

**Freedom from Distractibility *Or* Auditory Processing & Memory:  
A Critical Look at the WISC-III 3rd Factor**

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### Introduction

With the recent publication of the WISC-III, four separate new factor scores have been added to the usual Verbal, Performance, and Full scale IQ scores. The third of these new factor scores has been designated as "Freedom from Distractibility" (FD). Within the Verbal Scale of the Wechslers (WISC-R, WISC-III, WAIS, WAIS-R), the fact that there is a separate and distinct factor from "g" or the general verbal factor is well documented (Wechsler, 1958; WISC-III Manual, 1992). However, the *manner* in which this third WISC-III factor score (based on Digit Span/Arithmetic scale scores) is *interpreted* has a great deal of *psychological* and *educational* significance (Malter, 1977; Malter, 1984). What is *clinically* very important here is that *only one* of several possible *interpretations* of this third factor has been formally incorporated into the WISC-III manual and scoring procedures. Labeling this factor as "Freedom from Distractibility" (FD) often leads to too narrow an interpretation of the *psychological* significance of this factor.

In the view of these writers, there are highly significant psychological and educational implications inherent in the use of the term "Freedom from Distractibility". Psychologically, the use of the FD term is often interpreted as a correlate of Attention Deficit Disorder with or without hyperactivity (ADD or ADHD). This frequently leads to a medical referral for a medication "trial". When an individual is put on medication, the focus becomes *overt* behavior rather than the possibility that the person is experiencing significant problems with auditory processing and auditory memory. Frequently, with an FD/medication approach which focuses on *overt* behavior, the possible presence of a significant auditory processing and memory problem is discounted or overlooked. In such a case, the person continues to be vulnerable to the stress and frustration associated with auditory processing overload. In many cases, this will lead to what the late Dr. T. E. Newland described as maladjustment and emotional problems resulting from a lack of appropriate *psychological* understanding of the individual based on psychological testing (personal communication).

The other common interpretation of the FD factor is in terms of *anxiety*. From such a perspective, it is assumed that anxiety impairs performance on the Arithmetic and, even more so, on the Digit Span. Our personal diagnostic testing experience has shown that many individuals who are obviously highly anxious score well on these subtests if their auditory processing and auditory memory are *intact*, whereas many individuals who are generally calm will experience difficulty with these tasks when they have auditory processing problems.

A more plausible and clinically valid explanation is that when an individual has a fundamental problem with auditory processing and memory, he/she will become more distractible when auditory processing overload occurs. Greater anxiety also will be induced as overload occurs and, eventually, could become a conditioned response to many auditorially demanding situations. The inherent weakness and *unreliability* of the auditory processing modality tends to result in increased distractibility and anxiety. The person learns that he/she cannot depend on *consistently* and *accurately* processing what is spoken to her/him.

Educationally, the FD label is often used to disqualify a student from appropriate LD special education services because the distractibility *interpretation* is now so strongly associated with ADD or ADHD. (However, this state of affairs may be partially remedied by changes in Special Education Rules and Regulations.) This frequently results in the problem being considered a "medical" rather than a psychological and/or educational problem. If the FD factor were more

clearly identified and interpreted as reflecting auditory processing ability, then more appropriate clinical and educational interpretations and interventions would result.

Similarly, when the FD factor is *interpreted* as an index of *anxiety*, then the School or Clinical Psychologist usually concludes that counseling or psychotherapy is warranted in order to "treat" the anxiety. When the FD factor is *interpreted* in terms of an auditory processing and memory problem, then auditory processing therapy is usually the more appropriate *primary* treatment rather than psychotherapy. Such a recommendation for auditory processing therapy would be based on further assessment of auditory processing. This is usually done by a Speech and Language Clinician who has special training and experience in this area. When psychotherapy is provided to an individual with auditory processing problems, the therapy should be done with awareness of the presence of the auditory problems and how these processing problems may affect individual, group, family, and/or relationship counseling and therapy. Frequently, verbal therapy needs to be augmented with imagery and art therapy.

In the experience of these writers, the magnitude of difference between the Similarities and the Digit Span/ Arithmetic scale scores is often the best Wechsler indicator of the presence of a significant auditory processing and memory problem. Frequently, an "M" profile will be observed within the Verbal scale. An "M" profile reflects higher Similarities and Vocabulary scale scores with lower scale scores on Information, Arithmetic, and Digit Span. These three subtests are the AID part of the ACID formulation related to attention span and distractibility. Adding in the Coding subtest scale score to this formulation tends to confound a *visual* factor with the auditory processing subtests. Another type of profile seen in the Verbal scale is a substantially higher Similarities scale score relative to the other subtest scale scores within the Verbal scale.

