more advanced social skills. A more social and communicative person would be more easily selected. Intelligence dependent on brain size[edit] Human intelligence is developed to an extreme level that is not necessarily adaptive in an evolutionary sense. Firstly, larger-headed babies are more difficult to give birth to and large brains are costly in terms of nutrient and oxygen requirements. Since, scientists have been evaluating genomic data on gene variants thought to influence head size, and have found no evidence that those genes are under strong selective pressure in current human populations. Increased brain size in humans may allow for greater capacity for specialized expertise. The group benefits of intelligence including language, the ability to communicate between individuals, the ability to teach others, and other cooperative aspects have apparent utility in increasing the survival potential of a group. Nutritional status[edit] Higher cognitive functioning develops better in an environment with adequate nutrition, [32] and diets deficient in iron, zinc, protein, iodine, B vitamins, omega 3 fatty acids, magnesium and other nutrients can result in lower intelligence [33] [34] either in the mother during pregnancy or in the child during development. While these inputs did not have an effect on the evolution of intelligence they do govern its expression. A higher intelligence could be a signal that an individual comes from and lives in a physical and social environment

where nutrition levels are high, whereas a lower intelligence could imply a child, its mother, or both, come from a physical and social environment where nutritional levels are low. Pevic emphasizes the contribution of nutritional factors, especially meat and shellfish consumption, to elevations of dopaminergic activity in the brain, which may have been responsible for the evolution of human intelligence since dopamine is crucial to working memory, cognitive shifting, abstract, distant concepts, and other hallmarks of advanced intelligence.

2: The Origins and Development of High Ability. Symposium proceedings. London, January

The Origins and Development of High Ability Chairman: Richard Atkinson The outstandingly high abilities shown by certain individuals are a valuable human resource.

Prehistoric literacy[edit] Origins of literacy[edit] Literacy is emerged with the development of numeracy and computational devices as early as 8, BCE. Script developed independently at least five times in human history in Serbia , Mesopotamia , Egypt , the Indus civilization , lowland Mesoamerica , and China. During this era, literacy was "a largely functional matter, propelled by the need to manage the new quantities of information and the new type of governance created by trade and large scale production". Proto-cuneiform texts exhibit not only numerical signs, but also ideograms depicting objects being counted. The Egyptian hieroglyphic writing system was the first notation system to have phonetic values. These civilizations used glyphic writing and bar-and-dot numerical notation systems for purposes related to royal iconography and calendar systems. These systematic notations were found inscribed on bones and recorded sacrifices made, tributes received, and animals hunted, which were activities of the elite. These oracle-bone inscriptions were the early ancestors of modern Chinese script and contained logosyllabic script and numerals. Indus script is largely pictorial and has not been deciphered yet. It may or may not include abstract signs. It is thought that they wrote from right to left and that the script is thought to be logographic. Because it has not been deciphered, linguists disagree on whether it is a complete and independent writing system; however, it is genuinely thought to be an independent writing system that emerged in the Harappa culture. Origins of the alphabet[edit] According to social anthropologist Jack Goody , there are two interpretations that regard the origin of the alphabet. Many classical scholars, such as historian Ignace Gelb , credit the Ancient Greeks for creating the first alphabetic system c. But Goody contests, "The importance of Greek culture of the subsequent history of Western Europe has led to an over-emphasis, by classicists and others, on the addition of specific vowel signs to the set of consonantal ones that had been developed earlier in Western Asia". Ten years later, English Egyptologist Alan Gardiner reasoned that these letters contain an alphabet, as well as references to the Canaanite goddess Asherah. In , William F. This included a series of inscriptions from Ugarit , discovered in by French archaeologist Claude F. Some of these inscriptions were mythological texts written in an early Canaanite dialect that consisted of a letter cuneiform consonantal alphabet. Another significant discovery was made in when three arrowheads were uncovered, each containing identical Canaanite inscriptions from twelfth century BCE. According to Frank Moore Cross , these inscriptions consisted of alphabetic signs that originated during the transitional development from pictographic script to a linear alphabet. Moreover, he asserts, "These inscriptions also provided clues to extend the decipherment of earlier and later alphabetic texts". During the Late Bronze Age , successor alphabets appeared throughout the Mediterranean region and were employed for Phoenician , Hebrew and Aramaic. According to Goody, these cuneiform scripts may have influenced the development of the Greek alphabet several centuries later. Historically, the Greeks contended that their writing system was modeled after the Phoenicians. However, many Semitic scholars now believe that Ancient Greek is more consistent with an early form Canaanite that was used c. While the earliest Greek inscriptions are dated c. It was then that the new script "Square Hebrew" emerged and the older one rapidly died out. As the Bronze Age collapsed , the Aramaeans moved into Canaan and Phoenician territories and adopted their scripts. Although early evidence of this writing is scarce, archeologists have uncovered a wide range of later Aramaic texts, written as early as the seventh century BCE. Due to its longevity and prevalence in the region, Achaemenid rulers would come to adopt it as a "diplomatic language". Aramaic merchants carried older variations of the language as far as India , where it later influenced the development of Brahmi scripture. It also led to the developments of Arabic , Pahlavi an Iranian adaptation , "as well as for a range of alphabets used by early Turkish and Mongol tribes in Siberia , Mongolia and Turkestan ". The Aramaic language would die out with the spread of Islam and with it, its influence of Arabic. Ancient and post-classical literacy[edit] Further information: Latin alphabet Until recently it was thought that the majority of people were illiterate in ancient times. The Republic amassed huge archives of reports on every aspect of public life".

