Qualitative Analysis

Definition
- Systematic observation & introspective judgment of the quality of human movement for the purpose of providing the most appropriate intervention to improve performance (Knudson & Morrison, 1996)

Observation
- Process of gathering, organizing, & giving meaning to sensory information about human motor performance (perception)

Intervention
- Administration of feedback, corrections, or other change in the environment to improve performance

Role of Models
- Comprehensive
  - Deal with the big picture of QA
  - Provide information on movement goals, preparation, stages of motor development, evaluation, & appropriate feedback
- Observational
  - Focused on the task of observation within QA
  - Fit into comprehensive models

Knudson & Morrison
- 4 Tasks of an Integrated Qualitative Analysis
  - Preparation
  - Observation
  - Evaluation & Diagnosis
  - Intervention

Attempt to catch a fly ball
- What is the most appropriate intervention for this individual?
STEP 1: Preparation

- “The gathering of knowledge of the activity & performers.”
- Detailed prerequisite knowledge of/to:
  - Activity
  - Performers
  - Effective instruction
  - Develop a systematic observational strategy

Knowledge of Activity

- If the goal of a sport or skill can be precisely defined, then the technique factors that lead to success in that skill can be more clearly identified for qualitative analysis
- Sources of Information:
  - (1) Experience
  - (2) Expert opinion
  - (3) Scientific research

Knowledge of Performers

- Terminology – classify based on fundamental movements
- Critical Features – key features of a movement that are necessary for optimal performance
- Common Errors (of skill)

Knowledge of Effective Instruction

- Presenting appropriate information
  - Translating critical features into teaching cues
  - A cue phase describes critical feature in behavioral terms – precise/accurate/appropriate
- Effective presentation of information
  - Effective teaching / coaching
  - Good demonstration, explanation, direction

Knowledge to Develop a Systematic Obs. Strategy

- SOS: plan to gather relevant information about a movement
- Locate information related to the movements to be observed & identify most appropriate SOS
STEP 2: Observation

Key Elements:
- Focus of observation
- Situation for observation
- Vantage points for observation
- Number of observations
- Extended observation
- Integrated use of all senses

Focus of Observation
- Observation by phases of the movement
  - Observe crit feat in normal order of skill
- Observation of balance – base of support
- Observation based on importance
  - Ranking importance of critical features
- Observation from general to specific
  - Look at whole first

Situation for Observation
- Exact nature of the movement task & the environment should be controlled as much as possible by the analyst
- Task performance must be as realistic as possible for an effective QA
- Open vs. Closed skills

Vantage Points
- Specify optimal positions for observations
- Often @ right angles to plane of movement
- Usually need several vantage points
- Distance – vision
  - Should be as large as possible while still allowing for observation of important details
  - 5 – 10 meters

Number of Observations
- Movement must be repeated because of analyst’s perceptual limitations & because the consistency of correct or incorrect technique
- Observe multiple trials systematically before deciding on an intervention

Extended Observation
- Plan for gathering more information on a movement than is usually observable
  - Videotape, using multiple senses, using multiple observers
  - Use if a critical feature is difficult to see
STEP 3: Evaluation/Diagnosis

**EVALUATION:**
- Process
- Difficulties
- Performance Variability
- Kinds of Movement Errors (biomech/physio/perc)
- Critical Features Versus Ideal Form
- Analyst Bias

**DIAGNOSIS:**
- Prioritizing Intervention
  - Relationship to previous actions
  - Maximizing improvement
  - In order of difficulty
  - Correct sequence
  - Base of support
  - Critical features first

STEP 4: Intervention

**Feedback**
- Functions of feedback:
  - Guidance – information provided
  - Reinforcement – Thorndike’s law of effect
  - Motivation – to practice
- Classifications of feedback:
  - KR - outcome
  - KP – movement process

**Principles for Providing Augmented Feedback**
- Don’t give too much feedback
- Be specific
- Don’t delay feedback
- Keep it positive
- Provide frequent feedback (novices)
- Use cue words or phases
- Use a variety of approaches

**Modifying the Task or Practice**
- Practice environment
  - Open / Closed
- Practice equipment
  - Match to performer
- Practice scheduling
  - Massed / Distributed scheduling
  - Blocked / Random