A more detailed and extensive assessment of auditory processing and memory problems should be carried out by an experienced Speech and Language Clinician as a follow-up to the psychologist's assessment. In addition to further assessing the auditory sequencing and memory functions, the Language Clinician would assess auditory processing with and without *background noise*. Semantic and temporal confusions would also be assessed. These types of auditory processing problems are problems that are typically not observed and identified because they are so subtle and intangible. They frequently are associated with significant self-esteem and emotional problems because the auditory processing problems can be so devastating to the individual's self-confidence and communication skills as well as learning processes.

### **Types of Auditory Processing Problems**

Clinically, it is much easier to recognize auditory processing problems in the mentally retarded and other lower functioning individuals. At the higher cognitive levels, it is more difficult to recognize these auditory processing problems because *brighter* individuals tend to be *more verbally competent*. At the higher cognitive levels, the behavior, emotional, and learning effects of these auditory processing problems are much more subtle and usually tend to surface in later years with increased academic and social demands.

Children and adults with auditory processing problems experience numerous difficulties in acquiring and using language concepts. Problems are initiated when the youngster is not familiar with nor recognizes environmental noises and sounds such as the knocking on a door, the ringing of a doorbell, etc. At the beginning of receptive language development, the youngster with auditory processing problems frequently will say, "Huh?" or "What?" Then, the parent or other speaker will often become extremely annoyed with the child and tell him/her to "Listen!" Such interactions between parent (or other adults) and the child frequently escalate into anger and tension filled conflicts. The resulting emotional and behavioral reactions of the child may lead to

professional assessment and diagnosis of "emotional" problems, "anti-social" behavior, "phobias", etc.

### Semantic Confusions

One of the most common and debilitating kinds of auditory processing problems involves *semantic confusions*. These may be accompanied by *temporal confusions* that further compound the child's processing difficulties. Here is an example: When a child was asked to repeat, "Jan put the little doll in the red wagon", the youngster repeated, "Jan put the big red ball in the wagon". Another example involved a question that was asked of the child, "Is it something *for* the children's party?" The child's response was, "The *four* children are at the party." A question asked of an adult was, "What do you take in your coffee?" The adult's response was, "Do you drink coffee?" Another example of a semantic confusion in an adult was, "Tie a small bell at each end." The response was, "Tie an empty bell through a spool."

With the phenomenon of *semantic confusions*, the symbolic meaning of the word becomes misinterpreted, e.g. "oak" for "tree" or more extreme semantic confusions such as "wood" for "tree". At times, semantic confusions may involve replacement of specific words by only auditorially processing and then responding with an extreme generalization, e.g. "thing", "it", "those", "that", etc. for "tree". The individual's responses may also be in *circumlocutions* due to misinterpretation of what was spoken. As with other processing deficits, this contributes to low frustration tolerance, poor self-concept, feeling "dumb", low self-esteem, inappropriate behavioral reactions, and impaired interpersonal relationships. The following is another example of an auditory processing confusion: When a child was asked, "In what country do you live?", the response was, "Oh, that's the place where animals like rabbits run around." An example of an auditory *discrimination* confusion involves an adult being told to "Go get the cable." The individual responded by setting the table. In these examples, all of the individuals have had audiometric examinations that have classified them as having normal *hearing for speech*.

It is interesting to note that *temporal confusions* may easily occur with "before" and "after", but also with "on", "over", "under", "in", "at", and "by". In testing some individuals, they may experience difficulties in comprehending a simple sentence or simple direction such as "Put your pen by the cup". The person may look at the cup and then put the pen *in* the cup or else *push* the cup from one side to the other because he/she got confused by this type of preposition or direction.

When such a person becomes auditorially overloaded, he/she may begin to act more "hyper" and distractible. As overload, confusion, and frustration intensify, heightened anxiety or aggressiveness may manifest. This will frequently induce a chronic "fight or flight" condition that may be reflected in the individual becoming hyper-vigilant, impulsive, and over-reactive. This chronic alarm state of stress often leads to adrenal insufficiency by draining the adrenal glands (Malter, 1984b). From this perspective, stimulant medication treatment of ADD/ADHD may, in fact, be stimulating weak adrenal glands temporarily.

The above are only short sentences in question or statement form and, yet, both children and adults may manifest numerous problems in responding due to auditory and semantic confusions. These types of problems are grossly exacerbated with the introduction of various types of *background* noise. An abundance of verbal stimuli will frequently contribute to *auditory overload* resulting in the individual experiencing a loss of focus, becoming highly distracted, and, at times, becoming highly emotional. The person might become physically over-reactive or, at the opposite extreme, become extremely passive. With the passage of time and repeated frustrations and conflict, the person's self-concept is undermined to a point where he/she seldom wants to answer a question or interact in any type of individual or group relationship. As these problems

remain undetected or misdiagnosed as ADD or behavior and/or emotional problems, the person is at greater risk to become more and more impaired in communication and in relationships.

