# Methods and Techniques of Tests (with workshops)

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COURSE AIMS AND INTENDED LEARNING OUTCOMES

The course aims to provide students with a basic knowledge, both theoretical and applicative, of psychological tests. The course aims to examine the theoretical and methodological assumptions on which the construction, validation and use of tests as measurement tools in psychology are based.

The course also aims to introduce some particularly representative mental reactants, providing the main information and skills for a correct use of psychological tests in the diagnostic and application field.

Intended learning outcomes

At the end of the course, students will be able to:

Knowledge and understanding

* know the fundamental psychometric properties of psychological tests;
* know the basics for building and standardising a test, calculating its scores, and interpreting the result;
* know the main characteristics of the tests so as to choose the most suitable test in each situation, with specific attention to the ethical aspects and context of application (research, intervention).

Applying knowledge and understanding:

* Administer and score some representative tests of maximum performance (WISC-IV; Raven's Progressive Matrices, MMSE) and of typical performance (MMPI-2, BFQ-2, 16 PF-5);
* Know the basics for reading and interpreting cases, starting from the scoring of points (WISC-IV, MMPI-2) to writing a comment on the results.

COURSE CONTENT

The course aims to examine the main psychometric properties of a test as well as the steps necessary for its construction. Furthermore, some specific and representative tests will be presented as examples of maximum and typical performance tests. More specifically, the course will be divided into the following units:

Unit 1 - Introduction to psychological tests

* Definition and use of psychological tests
* Ethical principles in the use of tests
* The historical origins of psychological tests
* Test classification
* Maximum performance tests
* Typical performance tests

Unit 2 - Constructing a test

* Psychometry
* Construct, operationalisation, measurement
* Writing the items
* Refining the item pool
* Validity of content
* The preliminary administration of the test

Unit 3 - Reliability and validity of the test

* Classical test theory
* Systematic error and random error
* Test reliability
* Construct validity
* Criterion validity

Unit 4 - Factor analysis

* Definition
* Purpose, types and principles
* Exploratory factor analysis

Unit 5 – Item analysis

* Item analysis
* The interpretation of the output of an item analysis and a factor analysis

Unit 6 - Calibration and standardisation

* Statistical norms of a test
* Non-linear standardisation
* Linear standardisation

Unit 7 - Reliability of the score

* Standard error of measurement
* Standard error of difference

Unit 8 - Administration and analysis of a test

* Choice of items
* Participant selection
* The analysis of the contexts in which tests are administered (individual/collective; face-to-face/online; external evaluation or self-assessment)
* Manual or automatic scoring

Unit 9 - The use of tests in scientific research Psychometric models

* How to choose a test
* Test and culture
* Interpretation and communication

Unit 10 − Maximum performance tests: WISC-IV (workshop)

* The origins of the test
* The features of the test
* Scoring and interpretation
* Case study analysis and commentary

Unit 11 − Typical performance tests: The Minnesota Multiphasic Personality Inventory-2 (workshop)

* The origins of the test
* The features of the test
* Scoring and interpretation
* Case study analysis and commentary

Unit 12 – The tests in their contexts (workshop)

* The presentation of different tests that are specific for a given context
* The criteria for the selection of a test
* Scoring and interpretation

READING LIST

The slides and materials presented in class and made available on the Blackboard platform.

L. Picone-L. Pezzuti-F. Ribaudo, *Teorie e tecniche dei test,* Carocci, Rome, 2017 (Chapters 1-9).

Handout “*Materiali per il corso di Metodi e Tecniche dei Test*” EDUCATT, 2021.

TEACHING METHOD

Alternating frontal lectures by lecturers and workshop practical exercises.

ASSESSMENT METHOD AND CRITERIA

The exam will take place in written form. The exam comprises two sections, both compulsory for all students:

1. One section consisting of 20 multiple-choice questions aimed at assessing the student's knowledge of the basic theoretical notions of psychological tests. More specifically, 12 questions will cover the theoretical and methodological assumptions (Units 1-9) and 8 questions the theoretical knowledge of specific mental reactants (Units 10-12). Each correct answer is worth 0.5 marks, for a possible total of 10/30 maximum marks. Sufficiency is set at 7 marks.
2. One section consisting in a test in which students will have to show their ability to analyse, from a critical perspective, the psychometric features of a test, and carry out the most relevant calculations for a correct interpretation of the scores. In this test, students will be assessed on their ability to make reasoned choices and carry out correct calculations not only from the point of view of maths, but also in terms of procedure. In this section, students can get a maximum of 11 points. Pass mark: 7 points.
3. Three written assignments based on the analysis of a case study related to Units 10, 11, and 12 (Workshops). For Unit 10, the assessment will consist in a commentary on a protocol related to the administration of the WISC-IV test; for unit 11, the assessment will be based on the commentary on a protocol related to the administration of the MMPI-2 test; for unit 12, the assessment will be focused on a commentary on the aspects, in terms of administration and scoring, that are specifically related to the tests presented during the workshop. Both the operational and interpretative capabilities in protocol management will be assessed. Each paper is given a mark from 0 to 3 marks (sufficiency = 2 marks), with a maximum of 9 marks obtainable. The mark will be assigned according to these criteria: a) the ability to convert raw scores into standardised points; b) the ability to evaluate the validity scales by providing correct indications on the validity and interpretability of the protocol; c) the ability to evaluate and comment correctly on clinical scales by integrating them with appropriate anamnestic data; d) the use of appropriate technical language; e) the ability to provide considerations and hypotheses on therapy compliance; f) the ability to correctly comment on correlated indices, favouring precision in reporting information; g) the ability to follow a logical and coherent order and to provide considerations on the protocol in light of all the information.

The student must achieve a sufficient mark in each of the exam sections. The final mark is based on the sum of the marks obtained in the three sections. The highest mark 30 cum laude (with honours) will be assigned to the students obtaining the maximum mark in all the parts of the exam.

NOTES AND PREREQUISITES

Prerequisites

Students must have achieved the minimum intended learning outcomes of the first- and second-year methodological courses.

In case the current Covid-19 health emergency does not allow frontal teaching, remote teaching will be carried out following procedures that will be promptly notified to students.

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG or on the Faculty notice board.