The army kept extensive records relating to supply and duty rosters and submitted reports. Merchants, shippers, and landowners and their personal staffs especially of the larger enterprises must have been literate. In the late fourth century the Desert Father Pachomius would expect literacy of a candidate for admission to his monasteries: And if he is illiterate he shall go at the first, third and sixth hours to someone who can teach and has been appointed for him. He shall stand before him and learn very studiously and with all gratitude. The fundamentals of a syllable, the verbs and nouns shall all be written for him and even if he does not want to he shall be compelled to read. Even after the remnants of the Western Roman Empire fell in the 5th century literacy continued to be a distinguishing mark of the elite as communications skills were still important in political and Church life bishops were largely drawn from the senatorial class in a new cultural synthesis that made "Christianity the Roman religion," [22]. However, these skills were less in needed than previously in the absence of the large imperial administrative apparatus whose middle and top echelons the elite had dominated as if by right. Post-Antiquity illiteracy was made much worse due to a lack of suitable writing medium. When the Western Roman Empire collapsed, the import of papyrus to Europe ceased. Since papyrus perishes easily and does not last well in the wetter or damper European climate, the alternative was parchment which was expensive and accessible only by the Church and upper layers of the society. Once paper was introduced into Europe in the 11th century in Spain. Its use spread north slowly over the next four centuries. Increased literacy saw a resurgence because of its use. By the 15th century paper had largely replaced parchment except for many luxury manuscripts some of which used paper. The Reformation stressed the importance of literacy and being able to read the Bible. The Protestant countries were the first to attain full literacy; Scandinavian countries were fully literate in the early 17th century. Spread of literacy since the mid-twentieth century[edit] Adult literacy rates have increased at a constant pace since Literacy data published by UNESCO displays that since 1950, the adult literacy rate at the world level has increased by 5 percentage points every decade on average, from 54% in 1950 to 74% in 2015. However, for four decades, the population growth was so rapid that the number of illiterate adults kept increasing, rising from 1 billion in 1950 to 1.5 billion in 1990. Since then, the number has fallen markedly to 1 billion in 2015, although it remains higher than in 1950. In spite of decades of universal education policies, literacy interventions and the spread of print material and information and communications technology ICT. However, these trends have been far from uniform across regions. North America, Europe, West Asia, and Central Asia have achieved almost full adult literacy individuals at or over the age of 15 for both men and women. In much of the world, high youth literacy rates suggest that illiteracy will become less and less common as younger generations with higher educational attainment levels replace older ones. Progress towards gender parity in literacy started after 1990. On a worldwide scale, illiteracy disproportionately impacts women. This disparity was even starker in previous decades: Martha Nussbaum, for example, make illiterate women more vulnerable to becoming trapped in an abusive marriage, given that illiteracy limits their employment opportunities and worsens their intra-household bargaining position. Moreover, Nussbaum links literacy to the potential for women to effectively communicate and collaborate with one another in order "to participate in a larger movement for political change. Making literacy classes available can be ineffective when it conflicts with the use of the valuable limited time of women and girls. For example, literate people can be more easily trained than illiterate people, and generally have a higher socioeconomic status; [44] thus they enjoy better health and employment prospects. The international community has come to consider literacy as a key facilitator and goal of development. The study claims that developing literacy in this area will bring "economic empowerment and will encourage rural women to practice hygiene, which will in turn lead to the reduction of birth and death rates. This concluded that there were economic gains for the individuals, the companies they worked for, and the Exchequer, as well as the economy and the country as a whole" for example, increased GDP. Continuing the global expansion of public education is thus a frequent focus of literacy advocates. The report features countries from a variety of regions and of differing income levels, reflecting the general global consensus on "the need to empower women through the acquisition of literacy skills. In 2000, however, the UNDP replaced the adult literacy measure with mean years of schooling. A UNDP research paper framed this change as a way to "ensure current relevance," arguing that gains in global literacy already achieved between 1990 and 2000 meant that literacy would be "unlikely to be as informative of the future. There are millions, the majority of whom are

