UGC-NET Paper I Unit I: Teaching Aptitude

1. Teaching: Concept and Objectives

Teaching is a planned, interactive process in which a teacher helps learners acquire knowledge, skills and attitudes. H.C. Morrison described it as an intimate contact between a more mature personality and a less mature one, designed to further the education of the latter. Modern views treat teaching as facilitation of learning rather than mere transmission of information.

Key features of teaching

- It is both an art and a science.
- It is a triadic relation: teacher, learner and content (subject matter).
- It is goal-directed and can be observed, analysed and improved.
- Good teaching is interactive, learner-centred and leads to a change in behaviour.

Objectives of teaching (Bloom's taxonomy, 1956)

Domain	Concerned with	Levels (lowest to highest)
Cognitive	Knowledge and thinking	Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation
Affective (Krathwohl)	Feelings, values, attitudes	Receiving, Responding, Valuing, Organisation, Characterisation
Psychomotor (Simpson, Dave, Harrow)	Physical and motor skills	Perception/imitation up to origination/naturalisation

The revised Bloom's taxonomy (Anderson and Krathwohl, 2001) uses verbs: **Remember, Understand, Apply, Analyse, Evaluate, Create**. 'Create' is the highest level.

2. Levels of Teaching

Level	Proponent	Focus	Role of teacher	Role of learner
Memory level	J.F. Herbart	Recall of facts; rote learning	Dominant	Passive
Understanding level	H.C. Morrison	Grasping meaning, relations and principles	Dominant but explains	Somewhat active
Reflective level	Bigge and Hunt (Hunt's model)	Problem-solving and critical thinking	Facilitator, democratic	Highly active

The levels are sequential: memory → understanding → reflective. The reflective level is problem-centred and the highest; it presupposes the first two.

Herbart's five formal steps (memory level): Preparation, Presentation, Comparison/Association, Generalisation, Application.

Morrison's understanding-level steps: Exploration, Presentation, Assimilation, Organisation, Recitation.

3. Characteristics and Basic Requirements of Teaching

- Clear objectives and planning (lesson plans, unit plans).
- Mastery of subject and of methods (pedagogical content knowledge).
- Effective communication and classroom management.
- Motivation and readiness of learners; teaching should begin from the learner's existing knowledge.
- Feedback and reinforcement (B.F. Skinner) to strengthen learning.
- A democratic, supportive classroom climate.
- Continuous evaluation and reflection by the teacher.

Maxims of teaching: known to unknown, simple to complex, concrete to abstract, particular to general, whole to part, psychological to logical, analysis to synthesis.

Microteaching: developed at Stanford University (1963) by Dwight Allen and colleagues. A scaled-down teaching session (5–10 minutes, 5–10 pupils, one skill at a time) with a cycle of plan → teach → feedback → re-plan → re-teach → re-feedback.

4. Learner's Characteristics

Adolescent learners (about 12–18 years)

- *Academic:* growing capacity for abstract thought; interest in specialised subjects.
- *Social:* strong peer influence, desire for independence and identity (Erikson: identity vs role confusion).
- *Emotional:* mood swings and sensitivity; G. Stanley Hall called adolescence a period of 'storm and stress'.
- *Cognitive:* Piaget's formal operational stage (from about 11–12 years): hypothetical and deductive reasoning.

Adult learners (Andragogy – Malcolm Knowles)

- Self-concept: self-directed and autonomous.
- Experience: rich experience is a resource for learning.
- Readiness: learn what is relevant to their roles.
- Orientation: problem-centred rather than subject-centred.
- Motivation: mainly internal (self-esteem, growth).
- Need to know why they should learn something.

Pedagogy	Andragogy
Teaching of children	Teaching of adults
Teacher-directed	Self-directed
Subject-centred	Problem/task-centred
External motivation	Internal motivation

Individual differences

Learners differ in intelligence, aptitude, interests, attitudes, learning styles, personality, and socio-economic background. These differences arise from heredity and environment.

- Howard Gardner's multiple intelligences: linguistic, logical-mathematical, spatial, musical, bodily-kinaesthetic, interpersonal, intrapersonal, naturalist.
- Learning styles (VAK): visual, auditory, kinaesthetic. Kolb's experiential learning cycle: concrete experience, reflective observation, abstract conceptualisation, active experimentation.
- Teachers respond through differentiated instruction, remedial teaching, enrichment and flexible pacing.

5. Factors Affecting Teaching

Factor	Examples of influence
Teacher	Subject mastery, communication skill, personality, attitude, experience, commitment
Learner	Intelligence, motivation, readiness, prior knowledge, health, socio-economic background
Support material	Textbooks, reference books, e-content, audio-visual aids
Instructional facilities	Classrooms, laboratories, library, ICT infrastructure, seating
Learning environment	Physical (light, ventilation, noise) and psychological (democratic, supportive climate)
Institution	Leadership, policies, class size, time-table, academic culture, resources

The teacher-learner interaction is considered the most important factor in effective teaching.

