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Actividades para trabajar la atencion

¿Necesitas fichas de atención para niños? Si estás buscando material para trabajar el déficit de atención (TDAH), la concentración, atención dispersa, concentración, autismo, etc… aquí encontrarás una gran variedad de fichas con actividades para trabajar la estimulación cognitiva de la atención. Nuevo libro de ejercicios de estimulación cognitiva de la atención en formato tapa blanda, para todas las edades. Mejora la atención y concentración. Disponible en Amazon: Ejercicios de atención. Fichas con ejercicios de atención A continuación os dejamos una colección de fichas de ejercicios de atención. Estas fichas están diseñadas para trabajar la estimulación cognitiva con niños. Descarga estas fichas si necesitas trabajar con niños esta capacidad cognitiva. Tdah o trastorno del déficit de atención, educación especial, para aulas de PT, autismo, discapacidad, atención dispersa o para trabajar la concentración. Fichas para TDAH TDAH son las siglas de: Trastorno de Déficit de Atención e Hiperactividad. Se trata de un trastorno que se diagnostica en le edad infantil y que puede perdurar hasta adolescencia o la edad adulta. El trastono de déficit de atención se caracteriza principalmente por la falta de atención. Las distracciones de las personas que padecen TDAH pueden ser desde leves, a moderadas o graves. Además, este tipo de trastorno en la función cognitiva de la atención conlleva otros problemas, como la hiperactividad, impulsividad e inestabilidad emocional. Las siguientes fichas sirven para mejorar la atención con niños. Las fichas consisten en una cuadrícula con números del 1 al 10. Los niños deben colorear algunos de los números de los colores que se indican en las instrucciones. Además de estas fichas de atención con números, también tenemos otras fichas con ejercicios de atención con las vocales. Ejercicios de rastreo visual para niños Los ejercicios de rastreo visual son muy útiles en la estimulación cognitiva de la atención. Los siguientes ejercicios presentan una serie de dibujos desordenados. Los niños deben colorear algunos de los elementos, y rodear con un círculo otros elementos. Las fichas de rastreo visual son muy útiles frente a otros trastornos del aprendizaje, como la dislexia. Si quieres ver más actividades de rastreo visual, en este caso, con letras y letras al revés, no dejes de visitar la sección de fichas de dislexia para niños. Hay dos cuadernos en PDF disponibles para imprimir con este tipo de ejercicios para los niños. Además de las actividades, encontrarás gran información acerca de la dislexia, qué es, y cuales son sus síntomas. Mejorar la atención Ejercicios de concentración para niños hiperactivos, con autismo, déficit de atención o falta de concentración. Estas fichas sirven para mejorar la atención y muestran al niño unas cuadrículas en las que hemos coloreado algunas partes. Al lado, el niño o niña podrá encontrar otra cuadrícula vacía que deberá colorear igual que la que se muestra. Fichas de atención sostenida para trabajar problemas de atención dispersa y falta de concentración. Las siguientes fichas muestran unas cuadrículas con un camino de colores que los niños deben replicar en la cuadrícula vacía de la parte inferior. Ejercicios para trabajar la falta de atención y concentración con niños de infantil, primaria, adolescentes o incluso para estimulación cognitiva de la atención en pacientes adultos. Estas fichas de atención para los más pequeños para trabajar con formas y colores son ideales para trabajar con niños con discapacidad. Actividades de atención para infantil Las siguientes fichas de atención nos presentan una fotografía a la que le hemos quitado un trozo. En la parte inferior de estas fichas, podrás encontrar seis trozos, de los cuales únicamente uno es el correcto. Puedes tomar esta actividad como un recortable, si necesitas que el niño o niña vaya probando los diferentes trozos. También puedes presentarla en formato ficha y que la actividad consista en rodear con un círculo o indicar de alguna forma cual es la opción correcta. Si quieres ver más fichas de este estilo, echa un vistazo al apartado de fichas de atención del sitio web ecognitiva.com. Atención con laberintos Los laberintos no son solo una actividad divertida y entretenida para niños. Además de ser un tipo de ficha divertida, también es útil para trabajar la atención sostenida y para tratar el déficit de atención TDAH. Si quieres ver más fichas de atención como estas, puedes echar un vistazo en nuestra sección de fichas de laberintos para imprimir. Accede a ellos desde la sección de fichas de estimulación cognitiva. Nuevo libro de ejercicios de estimulación cognitiva de la atención en formato tapa blanda, para todas las edades. Mejora la atención y concentración. Disponible en Amazon: Ejercicios de atención. Cuaderno de ejercicios de atención para niños Si te han gustado estas fichas de estimulación cognitiva de la atención para niños, también puedes descargar el formato completo en cuaderno PDF. Más abajo podrás encontrar el enlace para descargar gratis este cuaderno para imprimir. Recuerda que siempre puedes dirigirte a la sección de cuadernos para encontrar más material educativo imprimible para niños. Encontrarás el PDF a continuación. Este cuaderno en PDF incluye el material para imprimir que has visto en la página: PDF Como siempre, te mostramos un vídeo para que puedas ver como es el interior de este cuaderno de actividades. Estos vídeos los puedes encontrar en nuestro canal de Youtube. Esperamos que estas fichas de estimulación cognitiva te sirvan para trabajar con niños el déficit de atención, TDAH, autismo, hiperactividad, etc… Más cuadernos con ejercicios cognitivos de atención para niños Además del cuaderno que acabas de ver, también tenemos otro con actividades similares, pero con temática de verano. Si te gusta la idea y quieres descargarlo, aquí te dejo el enlace para que puedas verlo. También puedes acceder desde aquí a las actividades para trabajar el déficit de atención (tdah), y al cuaderno que trabaja con colores. Como recurso adicional para trabajar la atención, te proponemos los sudoku. Estos pasatiempos ponen a prueba la lógica y la capacidad cognitiva de la atención. Cuadernos con más ejercicios de atención: Ver cuaderno aquí Ver cuaderno aquí Ver cuaderno aquí Ver cuaderno aquí Más recursos para estimulación cognitiva de la atención. Si quieres seguir viendo más recursos para trabajar con problemas de atención, puedes visitar la web neuronup.com, en la que encontrarás estos recursos. También te recomendamos la sección de atención de la web de cognifit.com. Puedes entrar y ver aquí su web. En el mundo actual, donde la tecnología y las distracciones están en todas partes, trabajar la atención se ha vuelto más importante que nunca. En este artículo, te presentaremos 10 actividades efectivas que te ayudarán a mejorar la concentración y la atención de una manera divertida y entretenida. Desde juegos de mesa hasta ejercicios de mindfulness, descubrirás cómo mantener tu mente enfocada y alerta en cualquier situación. ¡Prepárate para embarcarte en un viaje de descubrimiento y mejora personal!Índice En la actualidad, la concentración es una habilidad fundamental para poder realizar diversas tareas de manera eficiente. Sin embargo, en un mundo lleno de distracciones constantes, puede resultar difícil mantener la atención en una sola actividad durante mucho tiempo. Afortunadamente, existen actividades entretenidas que pueden ayudarnos a mejorar nuestra concentración.Juegos de mesaLos juegos de mesa como el ajedrez, el sudoku o los rompecabezas son excelentes opciones para mejorar la concentración. Estos juegos requieren de un alto nivel de atención y estrategia, lo que nos ayuda a entrenar nuestra mente para mantener el enfoque en una tarea específica.Actividades al aire librePasar tiempo al aire libre realizando actividades como caminatas, paseos en bicicleta o practicando deportes también puede ser beneficioso para mejorar la concentración. El contacto con la naturaleza y la realización de ejercicio físico ayudan a despejar la mente y a mejorar la capacidad de concentración.Meditación y MindfulnessLa meditación y el mindfulness son técnicas que nos permiten entrenar la atención plena en el momento presente. Estas prácticas nos ayudan a tomar conciencia de nuestros pensamientos y emociones, lo que a su vez mejora nuestra capacidad de concentración en otras actividades.Leer Más 5 consejos para lidiar con el odio hacia tu hijastroMejora la concentración con divertidos juegos y actividades¿Sabías que la concentración es una habilidad que se puede mejorar a través de juegos y actividades divertidas?La concentración es fundamental para realizar cualquier tarea con eficacia y precisión. Por suerte, existen diferentes juegos y actividades que pueden ayudarte a entrenar y mejorar esta habilidad de una manera entretenida.Juegos de memoria:Los juegos de memoria son una excelente forma de trabajar la concentración. Puedes jugar al clásico juego de memoria con cartas o probar aplicaciones en tu teléfono móvil que te desafíen a recordar secuencias