

MATCHING FAMILIAR FIGURES TEST (MFF)

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1. Core Definition and Purpose

The **Matching Familiar Figures Test** (MFFT), often simply referred to as the MFF, is a widely recognized psychometric instrument specifically designed to assess an individual's cognitive processing style, known formally as **conceptual tempo**. Conceptual tempo defines the relative speed and deliberation with which an individual approaches tasks that require decision-making under conditions of response uncertainty, where multiple potential answers are plausible. The MFFT is fundamentally structured to force a trade-off between the speed of response (latency) and the accuracy of the decision (number of errors), thereby providing quantitative measures of reflective versus impulsive cognitive styles. Developed primarily for use with children, the test aims to categorize subjects based on their preferred strategy when faced with complex visual discrimination problems.

The core functionality of the MFFT lies in its simplicity of administration combined with its power to reveal underlying differences in decision-making efficacy. Participants are presented with a standard target figure and must then select the exact matching figure from a group of visually similar alternatives. Crucially, these alternatives are designed to be distractors, sharing various features with the target but differing in subtle, critical ways. The ambiguity and complexity inherent in these visual matching tasks necessitate focused attention and systematic comparison, thereby successfully eliciting variations in **cognitive control**. The measurements derived from the test--specifically the average response time and the total number of errors--are then combined to classify the individual's dominant conceptual tempo.

2. Historical Context and Development

The MFFT was pioneered by Jerome Kagan and his colleagues in the mid-1960s, arising from a broader interest in identifying stable individual differences in cognitive strategies beyond traditional intelligence measures. Kagan sought an objective measure for the behavioral dimension he termed **reflection-impulsivity**, which he observed consistently in children's performance on school-related and laboratory tasks. Prior to the MFFT, temperament and cognitive style were often assessed subjectively; Kagan's innovation was the creation of a standardized, quantifiable instrument that operationalized this stylistic variance. The initial versions of the test utilized simple line drawings of common objects, ensuring familiarity and minimizing the influence of verbal skills or specialized knowledge on performance, thus making the test applicable across diverse populations and age ranges.

The development of the MFFT marked a significant conceptual shift in developmental psychology, moving focus away from merely measuring cognitive capacity (e.g., IQ) toward understanding cognitive style--the characteristic manner in which individuals perceive, remember, and problem-solve. Kagan's work established conceptual tempo as a persistent dimension of personality, suggesting that the tendency to reflect or act impulsively is a relatively stable trait that influences learning behaviors and academic outcomes. The widespread adoption of the MFFT throughout the late 20th century confirmed its status as a critical tool for mapping the psychological terrain of cognitive development and individual differences.

3. The Construct of Conceptual Tempo (Cognitive Style)

Conceptual tempo represents a key dimension of cognitive style, specifically concerning the rate and thoroughness of hypothesis generation and evaluation during problem-solving. This construct is defined by the balance an individual strikes between minimizing errors and minimizing response time. The MFFT identifies four distinct categories based on this interaction:

Reflective Children: Characterized by **long response latencies** and a **low number of errors**. These individuals tend to carefully examine all potential solutions, delay responding until they are highly confident, and employ systematic comparison strategies.

Impulsive Children: Defined by **short response latencies** and a **high number of errors**. These children react quickly, often selecting the first plausible solution that comes to mind, demonstrating minimal systematic comparison or evaluation of alternatives.

Fast/Accurate (Optimal): Individuals who respond quickly but maintain a high level of accuracy. This style is often associated with superior cognitive efficiency and competence, combining quick information processing with effective error detection.

Slow/Inaccurate (Deficient): Individuals who exhibit long latencies but still commit many errors. This pattern suggests potential difficulties with task engagement, processing inefficiencies, or generalized learning challenges.

Understanding conceptual tempo is crucial because this style is believed to mediate performance in complex academic tasks, particularly those requiring reading comprehension, inductive reasoning, and organizational skills. The impulsive child, for instance, might rush through a math problem or a reading passage, sacrificing accuracy for speed, while the reflective child might excel in detailed analysis but struggle under time constraints. The MFFT provides the empirical mechanism for measuring this internal cognitive orientation objectively.

4. Administration and Procedure of the MFFT

The standard administration of the MFFT typically involves 12 to 20 test items, although shorter versions exist for specific research purposes. Each item presents a visual challenge: a single

target figure displayed above, and an array of six or eight alternative figures below, only one of which is an exact match to the target. The figures are typically complex, non-meaningful line drawings or stylized illustrations of familiar items (e.g., animals, boats, or geometric shapes). The complexity lies in the fact that the non-matching alternatives differ from the target by only one or two small, subtle details, requiring deep scrutiny to distinguish them from the correct answer.

During testing, the examiner records two primary metrics for every item: **Response Latency**, measured from the moment the stimulus is presented until the participant makes a choice; and **Number of Errors**, which counts the total incorrect choices made before the correct match is identified. If an incorrect choice is made, the trial continues until the correct figure is selected or a set time limit is reached. The administration protocol emphasizes a neutral stance from the examiner, ensuring that no cues are given regarding the desired speed or accuracy. The participant is simply instructed to find the figure that is exactly the same as the standard figure.