6. Methods of Teaching in Higher Education

Teacher-centred methods	Learner-centred methods
Lecture	Discussion and seminar
Demonstration	Project method (W.H. Kilpatrick)
Lecture-cum-demonstration	Problem-based learning
Tutorial (partly)	Case study, role play, simulation
Programmed instruction (teacher-designed)	Brainstorming, cooperative learning, flipped classroom

- **Teacher-centred:** teacher is the authority; learners largely passive; suitable for covering large content to big groups.
- **Learner-centred:** teacher is a facilitator; learners are active, construct knowledge (constructivism – Piaget, Vygotsky); develops higher-order thinking.
- **Flipped classroom:** learners study content (videos, readings) before class; class time is used for discussion and problem-solving.
- **Blended learning:** a mix of face-to-face and online learning.

Off-line vs On-line methods

Off-line	On-line
Face-to-face, fixed time and place	Anytime, anywhere access
Immediate personal interaction	Synchronous (live) or asynchronous (self-paced)
Limited reach	Massive reach and scalability

Indian online initiatives

- **SWAYAM** (Study Webs of Active-Learning for Young Aspiring Minds): launched in 2017 by the Ministry of Education (then MHRD). Free courses from Class 9 to postgraduate level. Each course has four quadrants: (1) video lectures, (2) e-content/reading material, (3) self-assessment tests and quizzes, (4) discussion forum. Credits can be transferred under UGC regulations.
- **SWAYAM Prabha:** a group of DTH channels telecasting educational content 24×7 (32 channels at launch in 2017, later expanded). Uses the GSAT-15 satellite.
- **National coordinators for SWAYAM:** NPTEL (engineering), UGC (non-technical PG), CEC (UG), NCERT and NIOS (school), IGNOU (out-of-school), IIMB (management), NITTTR (teacher training), AICTE (international courses).
- **MOOCs:** Massive Open Online Courses — open access, large enrolment, online delivery. Global examples: Coursera, edX, Udacity.
- **NPTEL:** joint initiative of the IITs and IISc for engineering and science courses.

7. Teaching Support System

Traditional	Modern	ICT-based
Chalkboard, charts, models, maps, textbooks	Overhead projector, slide projector, radio, TV, audio cassettes	Computers, LCD projectors, smart/interactive boards, LMS (e.g. Moodle), e-books, virtual labs, online simulations, video conferencing

Edgar Dale's **Cone of Experience** arranges learning experiences from concrete (direct purposeful experience) at the base to abstract (verbal symbols) at the top.

8. Evaluation Systems

Elements of evaluation: objectives, learning experiences, and evaluation tools (the triangular relationship). Good evaluation is valid, reliable, objective, practicable and comprehensive.

Quality	Meaning
Validity	Measures what it is intended to measure
Reliability	Gives consistent results
Objectivity	Free from the examiner's personal bias
Usability	Practical in terms of time, cost and administration

Types of evaluation

Type	When	Purpose
Placement	Before instruction	Determine entry level and place learners
Formative	During instruction	Give feedback and improve learning (term by Michael Scriven)
Diagnostic	During instruction	Identify persistent learning difficulties and their causes
Summative	End of course/term	Certify, grade and rank achievement

- **Norm-referenced evaluation:** compares a learner's performance with that of a group.
- **Criterion-referenced evaluation:** compares performance with a pre-set standard.
- **Continuous and Comprehensive Evaluation (CCE):** covers scholastic and co-scholastic areas throughout the year.

Evaluation in the Choice Based Credit System (CBCS)

UGC introduced CBCS in 2015-16. Learners choose from core, elective (discipline-specific, generic) and ability/skill enhancement courses. One credit generally equals one hour of lecture (or two hours of practical) per week in a semester. Grading uses a 10-point scale.

Letter grade	Grade point
O (Outstanding)	10
A+ (Excellent)	9
A (Very good)	8
B+ (Good)	7
B (Above average)	6
C (Average)	5
P (Pass)	4
F (Fail)	0

$$\text{SGPA} = \frac{\sum (C_i \times G_i)}{\sum C_i}$$

where Ci is the credit of the course and Gi the grade point earned. CGPA is computed the same way across all semesters.

Computer-based testing (CBT): tests delivered on computers; quick, objective and secure, with randomised questions and instant results. UGC-NET itself is conducted in CBT mode by the National Testing Agency (NTA).

Innovations in evaluation: open-book examinations, online and proctored tests, question banks, rubrics, e-portfolios, peer and self-assessment, continuous internal assessment, grading instead of marks, and the Academic Bank of Credits under NEP 2020.