de colores o números. Sopa de letras y crucigramas:Resolver sopas de letras y crucigramas requiere de gran concentración para encontrar las palabras escondidas. Estos juegos no solo son divertidos, sino que también te ayudarán a mejorar tu capacidad de atención.Actividades al aire libre:No todo tiene que ser en la pantalla. Realizar actividades al aire libre como caminatas, montar en bicicleta o jugar al aire libre también puede ser una excelente manera de mejorar tu concentración, al mismo tiempo que disfrutas del entorno natural.Mejora tu concentración con estos ejercicios para adultosLa concentración es una habilidad fundamental en la vida diaria, ya que nos permite enfocarnos en una tarea específica y completarla de manera eficiente. Sin embargo, en la era de la tecnología y las distracciones constantes, mantener la concentración puede resultar todo un desafío para muchos adultos.Por suerte, existen una serie de ejercicios y técnicas que pueden ayudarte a mejorar tu concentración y aumentar tu productividad. A continuación, te presentamos algunos de ellos:Meditación: La meditación es una excelente manera de entrenar tu mente para enfocarte en el momento presente y dejar de lado las distracciones.Ejercicios de atención plena: Practicar ejercicios de atención plena, como prestar atención a tu respiración o a tus sentidos, puede ayudarte a mejorar tu capacidad de concentración.Descansos regulares: Tomarte pequeños descansos cada cierto tiempo puede ayudarte a recargar energías y mantener tu concentración en niveles óptimos.Ejercicios de memoria: Realizar ejercicios que estimulen tu memoria, como recordar listas de palabras o números, puede fortalecer tu capacidad de concentración.Leer Más 5 consejos para aprovechar cada momento de la vida al máximoRecuerda que la concentración es una habilidad que se puede entrenar y mejorar con práctica y constancia. Dedica tiempo cada día a realizar estos ejercicios y verás cómo tu capacidad de concentración se fortalece con el tiempo.¿Qué otros ejercicios o técnicas utilizas para mejorar tu concentración? ¡Comparte tus experiencias y consejos en los comentarios!Recuerda que la atención es una habilidad fundamental en todas las áreas de nuestra vida, por lo que es importante trabajar en ella de forma constante y divertida. Utiliza estas actividades como herramientas para mejorar la concentración y la capacidad de enfocarte en tus tareas diarias. ¡Diviértete mientras fortaleces tu atención! ¡Hasta pronto!Si quieres ver otros artículos similares a 10 actividades efectivas para trabajar la atención de forma divertida puedes visitar la categoría Estrategia o revisar los siguientes artículos © All rights reserved - MentalUP Psychological focus, perception and prioritising discrete information This article is about the psychological concept of attention. For other uses, see Attention (disambiguation). Focused attention Cognitive psychology Perception Visual Object recognition Face recognition Pattern recognition Attention Memory Aging Emotional Learning Long-term Metacognition Language Metalanguage Thinking Cognition Concept Reasoning Decision making Problem solving Numerical cognition Number sense in animals Numerosity adaptation effect Approximate number system Parallel individuation system vte Attention or focus, is the concentration of awareness on some phenomenon to the exclusion of other stimuli.[1] It is the selective concentration on discrete information, either subjectively or objectively. William James (1890) wrote that "Attention is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, concentration, of consciousness are of its essence."[2] Attention has also been described as the allocation of limited cognitive processing resources.[3] Attention is manifested by an attentional bottleneck, in terms of the amount of data the brain can process each second; for example, in human vision, less than 1% of the visual input data stream of 1MByte/sec can enter the bottleneck,[4][5] leading to inattentional blindness. Attention remains a crucial area of investigation within education, psychology, neuroscience, cognitive neuroscience, and neuropsychology. Areas of active investigation involve determining the source of the sensory cues and signals that generate attention, the effects of these sensory cues and signals on the tuning properties of sensory neurons, and the relationship between attention and other behavioral and cognitive processes, which may include working memory and psychological vigilance. A relatively new body of research, which expands upon earlier research within psychopathology, is investigating the diagnostic symptoms associated with traumatic brain injury and its effects on attention. Attention also varies across cultures.[6] For example, people from cultures that center around collectivism pay greater attention to the big picture in the image given to them, rather than specific elements of the image. On the other hand, those involved in more individualistic cultures tend to pay greater attention to the most noticeable portion of the image.[7] The relationships between attention and consciousness are complex enough that they have warranted philosophical exploration. Such exploration is both ancient and continually relevant, as it can have effects in fields ranging from mental health and the study of disorders of consciousness to artificial intelligence and its domains of research. Prior to the founding of psychology as a scientific discipline, attention was studied in the field of philosophy. Thus, many of the discoveries in the field of attention were made by philosophers. Psychologist John B. Watson calls Juan Luis Vives the father of modern psychology because, in his book De Anima et Vita (The Soul and Life), he was the first to recognize the importance of empirical investigation.[8] In his work on memory, Vives found that the more closely one attends to stimuli, the better they will be retained. By the 1990s, psychologists began using positron emission tomography (PET) and later functional magnetic resonance imaging (fMRI) to image the brain while monitoring tasks involving attention. Considering this expensive equipment was generally only available in hospitals, psychologists sought cooperation with neurologists. Psychologist Michael Posner (then already renowned for his influential work on visual selective attention) and neurologist Marcus Raichle pioneered brain imaging studies of selective attention.[9] Their results soon sparked interest from the neuroscience community, which until then had been focused on monkey brains. With the development of these technological innovations, neuroscientists became interested in this type of research that combines sophisticated experimental paradigms from cognitive psychology with these new brain imaging techniques. Although the older technique of electroencephalography (EEG) had long been used to study the brain activity underlying selective attention by cognitive psychophysiologists, the ability of the newer techniques to measure precisely localized activity inside the brain generated renewed interest by a wider community of researchers. A growing body of such neuroimaging research has identified a frontoparietal attention network which appears to be responsible for control of attention.[10] A definition of a psychological construct forms a research approach to its study. In scientific works, attention often coincides and substitutes the notion of intentionality due to the extent of semantic uncertainty in the linguistic explanations of these notions' definitions. Intentionality has in turn been defined as "the power of minds to be about something: to represent or to stand for things, properties and states of affairs".[11] Although these two psychological constructs (attention and intentionality) appear to be defined by similar terms, they are different notions. To clarify the definition of attention, it would be correct to consider the origin of this notion to review the meaning of the term given to it when the experimental study on attention was initiated. It is thought that the experimental approach began with famous experiments with a 4 x 4 matrix of sixteen randomly chosen letters – the experimental paradigm that informed Wundt's theory of attention.[12] Wundt interpreted the experimental outcome introducing the meaning of attention as "that psychical process, which is operative in the clear perception of the narrow region of the content of consciousness."[13] These experiments showed the physical limits of attention threshold, which were 3-6 letters observing the matrix during 1/10 s of their exposition.[12] "We shall call the entrance into the large region of consciousness - apprehension, and the elevation into the focus of attention - apperception."[14] Wundt's theory of attention postulated one of the main features of this notion that attention is an active, voluntary process realized during a certain time.[12] In contrast, neuroscience research shows that intentionality may emerge instantly, even unconsciously; research reported to register neuronal correlates of an intentional act that preceded this conscious act (also see shared intentionality).