The standardized procedure ensures that the resulting latency and error scores are reliable indicators of the underlying cognitive approach. The MFFT is designed to capture natural tendencies, meaning that individuals are generally unaware that their speed is being specifically compared against their accuracy. This focus on process rather than outcome distinguishes the MFFT from simple aptitude tests and reinforces its utility as a measure of cognitive style.

5. Scoring and Interpretation (Errors vs. Latency)

Scoring the MFFT involves calculating the average response latency across all trials and the total number of errors committed. These raw scores are then converted into categorical classifications, typically by comparing the individual's performance against a relevant age- or grade-based norm group, usually using the median score of that group as the cutoff point for both variables. An individual scoring above the median latency (slow) and below the median error rate (accurate) is classified as reflective. Conversely, an individual scoring below the median latency (fast) and above the median error rate (inaccurate) is classified as impulsive.

The interpretation of the MFFT scores is highly nuanced, recognizing that low latency and low errors (Fast/Accurate) represent the most efficient processing style, indicative of rapid feature detection and high confidence in hypothesis testing. Conversely, high latency and high errors (Slow/Inaccurate) suggest significant processing difficulties, potentially indicating underlying attentional deficits or poor concentration. Researchers using the MFFT often employ sophisticated statistical models, such as cluster analysis, to further refine the four primary classifications, allowing for a more detailed understanding of the dynamic relationship between speed and accuracy across the developmental span.

6. Reliability and Validity

The MFFT has demonstrated acceptable levels of internal consistency and test-retest reliability, particularly when administered to children in middle childhood (ages 6-10). Studies have generally shown that an individual's classification (e.g., impulsive or reflective) remains relatively stable over periods of several months to a year, supporting the view that conceptual tempo is a moderately enduring characteristic. However, longitudinal research has indicated that the stability of these classifications can decrease during adolescence, suggesting that cognitive styles are subject to modification through educational interventions, maturational factors, or environmental demands.

In terms of validity, the MFFT has strong **construct validity**, correlating predictably with measures of attention, performance on memory tasks, and academic achievement. Impulsive children, for example, have been repeatedly shown to exhibit lower reading comprehension scores, likely due to a failure to thoroughly process textual material, and they often display more difficulty with complex reasoning tasks. Furthermore, the MFFT has demonstrated high predictive validity in identifying children at risk for certain learning difficulties or behavioral disorders where poor inhibitory control is a factor, such as Attention-Deficit/Hyperactivity Disorder (ADHD).

7. Applications in Developmental and Clinical Psychology

The MFFT remains a vital instrument in developmental psychology research, particularly in studies focused on temperament, cognitive development, and educational psychology. It is routinely used to investigate how individual differences in cognitive style affect problem-solving approaches, memory strategies, and responsiveness to instructional methods. For example, knowing a child's conceptual tempo allows educators to tailor feedback and instructional pacing: impulsive children may require strategies that emphasize self-monitoring and error detection, while reflective children might benefit from timed exercises to improve processing speed.

In clinical settings, the MFFT serves as an important diagnostic tool, often utilized as part of a comprehensive assessment battery for disorders involving executive functioning deficits. Children classified as highly impulsive often overlap with populations experiencing difficulties related to impulsivity, aggression, and poor planning. The test helps clinicians isolate whether observed behavioral problems stem from a lack of knowledge or from an inefficient strategy for applying that knowledge. Furthermore, the MFFT has been instrumental in evaluating the efficacy of cognitive-behavioral intervention programs designed to teach reflective strategies, such as teaching children to pause, generate multiple hypotheses, and systematically check their work before responding.

8. Criticisms and Alternative Measures

Despite its widespread use, the MFFT has faced several theoretical and methodological criticisms. One major debate revolves around the interpretation of the score dimensions: critics argue that

latency and errors might not represent a unified cognitive style (reflection-impulsivity) but rather separate traits, such as anxiety, motivation, or simply efficiency of visual search. A child's long latency, for instance, might be attributed to perfectionism or fear of failure rather than genuine deep reflection, complicating the interpretative value of the test.

Furthermore, the MFFT has been criticized for potential cultural and socioeconomic biases, as familiarity with the visual stimuli and the cultural value placed on speed versus accuracy can vary significantly across different backgrounds. The reliance on median scores for classification also means that the categories are relative to the norm group, lacking absolute psychological meaning. As a result of these critiques, alternative measures have been developed, such as the Kansas Reflection-Impulsivity Scale for Preschoolers (KRISP), which adapt the core MFFT concept to younger age groups, and more recent computer-based tasks that allow for greater precision in measuring latency and tracking eye movements, providing richer data on the actual comparison strategies employed by the participant.

Further Reading

[Jerome Kagan \(Wikipedia\)](#)

[Matching familiar figures test: A study of the reflection-impulsivity dimension \(Original Research\)](#)

[Cognitive Style \(Wikipedia\)](#)