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The two-factor theory of intelligence was postulated by Spearman. Spearman carried out a factor analysis of the result of children's performance on a number of tests and concluded that all tests measured both a common factor of general intelligence (g) and a specific factor (s). He believed that individual differences were due to differences in g. Triarchic theory of intelligence: Sternberg's Triarchic Theory of (Successful) Intelligence contends that intelligent behaviour arises from a balance between analytical, creative and practical abilities, and that these abilities function collectively to allow individuals to achieve success in particular sociocultural contexts (Sternberg, 1999). Analytical abilities enable the individual to evaluate, analyze, compare and contrast information. Creative abilities generate invention, discovery, and other creative endeavours. Practical abilities tie everything together by allowing individuals to apply what they have learned in the appropriate setting. To be successful in life, the individual must make the best use of his or her analytical, creative and practical strengths while at the same time compensating for weaknesses in any of these areas. Three sets of components are essential for this process:

1. Knowledge-acquisition components: used in obtaining new information.
2. Meta-components: executive processes used in problem-solving and decision-making.
3. Performance components: processes that actually carry out the actions that the meta-components dictate. Flynn effect: An interesting feature of IQ measurements is the observation that IQ scores increased from one generation to the next for all of the countries in which generational cohorts have been studied to date (Flynn, 1994). This is called Flynn phenomenon. In general, countries have seen generational increases between 5 and 25 points. The largest gains appear to occur on tests that measure fluid intelligence (problem solving: These tests on average have shown an increase of about 15 points or one standard deviation per generation e.g. Raven's progressive matrices) rather than crystallized intelligence (verbal and math skills: These tests on average have shown an increase of about 9 points per generation e.g. Weschler's tests). Salient features of Flynn effect:
 4. Non-verbal IQ has risen more rapidly than has verbal IQ.
 5. Performance gains are smallest on the most culturally specific tests, and largest on the most abstract tests.
 6. Performance gains, as they occur over time, are roughly constant for all age groups.
 7. Problem-solving abilities have seen the biggest performance gains.

© SPMM Course What causes Flynn phenomenon? □ Artifacts (i.e. IQ tests do not actually measure the construct of intelligence but measure something that has a link to intelligence that can change with generations) □ Test sophistication (e.g. improvement in test taking strategies across time) □ Actual intelligence increases (e.g., due to improved nutrition, improvement in early childhood education). □ Regression towards the mean (repeated resampling tends to reveal the true mean value) Paradoxes of the Flynn Effect: There are several observations that highlight the baffling nature of the Flynn Effect. □ The factor paradox: Prior factor analysis research suggests that a single factor, 'general intelligence' or 'g,' underlies IQ. The Flynn Effect does not affect all sections of the intelligence tests to the same degree. Hence if we're getting smarter every generation, some parts not all of our intelligence is getting smarter, and this is difficult to explain. □ The interaction paradox: As Flynn Effect suggests, a difference of some 18 points in the average IQ over two generations exist. In that case, it ought to be highly visible when the elderly interact with the young! This is not the case though. □ The mental retardation paradox: If Flynn effect was true then in 1900, average IQ was 75, just above mental retardation range; this assumption predicts a very high frequency of persons with mental retardation. But no such phenomenon has been noted. □ The identical twins paradox: Twins raised apart tend to have very similar IQ scores, but the Flynn Effect suggests that intelligence as measured by IQ is more subjected to environmental effects than genes. Commonly used tests for measuring IQ □ Stanford-Binet Scale is the first formal IQ test introduced before 1st World War in 1905 (used for ages 2 to 18). □ Wechsler Adult Intelligence Scale (WAIS-Revised version) is for individuals aged older than 16. □ Wechsler Intelligence Scale for Children (WISC-Revised) is for those aged 6 to 16. □ Wechsler Preschool and Primary Scale of Intelligence (WPPSI) is for children aged 4 to 6.

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□ Carskadon MA, Dement WC. Normal human sleep: An overview. Philadelphia: Elsevier Saunders; 2005. pp. 13-23. □ Eysenck MW (2004). Psychology: An International Perspective. Taylor & Francis. □ Fox, J. (1996) Projective testing. In Jacobson & Jacobson (ed.) Psychiatric secrets, Hanley & Belfus. Page 22. □ Gross, R (2012). Psychology: The Science of Mind and Behaviour 6th Edition. Hatchette UK. □ Hiscock, M (2007) 'The Flynn effect and its relevance to neuropsychology', Journal of Clinical and Experimental Neuropsychology, 29:5, 514 - 529 □ Kaplan & Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry, 10th Edition. Lippincott Williams & Wilkins 2007 □ Mates, M (1992). "Altered Levels of Consciousness in Schizophrenia". Journal of Orthomolecular Medicine 7 (4): 216-220. □ Mischel, W. (1999). Introduction to Personality. 6th edn. Orlando: Harcourt Brace Jovanovich. An interesting introduction to personality research. □ Salvatore et al. Biological rhythms and mood disorders. Dialogues Clin Neurosci. Dec 2012; 14(4): 369-379. □ Williams, R. B. (2001). Hostility: Effects on health and the potential for successful behavioral approaches to prevention and treatment. In A. Baum, T. A. Revenson & J. E. Singer (Eds.) Handbook of Health Psychology. Mahwah, NJ: Erlbaum. □ McKay, GC & Kopelman MD. Advances in Psychiatric Treatment Mar 2009, 15 (2) 152-158; <http://apt.rcpsych.org/content/15/2/152>

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