[15][16] Therefore, while intentionality is a mental state ("the power of the mind to be about something", arising even unconsciously), the description of the construct of attention should be understood in the dynamical sense as the ability to elevate the clear perception of the narrow region of the content of consciousness and to keep in mind this state for a time. The attention threshold would be the period of minimum time needed for employing perception to clearly apprehend the scope of intention. From this perspective, a scientific approach to attention is relevant when it considers the difference between these two concepts (first of all, between their statical and dynamical statuses). The growing body of literature shows empirical evidence that attention is conditioned by the number of elements and the duration of exposition. Decades of research on subitizing have supported Wundt's findings about the limits of a human ability to concentrate awareness on a task.[17][18][19][20][21] Latvian prof. Sandra Mihailova and prof. Igor Val Danilov drew an essential conclusion from the Wundtian approach to the study of attention: the scope of attention is related to cognitive development.[22] As the mind grasps more details about an event, it also increases the number of reasonable combinations within that event, enhancing the probability of better understanding its features and particularity.[22] For example, three items in the focal point of consciousness have six possible combinations (3 factorial), and four items have 24 (4 factorial) combinations. This number of combinations becomes significantly prominent in the case of a focal point with six items with 720 possible combinations (6 factorial).[22] Empirical evidence suggests that the scope of attention in young children develops from two items in the focal point at age up to six months to five or more items in the focal point at age about five years.[22] As follows from the most recent studies in relation to teaching activities in school, "attention" should be understood as "the state of concentration of an individual's consciousness on the process of selecting by his own psyche the information he requires and on the process of choosing an algorithm for response actions, which involves the intensification of sensory and intellectual activities".[23] See also: Selective auditory attention In cognitive psychology there are at least two models which describe how visual attention operates. These models may be considered metaphors which are used to describe internal processes and to generate hypotheses that are falsifiable. Generally speaking, visual attention is thought to operate as a two-stage process.[24] In the first stage, attention is distributed uniformly over the external visual scene and processing of information is performed in parallel. In the second stage, attention is concentrated to a specific area of the visual scene (i.e., it is focused), and processing is performed in a serial fashion. The first of these models to appear in the literature is the spotlight model. The term "spotlight" was inspired by the work of William James, who described attention as having a focus, a margin, and a fringe.[25] The focus is an area that extracts information from the visual scene with a high-resolution, the geometric center of which being where visual attention is directed. Surrounding the focus is the fringe of attention, which extracts information in a much more crude fashion (i.e., low-resolution). This fringe extends out to a specified area, and the cut-off is called the margin. The second model is called the zoom-lens model and was first introduced in 1986.[26] This model inherits all properties of the spotlight model (i.e., the focus, the fringe, and the margin), but it has the added property of changing in size. This size-change mechanism was inspired by the zoom lens one might find on a camera, and any change in size can be described by a trade-off in the efficiency of processing.[27] The zoom-lens of attention can be described in terms of an inverse trade-off between the size of focus and the efficiency of processing: because attention resources are assumed to be fixed, then it follows that the larger the focus is, the slower processing will be of that region of the visual scene, since this fixed resource will be distributed over a larger area. It is thought that the focus of attention can subtend a minimum of 1° of visual angle,[25][28] however the maximum size has not yet been determined. A significant debate emerged in the last decade of the 20th century in which Treisman's 1993 Feature Integration Theory (FIT) was compared to Duncan and Humphrey's 1989 attentional engagement theory (AET).[29]:5–7 FIT posits that "objects are retrieved from scenes by means of selective spatial attention that picks out objects' features, forms feature maps, and integrates those features that are found at the same location into forming objects." Treismans's theory is based on a two-stage process to help solve the binding problem of attention. These two stages are the preattentive stage and the focused attention stage. Preattentive Stage: The unconscious detection and separation of features of an item (color, shape, size). Treisman suggests that this happens early in cognitive processing and that individuals are not aware of the occurrence due to the counter intuitiveness of separating a whole into its part. Evidence shows that preattentive focuses are accurate due to illusory conjunctions.[30] Focused Attention Stage: The combining of all feature identifiers to perceive all parts as one whole. This is possible through prior knowledge and cognitive mapping. When an item is seen within a known location and has features that people have knowledge of, then prior knowledge will help bring features all together to make sense of what is perceived. The case of R.M's damage to his parietal lobe, also known as Balint's syndrome, shows the incorporation of focused attention and combination of features in the role of attention.[31] Through sequencing these steps, parallel and serial search is better exhibited through the formation of conjunctions of objects. Conjunctive searches, according to Treismans, are done through both stages[32] in order to create selective and focused attention on an object, though Duncan and Humphrey would disagree. Duncan and Humphrey's AET understanding of attention maintained that "there is an initial pre-attentive parallel phase of perceptual segmentation and analysis that encompasses all of the visual items present in a scene. At this phase, descriptions of the objects in a visual scene are generated into structural units; the outcome of this parallel phase is a multiple-spatial-scale structured representation. Selective attention intervenes after this stage to select information that will be entered into visual short-term memory."[29]:5–7 The contrast of the two theories placed a new emphasis on the separation of visual attention tasks alone and those mediated by supplementary cognitive processes. As Rastophopoulos summarizes the debate: "Against Treisman's FIT, which posits spatial attention as a necessary condition for detection of objects, Humphreys argues that visual elements are encoded and bound together in an initial parallel phase without focal attention, and that attention serves to select among the objects that result from this initial grouping."[29]:8 In the twentieth century, the pioneering research of Lev Vygotsky and Alexander Luria led to the three-part model of neuropsychology defining the working brain as being represented by three co-active processes listed as Attention, Memory, and Activation. A.R. Luria published his well-known book The Working Brain in 1973 as a concise adjunct volume to his previous 1962 book Higher Cortical Functions in Man. In this volume, Luria summarized his three-part global theory of the working brain as being composed of three constantly co-active processes which he described as the; (1) Attention system, (2) Mnestic (memory) system, and (3) Cortical activation system. The two books together are considered by Homskaya's account as "among Luria's major works in neuropsychology, most fully reflecting all the aspects (theoretical, clinical, experimental) of this new discipline."[33] The product of the combined research of Vygotsky and Luria have determined a large part of the contemporary understanding and definition of attention as it is understood at the start of the 21st-century. See also: Human multitasking and Distracted driving Multitasking can be defined as the attempt to perform two or more tasks simultaneously; however, research shows that when multitasking, people make more mistakes or perform their tasks more slowly.[34] Attention must be divided among all of the component tasks to perform them. In divided attention, individuals attend or give attention to multiple sources of information at once or perform more than one task at the same time.