

## **Secondary Mental Abilities**

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Mental abilities have commonly been broken down into two main categories; primary and secondary. Primary mental abilities are thought to be large scale groups with similar abilities. Secondary mental ability builds off foundational primary mental abilities of intelligence. Research has suggested that there are six main secondary mental abilities, with the potential for additional abilities to be named or discovered as more research emerges. Expanding research on these abilities has also suggested that they can morph and evolve with age, just as primary abilities related to intelligence.

Secondary abilities are generally believed to be based off primary abilities and their overall clusters and are in constant interplay with these general overarching themes. Much of the research surrounding mental ability and intelligence shows that “intelligence” is difficult to define and measure, but that individual mental abilities can provide a profile of an individual’s strengths and weaknesses. When considering secondary mental abilities it is useful to determine what each specific cognitive test is measuring in order to garner a better understanding of what is being asked of the individual, thereby indicating which skills and abilities are being utilized.

Crystallized and fluid intelligence are the two paramount secondary mental abilities that are often mentioned in the literature. Crystallized intelligence, or our ability to display comprehension, expressive thought and understanding, is often tested by verbal measures such as vocabulary, analogies and comprehension questions. The higher this score is, the more likely the individual has been able to integrate knowledge in a sophisticated manner. Fluid reasoning, as the name suggests, is less structured and knowledge based than crystallized intelligence. It represents

the ability to understand patterns, discover relationships and foresee implications of those patterns and relationships. Problem solving, reasoning, use of induction, and intellectual flexibility are hallmarks of this type of ability. Fluid reasoning and fluid intelligence is extremely useful when the individual is faced with new situations and scenarios. Crystallized intelligence is often believed to be strongly impacted by education level of the individual, life experiences and exposures and culture. Fluid reasoning is thought to be somewhat independent of these constructs and instead formed through the individual's trial and error.

Auditory organization ability centers around ability to perceive speech, both at its purest form and when there are distortions or distractions, temporal tracking, and being able to perceive patterns in auditory stimuli. Visual organization is similar to auditory organization. It's the ability to visualize objects in space, understand spatial orientation, and use that information to identify patterns in visual stimuli. Both auditory and visual organization utilize perception in the appropriate domain in order to identify patterns in the stimuli.

Short-term acquisition is the ability to keep information retained in a short-term memory fashion. In other words, the information can be retained in order for it to be used by the individual shortly afterwards. Acquisition of this information corresponds to the ability to undergo this retention process while retrieval corresponds to the ability to access and utilize the retained information.

Long-term storage and retrieval of information is the last of the six main secondary abilities. It is a continuation of memory ability, building off short-term acquisition and retrieval. Long-term memory storage requires the ability to encode information in order to be able to move it from short-term to long-term memory. The ability to encode and adequately store information in long term memory is crucial for tasks such as test taking. Long-term retrieval of information

requires the ability to access information sent to long term memory, typically through some sort of association process where the information that has been encoded has an association that aids in retrieval at the appropriate time.

Secondary mental abilities are clustered according to various principles guided by primary mental abilities. Many standardized intelligence tests are able to assess for many of these abilities, either implicitly or explicitly. As with all intelligence tests and scores, it is important to look at the role of education, culture, age and other factors that may impact various abilities. According to research, secondary mental abilities are particularly prone to the developmental course throughout the lifespan. These abilities are also more susceptible to the notion of practice and reinforcement, with the consensus being that many of these abilities need to be practiced and used throughout life or they will be lost.

**Further Reading:**

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