These types of dysfunctional responses usually occur with children, adolescents, and adults whose cognitive abilities range from average through above average to superior levels. In such individuals, the auditory processing mechanism is so impaired that they attempt to use various compensation techniques that only tend to further confuse them. For example, an adult who attempts to take notes to compensate for the weak auditory processing modality may take accurate notes at the initiation of the conversation or lecture. But, as the conversation or lecture increases in length, linguistic difficulty, and/or in content complexity, such an adult tends to "lose" the continuity of the verbal communication that further adds to numerous frustrations.

Both children and adults may have auditory processing problems that are interpreted and judged by others as "tuning out people", or having "selective hearing". In reality, these auditorially impaired individuals cannot attend for extended periods of time, sometimes no longer than 30 seconds without "overloading" auditorially. "Overloading" can best be described in terms of an abundance of verbal stimuli that become totally scrambled in the receiving mechanism contributing to emotional or behavioral reactions such as aggressiveness or withdrawal. One very bright man described his overload in terms of his brain "jamming" with too much information. In response to auditory overload on the Digit Span (scale score = 7), a bright 13 year-old girl (Similarities scale score = 15) said that the numbers "clotted" together.

There is another type of auditory processing problem that involves auditory *sequencing*. This affects following directions or responding to spatial or temporal concepts such as "before", "after", "on", "off", "over", "under". Those individuals who manifest these types of auditory processing problems have a tendency to fall behind in their homework assignments or in their job-related responsibilities due to their inability to correctly process the information in a sequential order. This type of problem also impacts planning and organizational skills, study skills, and the timely completion of assignments. Procrastination is frequently found in such individuals who have difficulty initiating tasks due to sequencing breakdowns. They often do not know where or how to begin.

### **Background Noise**

One of the major problems which is misdiagnosed involves the inability to identify, recognize and distinguish verbal messages from any type of competing *background noise*. Most psychological or other testing of individuals with auditory processing deficits is usually done in a quiet atmosphere with limited background noise. The individual may respond appropriately and accurately leading to the erroneous conclusion that auditory processing ability is intact. Under such "ideal" testing conditions, a significant auditory processing impairment may not be detected or may be overlooked. However, when the same type of testing is done with associated background noise, a substantial drop in test performance is usually manifest and the presence of the auditory processing problem becomes evident.

Because the nature and manifestation of these auditory processing problems is intangible and very subtle, these types of problems are often misdiagnosed as "primary emotional problems" or, in schools as Behavior Disorders (BD). Often, in many cases, teachers, parents, and other professionals interpret the child's behavior in *motivational* terms - the child "doesn't want" to do the work. He/she is not motivated to do the work. Many parents and professionals attempt to *manipulate* such an auditorially impaired child with "behavior mod", token systems, or other "rewards". In many such cases, this type of *manipulation* only frustrates the child more because the fundamental auditory processing problem remains undetected with no *appropriate* understanding, intervention, and treatment.

Clinically, it is important that an individual be evaluated in the presence of background noise. The process should be initiated with a selection from 4 pictures given verbal stimuli (i.e., Peabody Picture Vocabulary Test) followed by phrases, sentences, and paragraphs. The associated background noises should vary in frequency, volume, and intensity. When it is found that the individual begins to *understand* his/her own processing problem, motivation for treatment is often high. Usually, within a three-month period, the person can begin to experience significant improvement in focusing attention with background noise, accurately interpreting what is spoken, and expanding attention span. The fundamental challenge is to help the individual develop skills in auditory processing with *background noise*.

Although the claim is that memory has a great deal to do with intelligence and auditory processing, it is our contention that, unless the individual processes the language, it is almost impossible for that person to *store* and then *retrieve* the information that was heard. The entire effect of auditory processing depends on the nature of the information acquired, storing it, associating, and then retrieving it for an appropriate response.

When auditory processing breakdowns occur, they can be devastating to the individual experiencing such a breakdown. These processing breakdowns may include various semantic, temporal, sequencing, and discrimination confusions, especially in the presence of background noise. Such individuals tend to be extremely disorganized and have difficulty initiating tasks and carrying them through to completion.

"Wh" questions are extremely confusing to individuals with auditory processing deficits. These individuals have a difficult time with correctly interpreting "Wh" types of questions. There is a tendency for the person to *re-vocalize* the question. This process contributes to a high degree of inattentiveness, distractibility, and confusion. Re-vocalizing the "Wh" question will tend to disrupt the verbal pattern of the one speaking to this person. However, this is an adaptive technique developed by many individuals with auditory processing problems in hopes of controlling their overall behavior and verbal responses. Such individuals often appear to have the characteristics of an Attention Deficit Disorder as they attempt to cope with their auditory processing overload and resulting confusion. In these cases of ADD or ADHD, medicating the individual without detecting and dealing with the auditory processing problem is, at best, a short-term intervention (DuPaul, Barkley, & McMurray, 1993). It is our opinion that medication treatment and "behavior mod" interventions tend to be very superficial treatments of much more profound and pervasive auditory processing problems.