[35] Older research involved looking at the limits of people performing simultaneous tasks like reading stories, while listening and writing something else,[36] or listening to two separate messages through different ears (i.e., dichotic listening). Generally, classical research into attention investigated the ability of people to learn new information when there were multiple tasks to be performed, or to probe the limits of our perception (cf. Donald Broadbent). There is also older literature on people's performance on multiple tasks performed simultaneously, such as driving a car while tuning a radio[37] or driving while being on the phone.[38] The vast majority of current research on human multitasking is based on performance of doing two tasks simultaneously,[34] usually that involves driving while performing another task, such as texting, eating, or even speaking to passengers in the vehicle, or with a friend over a cellphone. This research reveals that the human attentional system has limits for what it can process: driving performance is worse while engaged in other tasks; drivers make more mistakes, brake harder and later, get into more accidents, veer into other lanes, and/or are less aware of their surroundings when engaged in the previously discussed tasks.[39][40][41] There has been little difference found between speaking on a hands-free cell phone or a hand-held cell phone,[42][43] which suggests that it is the strain of attentional system that causes problems, rather than what the driver is doing with his or her hands. While speaking with a passenger is as cognitively demanding as speaking with a friend over the phone,[44] passengers are able to change the conversation based upon the needs of the driver. For example, if traffic intensifies, a passenger may stop talking to allow the driver to navigate the increasingly difficult roadway; a conversation partner over a phone would not be aware of the change in environment. There have been multiple theories regarding divided attention. One, conceived by cognitive scientist Daniel Kahneman,[45] explains that there is a single pool of attentional resources that can be freely divided among multiple tasks. This model seems oversimplified, however, due to the different modalities (e.g., visual, auditory, verbal) that are perceived.[46] When the two simultaneous tasks use the same modality, such as listening to a radio station and writing a paper, it is much more difficult to concentrate on both because the tasks are likely to interfere with each other. The specific modality model was theorized by Cognitive Psychologists David Navon and Daniel Gopher in 1979. However, more recent research using well controlled dual-task paradigms points at the importance of tasks.[47] As an alternative, resource theory has been proposed as a more accurate metaphor for explaining divided attention on complex tasks. Resource theory states that as each complex task is automatized, performing that task requires less of the individual's limited-capacity attentional resources.[46] Other variables play a part in our ability to pay attention to and concentrate on many tasks at once. These include, but are not limited to, anxiety, arousal, task difficulty, and skills.[46] Simultaneous attention is a type of attention, classified by attending to multiple events at the same time. Simultaneous attention is demonstrated by children in Indigenous communities, who learn through this type of attention to their surroundings.[48] Simultaneous attention is present in the ways in which children of indigenous backgrounds interact both with their surroundings and with other individuals. Simultaneous attention requires focus on multiple simultaneous activities or occurrences. This differs from multitasking, which is characterized by alternating attention and focus between multiple activities, or halting one activity before switching to the next. Simultaneous attention involves uninterrupted attention to several activities occurring at the same time. Another cultural practice that may relate to simultaneous attention strategies is coordination within a group. Indigenous heritage toddlers and caregivers in San Pedro were observed to frequently coordinate their activities with other members of a group in ways parallel to a model of simultaneous attention, whereas middle-class European-descent families in the U.S. would move back and forth between events.[6][49] Research concludes that children with close ties to Indigenous American roots have a high tendency to be especially wide, keen observers.[50] This points to a strong cultural difference in attention management. Attention may be differentiated into "overt" versus "covert" orienting.[51] Overt orienting is the act of selectively attending to an item or location over others by moving the eyes to point in that direction.[52] Overt orienting can be directly observed in the form of eye movements. Although overt eye movements are quite common, there is a distinction that can be made between two types of eye movements; reflexive and controlled. Reflexive movements are commanded by the superior colliculus of the midbrain. These movements are fast and are activated by the sudden appearance of stimuli. In contrast, controlled eye movements are commanded by areas in the frontal lobe. These movements are slow and voluntary. Covert orienting is the act of mentally shifting one's focus without moving one's eyes.[25][52][53] Simply, it is changes in attention that are not attributable to overt eye movements. Covert orienting has the potential to affect the output of perceptual processes by governing attention to particular items or locations (for example, the activity of a V4 neuron whose receptive field lies on an attended stimuli will be enhanced by covert attention)[54] but does not influence the information that is processed by the senses. Researchers often use "filtering" tasks to study the role of covert attention of selecting information. These tasks often require participants to observe a number of stimuli, but attend to only one. The current view is that visual covert attention is a mechanism for quickly scanning the field of view for interesting locations. This shift in covert attention is linked to eye movement circuitry that sets up a slower saccade to that location.[55] There are studies that suggest the mechanisms of overt and covert orienting may not be controlled separately and independently as previously believed. Central mechanisms that may control covert orienting, such as the parietal lobe, also receive input from subcortical centres involved in overt orienting.[52] In support of this, general theories of attention actively assume bottom-up (reflexive) processes and top-down (voluntary) processes converge on a common neural architecture, in that they control both covert and overt attentional systems.[56] For example, if individuals attend to the right hand corner field of view, movement of the eyes in that direction may have to be actively suppressed. Covert attention has been argued to reflect the existence of processes "programming explicit ocular movement".[57] However, this has been questioned on the grounds that N2, "a neural measure of covert attentional allocation—does not always precede eye movements".[58] However, the researchers acknowledge, "it may be impossible to definitively rule out the possibility that some kind of shift of covert attention precedes every shift of overt attention".[58] Orienting attention is vital and can be controlled through external (exogenous) or internal (endogenous) processes. However, comparing these two processes is challenging because external signals do not operate completely exogenously, but will only summon attention and eye movements if they are important to the subject.[52] Exogenous (from Greek exo, meaning "outside", and genein, meaning "to produce") orienting is frequently described as being under control of a stimulus.[59] Exogenous orienting is considered to be reflexive and automatic and is caused by a sudden change in the periphery. This often results in a reflexive saccade. Since exogenous cues are typically presented in the periphery, they are referred to as peripheral cues. Exogenous orienting can even be observed when individuals are aware that the cue will not relay reliable, accurate information about where a target is going to occur. This means that the mere presence of an exogenous cue will affect the response to other stimuli that are subsequently presented in the cue's previous location.[60] Several studies have investigated the influence of valid and invalid cues.[52][61][62][63] They concluded that valid peripheral cues benefit performance, for instance when the peripheral cues are brief flashes at the relevant location before the onset of a visual stimulus. Psychologists Michael Posner and Yoav Cohen (1984) noted a reversal of this benefit takes place when the interval between the onset of the cue and the onset of the target is longer than about 300 ms.