women, who lack opportunities to learn or who have insufficient skills to be able to assert this right. The challenge is to enable them to do so. This will often imply the creation of preconditions for learning through awareness raising and empowerment. They might have difficulty getting and maintaining a job, providing for their families, or even reading a story to their children. For adults, the library might be the only source of a literacy program. Diversity in Action[edit] Dia! Parents, caregivers, and educators can even start a book club. The program seeks to equip students with skills to continue learning in the future. The person becomes an example to children and grandchildren and can better serve the community. Reading Buddies matches children of adult literacy students with college students who meet with them once a week throughout the semester for an hour and a half. The college students receive course credit to try to enhance the quality and reliability of their time. The goal is to help the child gain interest in books and feel comfortable reading aloud. Time is also spent on word games, writing letters, or searching for books in the library. Throughout the semester the pair work on writing and illustrating a book together. Although Reading Buddies began primarily as an answer to the lack of child care for literacy students, it has evolved into another aspect of the program. Working since , the HLC is "committed to improving literacy by empowering adults through education". Through one-on-one tutoring, the organization works to help adult students reach at least the fifth-grade level. Broader and complementary definitions[edit] Traditionally, literacy is the ability to use written language actively and passively; one definition of literacy is the ability to "read, write, spell, listen, and speak". For example, in the United States , the National Council of Teachers of English and the International Reading Association have added "visually representing"[clarification needed] to the traditional list of competencies. Similarly, in Scotland , literacy has been defined as: Increasingly, communication in commerce and in general requires the ability to use computers and other digital technologies. Since the s, when the Internet came into wide use in the United States, some have asserted that the definition of literacy should include the ability to use tools such as web browsers , word processing programs, and text messages. Similar expanded skill sets have been called multimedia literacy , computer literacy , information literacy , and technological literacy. Other genres under study by academia include critical literacy , media literacy , ecological literacy and health literacy [89] With the increasing emphasis on evidence-based decision making, and the use of statistical graphics and information, statistical literacy is becoming a very important aspect of literacy in general.

3: Literacy - Wikipedia

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4: Gregory R. Bock & Kate Ackrill, The Origins and Development of High Ability - PhilPapers

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