Response time for individuals with auditory processing deficits is also affected at various levels depending on the severity of the deficit. For example, an individual given a direct statement, "Go to your room, hang up your clothes, and bring down your dirty clothes" may become so anxious and overwhelmed with these directions that he/she may go to the room and just stand there waiting and waiting and waiting. The person may wait for 5, 10, or even 15 minutes highly anxious and unsure of what to do. Then, the parent or spouse will say, "I just told you to do something!" increasing the frustration of the person who was unable to follow through because of the impact of the impaired processing of directions on the response time.

The same phenomenon may be observed in the classroom setting. In the classroom setting, the impaired individual becomes fidgety and will, at times, even get up and walk away from his/her chair. At times, the individual also tends to want additional attention in hopes that more verbal clarification and reinforcement will be provided so the student will get back on track. This will reduce the frustration and help to build self-confidence and self-esteem.

Some new techniques utilizing computer programs have been recently implemented to correct auditory processing problems. The limitation of these programs is that they lack the proper language input. Although they may be helpful in increasing attention span, they are seldom helpful in increasing language processing ability which is what most of these impaired individuals desperately need in order to follow verbal stimuli. These computerized programs also

do not take into account the person's ability to focus with background noise. The programs also do not effectively deal with overloading tendencies.

### **Clinical Implications And Conclusions**

When the WISC-III FD factor is interpreted as an indicator of distractibility and ADD/ADHD, there is a strong inclination to refer for a medication trial. Often, with this orientation, there is a tendency to look for a "quick fix" to the child's behavior and attention span problem. In our view, this may reflect addictive type thinking when, in fact, there is usually a more complex underlying auditory processing problem present. In many cases of children diagnosed ADD/ADHD and treated with medication, we find indications of what addiction specialists refer to as co-dependence (Malter, 1987; Malter, 1992) in both parent and professional behavior.

The development and publication of the WISC-III offers us an opportunity to *re-emphasize* the different psychological factors making up what is globally referred to as intelligence. By offering norms for the different factor indices as well as for the individual sub-tests and Verbal, Performance, and Full Scale IQs, the factor structure in Learning Disabilities, ADD/ADHD, and in Central Processing Disorders will become much more evident. Hopefully, this WISC-III development will lead to much more psychologically meaningful assessments of children experiencing learning and behavior problems. Since the ADD/ADHD field tends to focus on *overt* behavior regulated by medication, there is usually an absence of meaningful psychological data reflecting a child's *processing* abilities. Even when some studies refer to "intelligence" levels of subjects, it is usually in terms of a Full Scale IQ that is virtually meaningless given the wide sub-test scatter seen in many of these children's Wechsler profiles.

From the perspective presented in this paper, the difference between a high Verbal Comprehension Index and a low FD Index will usually reflect a significant auditory processing and memory problem. However, in some cases, there may also be a significant difference between the level of the Arithmetic scale score and the Digit Span scale score. In terms of auditory processing, a higher Arithmetic/lower Digit Span combination suggests better *language* processing ability with a more limited auditory *memory* span. The opposite pattern (lower Arithmetic, higher Digit Span) suggests more impairment involving language processing and relatively stronger rote auditory sequential memory. Thus, it is important for the psychologist to also note the relationship between the Arithmetic and the Digit Span scale scores.

In some cases, the Similarities scale score is significantly higher than any other subtest scale scores within the Verbal scale. In such cases, we find it clinically more useful to note the stronger more intact conceptualization ability (Malter, 1977; Malter, 1984; Newland, 1962) rather than using the WISC-III Verbal Comprehension Index score that will be reduced in magnitude by the weight of the Information, Comprehension, and Vocabulary scale scores in comparison with the Similarities scale score. We also find that the Similarities scale score is a good indicator of the therapy prognosis for an individual in terms of an "index of compensation" (Malter, 1977).

When the perspective of a central auditory processing disorder is applied clinically, it can be used as a powerful counseling tool to explain to the individual and to the significant persons in his/her life the nature of the disorder and its psychological impact. This often results in a great sense of relief by the individual and the significant others when they understand that there is a specific auditory processing disorder and explanation for the person's feelings and behavior. When each person adjusts his/her behavior accordingly, a great deal of stress and frustration is eliminated. With auditory processing therapy and psychological support, many individuals with this type of problem are able to learn to compensate more effectively. Self-esteem and self-confidence improve as the person becomes more successful in academic learning and in *social*

situations. Individual, group, and/or family therapy are likely to be much more successful with this perspective.

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