[64] The phenomenon of valid cues producing longer reaction times than invalid cues is called inhibition of return. Endogenous (from Greek endo, meaning "within" or "internally") orienting is the intentional allocation of attentional resources to a predetermined location or space. Simply stated, endogenous orienting occurs when attention is oriented according to an observer's goals or desires, allowing the focus of attention to be manipulated by the demands of a task. In order to have an effect, endogenous cues must be processed by the observer and acted upon purposefully. These cues are frequently referred to as central cues. This is because they are typically presented at the center of a display, where an observer's eyes are likely to be fixated. Central cues, such as an arrow or digit presented at fixation, tell observers to attend to a specific location.[65] When examining differences between exogenous and endogenous orienting, some researchers suggest that there are four differences between the two kinds of cues: exogenous orienting is less affected by cognitive load than endogenous orienting; observers are able to ignore endogenous cues but not exogenous cues; exogenous cues have bigger effects than endogenous cues; and expectancies about cue validity and predictive value affects endogenous orienting more than exogenous orienting.[66] There exist both overlaps and differences in the areas of the brain that are responsible for endogenous and exogenous orientating.[67] Another approach to this discussion has been covered under the topic heading of "bottom-up" versus "top-down" orientations to attention. Researchers of this school have described two different aspects of how the mind focuses attention to items present in the environment. The first aspect is called bottom-up processing, also known as stimulus-driven attention or exogenous attention. These describe attentional processing which is driven by the properties of the objects themselves. Some processes, such as motion or a sudden loud noise, can attract our attention in a pre-conscious, or non-volitional way. We attend to them whether we want to or not.[68] These aspects of attention are thought to involve parietal and temporal cortices, as well as the brainstem.[69] More recent experimental evidence[70][71][72] support the idea that the primary visual cortex creates a bottom-up saliency map,[73][4] which is received by the superior colliculus in the midbrain area to guide attention or gaze shifts. The second aspect is called top-down processing, also known as goal-driven, endogenous attention, attentional control or executive attention. This aspect of our attentional orienting is under the control of the person who is attending. It is mediated primarily by the frontal cortex and basal ganglia[69][74] as one of the executive functions.[52][69] Research has shown that it is related to other aspects of the executive functions, such as working memory,[75] and conflict resolution and inhibition.[76] A "hugely influential"[77] theory regarding selective attention is the perceptual load theory, which states that there are two mechanisms that affect attention: cognitive and perceptual. The perceptual mechanism considers the subject's ability to perceive or ignore stimuli, both task-related and non task-related. Studies show that if there are many stimuli present (especially if they are task-related), it is much easier to ignore the non-task related stimuli, but if there are few stimuli the mind will perceive the irrelevant stimuli as well as the relevant. The cognitive mechanism refers to the actual processing of the stimuli. Studies regarding this showed that the ability to process stimuli decreased with age, meaning that younger people were able to perceive more stimuli and fully process them, but were likely to process both relevant and irrelevant information, while older people could process fewer stimuli, but usually processed only relevant information.[78] Some people can process multiple stimuli, e.g. trained Morse code operators have been able to copy 100% of a message while carrying on a meaningful conversation. This relies on the reflexive response due to "overlearning" the skill of morse code reception/detection/transcription so that it is an autonomous function requiring no specific attention to perform. This overtraining of the brain comes as the "practice of a skill [surpasses] 100% accuracy," allowing the activity to become autonomic, while your mind has room to process other actions simultaneously.[79] Based on the primary role of the perceptual load theory, assumptions regarding its functionality surrounding that attentional resources are that of limited capacity which signify the need for all of the attentional resources to be used.[80] This performance, however, is halted when put hand in hand with accuracy and reaction time (RT). This limitation arises through the measurement of literature when obtaining outcomes for scores. This affects both cognitive and perceptual attention because there is a lack of measurement surrounding distributions of temporal and spatial attention. Only a concentrated amount of attention on how effective one is completing the task and how long they take is being analyzed making a more redundant analysis on overall cognition of being able to process multiple stimuli through perception.[81] Attention is best described as the sustained focus of cognitive resources on information while filtering or ignoring extraneous information. Attention is a very basic function that often is a precursor to all other neurological/cognitive functions. As is frequently the case, clinical models of attention differ from investigation models. One of the most used models for the evaluation of attention in patients with very different neurologic pathologies is the model of Sohlberg and Mateer.[82] This hierarchic model is based in the recovering of attention processes of brain damage patients after coma. Five different kinds of activities of growing difficulty are described in the model; connecting with the activities those patients could do as their recovering process advanced. Focused attention: The ability to respond discretely to specific sensory stimuli. Sustained attention (vigilance and concentration): The ability to maintain a consistent behavioral response during continuous and repetitive activity. Selective attention: The ability to maintain a behavioral or cognitive set in the face of distracting or competing stimuli. Therefore, it incorporates the notion of "freedom from distractibility." Alternating attention: The ability of mental flexibility that allows individuals to shift their focus of attention and move between tasks having different cognitive requirements. Divided attention: This refers to the ability to respond simultaneously to multiple tasks or multiple task demands. This model has been shown to be very useful in evaluating attention in very different pathologies, correlates strongly with daily difficulties and is especially helpful in designing stimulation programs such as attention process training, a rehabilitation program for neurological patients of the same authors. Mindfulness: Mindfulness has been conceptualized as a clinical model of attention.[83] Mindfulness practices are clinical interventions that emphasize training attention functions.[84] Vigilant attention: Remaining focused on a non-arousing stimulus or uninteresting task for a sustained period is far more difficult than attending to arousing stimuli and interesting tasks, and requires a specific type of attention called 'vigilant attention'.[85] Thereby, vigilant attention is the ability to give sustained attention to a stimulus or task that might ordinarily be insufficiently engaging to prevent our attention being distracted by other stimuli or tasks.[86] Most experiments show that one neural correlate of attention is enhanced firing. If a neuron has a different response to a stimulus when an animal is not attending to a stimulus, versus when the animal does attend to the stimulus, then the neuron's response will be enhanced even if the physical characteristics of the stimulus remain the same. In a 2007 review, Professor Eric Knudsen[87] describes a more general model which identifies four core processes of attention, with working memory at the center: Working memory temporarily stores information for detailed analysis. Competitive selection is the process that determines which information gains access to working memory. Through top-down sensitivity control, higher cognitive processes can regulate signal intensity in information channels that compete for access to working memory, and thus give them an advantage in the process of competitive selection. Through top-down sensitivity control, the momentary content of working memory can influence the selection of new information, and thus mediate voluntary control of attention in a recurrent loop (endogenous attention).[88] Bottom-up saliency filters automatically enhance the response to infrequent stimuli, or stimuli of instinctive or learned biological relevance (exogenous attention).