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Sommario	Scientific literature contains a great deal of research on intelligence, and several theories have been elaborated in the past years. Although there are different definitions and theories on the actual structure of intelligence, all researchers agree that intelligence is a latent construct and can only be measured through observable behaviours involving cognitive capacity, never directly. Tests are a typical tool used to measure and assess intelligence, an instrument firmly rooted in antiquity as illustrated by a Chinese author (1980), who cites an initial experiment to create tests to assess candidates for positions at the Imperial Court in the 3rd century. These were based on the assessment of verbal and writing speed, and later evolved to use verbal analogy or uncompleted sentences (Boncori, 2002). However the first official test of intelligence was born in 1905 with Binet and Simon's Metric Scale of Intelligence. The aim of our paper is to investigate and measure intelligence construct, using both traditional paper-and-pencil tests (P&P) and more recent Computer Adaptive Testing (CAT). The dissertation is divided into seven chapters. The first chapter contains a short definition of intelligence and aptitude. It introduces the principal differential theories such as Spearman's unidimensional theory and Thurstone's multidimensional theory, and more recent theories such as Sternberg's theory of practical intelligence, Gardner's multiple intelligences and Goleman's emotional intelligence. The second

chapter reviews the birth of psychometric tools and examines the principal psychometric tests used to measure intelligence and multiple factors in scientific literature. The third chapter introduces Item Response Theory (IRT). This is the rationale of empiric contributions shown in the 4, 5 and 7 chapters. IRT is a replacement of the famous Classical Test Theory (CTT), which due to its psychometric advantages makes it more useful in the application area than CTT. The fourth chapter illustrates the first empirical contribution: distribution of the first version of Batteria Psico-attitudinale Multipla (multiple psycho-attitudinal battery) (BPM). BPM is a multidimensional psychometric test of intelligence and it measures three kind of aptitudes: verbal ability, abstract reasoning and logical reasoning. Each aptitude is measured by a specific subtest. Verbal ability is measured by synonyms, contraries and sentence comprehension; abstract reasoning by abstract series and abstract analogies; logical reasoning by numeric series and problems. The distribution was run among 407 subjects, and appropriate statistical analysis was conducted with reference to IRT in order to investigate the psychometrical characteristics of items. On the basis of results the first version of BPM was adjusted and a second version was implemented. The fifth chapter contains the results of the second distribution of the second version of BPM. As in the first research project, each subtest is monodimensional and reliability values were high. However some items were proved inadequate and further adjustments are necessary. The sixth chapter examines the Computer Adaptive Testing (CAT). CAT was first used in the 80s, when personal computers became more common and permitted the application of the idea (not new) to adapt the test to the subject's profile. CAT selects specific items on the basis of the level of estimated ability of the subject. Ability is assessed as an ongoing part of the test as the subject answers, ensuring maximum precision. The seventh chapter illustrates an empirical CAT contribution. On the basis of a collaboration with Italian Air Force two P&P tests of English knowledge were distributed. This was a preliminary phase prior to implementing CAT. Each test was distributed to a batch sample of roughly 300 people in a competitive environment. Results were analysed to assess factorial structure, reliability and each items' psychometric characteristics. On the basis of results, the items with bad item fits were deleted. An equating process was then developed to link two sets of estimated items, which were calibrated on two different samples. The next step will be to implement a CAT application, when this has been defined by the military authorities.