[88] Neurally, at different hierarchical levels spatial maps can enhance or inhibit activity in sensory areas, and induce orienting behaviors like eye movement. At the top of the hierarchy, the frontal eye fields (FEF) and the dorsolateral prefrontal cortex contain a retinocentric spatial map. Microstimulation in the FEF induces monkeys to make a saccade to the relevant location. Stimulation at levels too low to induce a saccade will nonetheless enhance cortical responses to stimuli located in the relevant area. At the next lower level, a variety of spatial maps are found in the parietal cortex. In particular, the lateral intraparietal area (LIP) contains a saliency map and is interconnected both with the FEF and with sensory areas. Exogenous attentional guidance in humans and monkeys is by a bottom-up saliency map in the primary visual cortex.[73][4] In lower vertebrates, this saliency map is more likely in the superior colliculus (optic tectum).[89] Certain automatic responses that influence attention, like orienting to a highly salient stimulus, are mediated subcortically by the superior colliculi. At the neural network level, it is thought that processes like lateral inhibition mediate the process of competitive selection. In many cases attention produces changes in the EEG. Many animals, including humans, produce gamma waves (40–60 Hz) when focusing attention on a particular object or activity.[90][91][54][92] Another commonly used model for the attention system has been put forth by researchers such as Michael Posner. He divides attention into three functional components: alerting, orienting, and executive attention[69][93] that can also interact and influence each other.[94][95][96] Alerting is the process involved in becoming and staying attentive toward the surroundings. It appears to exist in the frontal and parietal lobes of the right hemisphere, and is modulated by norepinephrine.[97][98] Orienting is the directing of attention to a specific stimulus. Executive attention is used when there is a conflict between multiple attention cues. It is essentially the same as the central executive in Baddeley's model of working memory. The Eriksen flanker task has shown that the executive control of attention may take place in the anterior cingulate cortex[99] Children appear to develop patterns of attention related to the cultural practices of their families, communities, and the institutions in which they participate.[100] In 1955, Jules Henry suggested that there are societal differences in sensitivity to signals from many ongoing sources that call for the awareness of several levels of attention simultaneously. He tied his speculation to ethnographic observations of communities in which children are involved in a complex social community with multiple relationships.[6] Many Indigenous children in the Americas predominantly learn by observing and pitching in. There are several studies to support that the use of keen attention towards learning is much more common in Indigenous Communities of North and Central America than in a middle-class European-American setting. This is a direct result of the Learning by Observing and Pitching In model. Keen attention is both a requirement and result of learning by observing and pitching-in. Incorporating the children in the community gives them the opportunity to keenly observe and contribute to activities that were not directed towards them. It can be seen from different Indigenous communities and cultures, such as the Mayans of San Pedro, that children can simultaneously attend to multiple events.[6] Most Maya children have learned to pay attention to several events at once in order to make useful observations.[101] One example is simultaneous attention which involves uninterrupted attention to several activities occurring at the same time. Another cultural practice that may relate to simultaneous attention strategies is coordination within a group. San Pedro toddlers and caregivers frequently coordinated their activities with other members of a group in multiway engagements rather than in a dyadic fashion.[6][49] Research concludes that children with close ties to Indigenous American roots have a high tendency to be especially keen observers.[50] This learning by observing and pitching-in model requires active levels of attention management. The child is present while caretakers engage in daily activities and responsibilities such as: weaving, farming, and other skills necessary for survival. Being present allows the child to focus their attention on the actions being performed by their parents, elders, and/or older siblings. In order to learn in this way, keen attention and focus is required. Eventually the child is expected to be able to perform these skills themselves. In one study, it was found that when looking at a picture, Americans focus more on the center figure than Japanese do, especially after 1 second has passed. Japanese individuals spent larger amounts of time focusing on parts in the background.[102] Miyamoto et al. compared pictures of landscapes in Japan and the US, noting that Japanese scenes contained more boundaries and edges than the American ones.[103] In the domain of computer vision, efforts have been made to model the mechanism of human attention, especially the bottom-up intentional mechanism[104] and its semantic significance in classification of video contents.[105][106] Both spatial attention and temporal attention have been incorporated in such classification efforts. Generally speaking, there are two kinds of models to mimic the bottom-up salience mechanism in static images. One is based on the spatial contrast analysis. For example, a center–surround mechanism has been used to define salience across scales, inspired by the putative neural mechanism.[107] It has also been hypothesized that some visual inputs are intrinsically salient in certain background contexts and that these are actually task-independent. This model has established itself as the exemplar for salience detection and consistently used for comparison in the literature;[104] the other kind of model is based on the frequency domain analysis. This method was first proposed by Hou et al..[108] This method was called SR. Then, the PQFT method was also introduced. Both SR and PQFT only use the phase information.[104] In 2012, the HFT method was introduced, and both the amplitude and the phase information are made use of.[109] The Neural Abstraction Pyramid[110] is a hierarchical recurrent convolutional model, which incorporates bottom-up and top-down flow of information to iteratively interpret images. Main article: Hemispatial neglect Hemispatial neglect, also called unilateral neglect, often occurs when people have damage to the right hemisphere of their brain.[111] This damage often leads to a tendency to ignore the left side of one's body or even the left side of an object that can be seen. Damage to the left side of the brain (the left hemisphere) rarely yields significant neglect of the right side of the body or object in the person's local environments.[112] The effects of spatial neglect, however, may vary and differ depending on what area of the brain was damaged. Damage to different neural substrates can result in different types of neglect. Attention disorders (lateralized and nonlaterized) may also contribute to the symptoms and effects.[112] Much research has asserted that damage to gray matter within the brain results in spatial neglect.[113] New technology has yielded more information, such that there is a large, distributed network of frontal, parietal, temporal, and subcortical brain areas that have been tied to neglect.[114] This network can be related to other research as well; the dorsal attention network is tied to spatial orienting.[115] The effect of damage to this network may result in patients neglecting their left side when distracted about their right side or an object on their right side.[111] Social attention is one special form of attention that involves the allocation of limited processing resources in a social context. Previous studies on social attention often regard how attention is directed toward socially relevant stimuli such as faces and gaze directions of other individuals.[116] In contrast to attending-to-others, a different line of researches has shown that self-related information such as own face and name automatically captures attention and is preferentially processed comparing to other-related information.[117] These contrasting effects between attending-to-others and attending-to-self prompt a synthetic view in a recent Opinion article[118] proposing that social attention operates at two polarizing states: In one extreme, individual tends to attend to the self and prioritize self-related information over others', and, in the other extreme, attention is allocated to other individuals to infer their intentions and desires. Attending-to-self and attending-to-others mark the two ends of an otherwise continuum spectrum of social attention. For a given behavioral context, the mechanisms underlying these two polarities might interact and compete with each other in order to determine a saliency map of social attention that guides our behaviors.[118] An imbalanced competition between these two behavioral and cognitive processes will cause cognitive disorders and neurological symptoms such as autism spectrum disorders and Williams syndrome. According to Daniel Goleman's book, Focus: The Hidden Driver of Excellence, there are two types of distracting factors affecting focus – sensory and emotional. A sensory distracting factor would be, for example, while a person is reading this article, they are neglecting the white field surrounding the text. An emotional distracting factor would be when someone is focused on answering an email, and somebody shouts their name. It would be almost impossible to neglect the voice speaking it. Attention is immediately directed toward the source. Positive emotions have also been found to affect attention. Induction of happiness has led to increased response times and an increase in inaccurate responses in the face of irrelevant stimuli. Two possible theories as to why emotions might make one more susceptible to distracting stimuli is that emotions take up too much of one's cognitive resources and make it harder to control your focus of attention. The other theory is that emotions make it harder to filter out distractions, specifically with positive emotions due to a feeling of security.[119] Another distracting factor to attention processes is insufficient sleep. Sleep deprivation is found to impair cognition, specifically performance in divided attention. Divided attention is possibly linked with the circadian processes.[120] Inattentional blindness was first introduced in 1998 by Arien Mack and Irvic Rock. Their studies show that when people are focused on specific stimuli, they often miss other stimuli that are clearly present. Though actual blindness is not occurring here, the blindness that happens is due to the perceptual load of what is being attended to.[121] Based on the experiment performed by Mack and Rock, Ula Finch and Nilli Lavie tested participants with a perceptual task. They presented subjects with a cross, one arm being longer than the other, for 5 trials. On the sixth trial, a white square was added to the top left of the screen. The results conclude that out of 10 participants, only 2 (20%) actually saw the square. This would suggest that when a higher focus was attended to the length of the crossed arms, the more likely someone would altogether miss an object that was in plain sight.[122] Change blindness was first tested by Rensink and coworkers in 1997. Their studies show that people have difficulty detecting changes from scene to scene due to the intense focus on one thing, or lack of attention overall. This was tested by Rensink through a presentation of a picture, and then a blank field, and then the same picture but with an item missing. The results showed that the pictures had to be alternated back and forth a good number of times for participants to notice the difference. This idea is greatly portrayed in films that have continuity errors. Many people do not pick up on differences when in reality, the changes tend to be significant.[123] Psychologist Daniel E. Berlyne credits the first extended treatment of attention to philosopher Nicolas Malebranche in his work "The Search After Truth". "Malebranche held that we have access to ideas, or mental representations of the external world, but not direct access to the world itself."[8] Thus in order to keep these ideas organized, attention is necessary.[124] Otherwise we will confuse these ideas. Malebranche writes in "The Search After Truth", "because it often happens that the understanding has only confused and imperfect perceptions of things, it is truly a cause of our errors.... It is therefore necessary to look for means to keep our perceptions from being confused and imperfect. And, because, as everyone knows, there is nothing that makes them clearer and more distinct than attentiveness, we must try to find the means to become more attentive than we are".[125] According to Malebranche, attention is crucial to understanding and keeping thoughts organized. Philosopher Gottfried Wilhelm Leibniz introduced the concept of apperception to this philosophical approach to attention. Apperception refers to "the process by which new experience is assimilated to and transformed by the residuum of past experience of an individual to form a new whole."[126] Apperception is required for a perceived event to become a conscious event. Leibniz emphasized a reflexive involuntary view of attention known as exogenous orienting. However, there is also endogenous orienting which is voluntary and directed attention. Philosopher Johann Friedrich Herbart agreed with Leibniz's view of apperception; however, he expounded on it in by saying that new experiences had to be tied to ones already existing in the mind. Herbart was also the first person to stress the importance of applying mathematical modeling to the study of psychology.[8] Throughout the philosophical era, various thinkers made significant contributions to the field of attention studies, beginning with research on the extent of attention and how attention is directed. In the beginning of the 19th century, it was thought that people were not able to attend to more than one stimulus at a time. However, with research contributions by Sir William Hamilton, 9th Baronet this view was changed. Hamilton proposed a view of attention that likened its capacity to holding marbles. You can only hold a certain number of marbles at a time before it starts to spill over. His view states that we can attend to more than one stimulus at once. William Stanley Jevons later expanded this view and stated that we can attend to up to four items at a time.[127] This period of attention research took the focus from conceptual findings to experimental testing. It also involved psychophysical methods that allowed measurement of the relation between physical stimulus properties and the psychological perceptions of them. This period covers the development of attentional research from the founding of psychology to 1909. Wilhelm Wundt introduced the study of attention to the field of psychology. Wundt measured mental processing speed by likening it to differences in stargazing measurements. Astronomers in this time would measure the time it took for stars to travel. Among these measurements when astronomers recorded the times, there were personal differences in calculation. These different readings resulted in different reports from each astronomer. To correct for this, a personal equation was developed. Wundt applied this to mental processing speed. Wundt realized that the time it takes to see the stimulus of the star and write down the time was being called an "observation error" but actually was the time it takes to switch voluntarily one's attention from one stimulus to another. Wundt called his school of psychology voluntarism. It was his belief that psychological processes can only be understood in terms of goals and consequences. Franciscus Donders used mental chronometry to study attention and it was considered a major field of intellectual inquiry by authors such as Sigmund Freud. Donders and his students conducted the first detailed investigations of the speed of mental processes. Donders measured the time required to identify a stimulus and to select a motor response. This was the time difference between stimulus discrimination and response initiation. Donders also formalized the subtractive method which states that the time for a particular process can be estimated by adding that process to a task and taking the difference in reaction time between the two tasks. He also differentiated between three types of reactions: simple reaction, choice reaction, and go/no-go reaction. Hermann von Helmholtz also contributed to the field of attention relating to the extent of attention. Von Helmholtz stated that it is possible to focus on one stimulus and still perceive or ignore others. An example of this is being able to focus on the letter u in the word house and still perceiving the letters h, o, s, and e. One major debate in this period was whether it was possible to attend to two things at once (split attention). Walter Benjamin described this experience as "reception in a state of distraction." This disagreement could only be resolved through experimentation. In 1890, William James, in his textbook The Principles of Psychology, remarked: Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, concentration, of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others, and is a condition which has a real opposite in the confused, dazed, scatterbrained state which in French is called distraction, and Zerstreutheit in German.[128] James differentiated between sensorial attention and intellectual attention. Sensorial attention is when attention is directed to objects of sense, stimuli that are physically present. Intellectual attention is attention directed to ideal or represented objects; stimuli that are not physically present. James also distinguished between immediate or derived attention: attention to the present versus to something not physically present. According to James, attention has five major effects. Attention works to make us perceive, conceive, distinguish, remember, and shorten reactions time. During this period, research in attention waned and interest in behaviorism flourished, leading some to believe, like Ulric Neisser, that in this period, "There was no research on attention". However, Jersild published very important work on "Mental Set and Shift" in 1927. He stated, "The fact of mental set is primary in all conscious activity. The same stimulus may evoke any one of a large number of responses depending upon the contextual setting in which it is placed".[129] This research found that the time to complete a list was longer for mixed lists than for pure lists. For example, if a list was names of animals versus a list of the same size with names of animals, books, makes and models of cars, and types of fruits, it takes longer to process the second list. This is task switching. In 1931, Telford discovered the psychological refractory period. The stimulation of neurons is followed by a refractory phase during which neurons are less sensitive to stimulation. In 1935 John Ridley Stroop developed the Stroop Task which elicited the Stroop Effect. Stroop's task showed that irrelevant stimulus information can have a major impact on performance. In this task, subjects were to look at a list of colors. This list of colors had each color typed in a color different from the actual text. For example, the word Blue would be typed in Orange, Pink in Black, and so on. Example: Blue Purple Red Green Purple Green Subjects were then instructed to say the name of the ink color and ignore the text. It took 110 seconds to complete a list of this type compared to 63 seconds to name the colors when presented in the form of solid squares.[8] The naming time nearly doubled in the presence of conflicting color words, an effect known as the Stroop Effect. In the 1950s, research psychologists renewed their interest in attention when the dominant epistemology shifted from positivism (i.e., behaviorism) to realism during what has come to be known as the "cognitive revolution".[130] The cognitive revolution admitted unobservable cognitive processes like attention as legitimate objects of scientific study. Lecture by cognitive scientist Marie Postma (Tilburg University) on focused attention Modern research on attention began with the analysis of the "cocktail party problem" by Colin Cherry in 1953. At a cocktail party how do people select the conversation that they are listening to and ignore the rest? This problem is at times called "focused attention", as opposed to "divided attention". Cherry performed a number of experiments which became known as dichotic listening and were extended by Donald Broadbent and others.[131]:112 In a typical experiment, subjects would use a set of headphones to listen to two streams of words in different ears and selectively attend to one stream. After the task, the experimenter would question the subjects about the content of the unattended stream. Broadbent's Filter Model of Attention states that information is held in a pre-attentive temporary store, and only sensory events that have some physical feature in common are selected to pass into the limited capacity processing system. This implies that the meaning of unattended messages is not identified. Also, a significant amount of time is required to shift the filter from one channel to another. Experiments by Gray and Wedderburn and later Anne Treisman pointed out various problems in Broadbent's early model and eventually led to the Deutsch–Norman model in 1968. In this model, no signal is filtered out, but all are processed to the point of activating their stored representations in memory. The point at which attention becomes "selective" is when one of the memory representations is selected for further processing. At any time, only one can be selected, resulting in the attentional bottleneck.[131]:115–116 This debate became known as the early-selection vs. late-selection models. In the early selection models (first proposed by Donald Broadbent), attention shuts down (in Broadbent's model) or attenuates (in Treisman's refinement) processing in the unattended ear before the mind can analyze its semantic content. In the late selection models (first proposed by J. Anthony Deutsch and Diana Deutsch), the content in both ears is analyzed semantically, but the words in the unattended ear cannot access consciousness.[132] Lavie's perceptual load theory, however, "provided elegant solution to" what had once been a "heated debate".[133] Alertness Attention deficit hyperactivity disorder Attention restoration theory Attention seeking Attention span Attention theft Attentional control Attentional shift Binding problem Cognitive inhibition Consciousness Crossmodal attention Flow (psychology) Focusing (psychotherapy) Informal learning Joint attention Immanuel Kant Meditation Mindfulness Motivation Nonverbal communication Observational Learning Ovsiankina effect Perceptual learning#The role of attention Philosophy Salience (also called saliency) Self Split attention effect Vigilance Visual search Visual spatial attention Visual temporal attention Working memory ^ "Attention | Definition, Theories, Aspects, & Facts | Britannica". 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Se trata de la capacidad de mantener la atención a un estímulo o actividad durante un periodo determinado de tiempo, sin perder la concentración y distracción. Esta atención está dividida en concentración y vigilancia, para detectar el estímulo o actividad que se quiere hacer y fijar la concentración en ella para cumplir las metas y objetivos. Decimos que es la atención que más se usa durante el día a día porque es necesaria para ir al colegio y mantener la atención durante toda la hora de clase, para estudiar y mantener la concentración para adquirir los conocimientos. A la hora de conducir es fundamental para mantenerse atento a la carretera y poder tener un trayecto tranquilo. Cuando ves una película o lees un libro este tipo de atención hará que te mantengas atento todo el rato que estés realizando esa actividad y te enteres de lo que ocurre en la película o el libro. Este tipo de atención puede verse afectada en los trastornos por déficit de atención e hiperactividad, en la dislexia, en enfermedades como la esquizofrenia, en los traumatismos craneoencefálicos o en enfermedades neurodegenerativas como la enfermedad de Alzheimer. Dentro de estos trastornos se deberá evaluar la atención sostenida y para ello se pueden utilizar algunos de estos test: El test de Stroop está dividido en 3 partes, en el primer ensayo se leerán los nombres de tres colores diferentes, en el segundo se leerá el color de los estímulos marcados como “XXXX” y en el último ensayo la persona deberá inhibir la lectura de la palabra y decir el color de como están escritas. El Symbol Digit Modalities Test consiste en convertir los símbolos de formas diferentes a números a partir de una clave establecida, por ejemplo “> igual a 1”. Esta tarea se deberá realizar lo más rápido posible.El test de cancelación d2 Test que mide la atención sostenida, selectiva y la concentración mental. La prueba consiste en marcar todas las letras “d” con dos rayas de 47 estímulos diferentes (letras “p” y “d”). Una manera sencilla de trabajar la atención sostenida es mediante un ejercicio que muestra una cantidad de figuras diferentes. La actividad consta en contar cuantas figuras hay de cada y anotar el resultado debajo. Este ejercicio puede hacerse con otros elementos como números o letras. Este ejercicio consiste en buscar las diferencias marcadas entre dos dibujos que parece que son iguales. Este ejercicio permite a la persona estar concentrada, atenta y se trabaja la percepción visual y la memoria visual. Un ejercicio que también hemos explicado en el artículo sobre atención selectiva es buscar el número que falta. El ejercicio está formado por una tabla con números desordenados del 1 al 33, excepto uno, que es el número que se deberá buscar. Se deberá encontrar el número y escribirlo en la tabla. Los ejercicios destinados a buscar diferentes elementos determinados entre estímulos distractores, a parte de trabajar la atención selectiva también se trabaja la atención sostenida, ya que requerirá concentración para rodear el elemento tantas veces como se repita. Recordar secuencias, tanto de manera directa o inversa, ayudará a trabajar este tipo de atención. Se comenzará por aprender un listado de número reducido para ir aumentando la cantidad de números y en consecuencia su dificultad. La lectura fomenta la capacidad de atención, además de otras funciones cognitivas. Para rehabilitar la atención sostenida y selectiva se pueden utilizar muchos ejercicios parecidos, estos pueden servir para trabajar estos dos tipos de atención al mismo tiempo. Entre las actividades útiles que puedes usar para mejorar la capacidad atencional, están la búsqueda de diferencias, la búsqueda visual, contar estímulos, buscar el número que falta, recordar secuencias de números y leer. También es fundamental descansar en cualquier caso que se trabaje con el cuerpo y la mente para poder tener un rendimiento óptimo. El papel del neuropsicólogo es fundamental para rehabilitar cualquier capacidad cognitiva, este nos proporcionará estrategias para el día a día, aparte de adecuar los ejercicios a las necesidades y nivel de cada persona.

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