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There is a lot of discussion about attention span. It is often saidpeople find it more difficult to focus their attention because thereis so much distraction (see YouTube video below).According to some studies, adults can focus on tasks that do notrequire the type of focused attention this task requires around 20minutes.The reason why different studies come up with different average timespans is how focused the attention needs to be. There is a differencebetween working concentrated and still be allowed to occasionally takea sip of tea. In the attention-span task of this test, that is noteven possible, it requires literally 100% of your attention.It would require a very high level of focused attention for anyone todo this task 20 minutes long without making tasks, and I doubt anyonewill do it (will you?give it a try). Attention is a multifaceted, multisensory cognitive phenomenon that can be studied in many ways. Here we describe a few methods used in the lab to measure its different aspects.Attention is a fundamental aspect of cognitive function. Yet it is not a single thing but rather a multifaceted concept that includes dividing, switching, selecting, orienting, searching and sustaining. To explore these many facets of attention, numerous methodological approaches have evolved. Here we outline 5 common types of tasks which are used to measure attention in the lab that can also be combined with neuroimaging techniques such as EEG. One of the most classic attention tasks is the spatial cueing task, sometimes called the Posner task. It measures how fast people can orient or shift their attention to particular locations in space in response to a cue. The task involves the participant looking at a screen with a square in the center to the right or left of which an image will occur. An arrow cues the participant which direction the image will occur. The participant must press a key as soon as the image appears in the cued location. Essentially this task measures how quickly we shift attention from the cue to the target when alerted. Often in some trials an invalid cue is presented (i.e. pointing the wrong direction) or the cue is omitted to see how this influences the reaction time.Deficits in performance occur in some clinical disorders (e.g. ADHD) and become more evident with age. Multiple variants of the task exist using EEG. For example, studies from John Foxes lab have explored the role of occipital alpha activity in the anticipatory phase between cue and target in both the visual and auditory domain, whilst studies from Anna Nobres lab have demonstrated the role of alpha activity when participants orient their attention within a remembered spatial array (e.g. stored in their working memory).Schematic of the Posner spatial cueing task. The top pane shows an example of endogenous trials where the cue is presented centrally, whilst the bottom panel shows exogenous trials where the cue is presented peripherally. Valid trials are when the target appears at the cued location, whilst during invalid trials the target appears at the non-cued location. 2. Tasks for measuring attentional control. The attention network test (ANT), developed by Jin Fan (task can be downloaded here for research purposes), is a more recent paradigm that combines Posners cued reaction time task and Eriksens flanker task to measure three types of attentional control alerting, orienting and executive (or decision making). In addition to the standard Posner task, the test involves presentation of the cue arrow presentation flanked by either congruent (same direction) or incongruent arrows (opposite direction) which requires the participant to use more sophisticated (executive) decision making to determine which way the arrow is pointing. This 3-in-1 approach has been used to assess attentional performance in a wide number of clinical populations including autism, schizophrenia, anxiety and ADHD, and in combination with EEG to demonstrate age-related decline and other brain changes. Schematic of the ANT. A fixation cross appears in the center of the screen all of the time. In each trial, depending on the cue condition (no cue, center cue, or spatial cue), a cue may appear for 200 ms. After a variable duration (3001450 ms), the target (the center arrow) and flankers of two left and two right arrows (congruent or incongruent flankers) are presented. The participant makes a response to the targets direction within a time window of 2000 ms. The target and flankers disappear after the response is made. The target and post-target fixation period lasts for a variable duration (30004200 ms). From Fan et al 2007. 3. Tasks for measuring sustained attention and vigilance.There are a number of different vigilance tasks where participants have to sustain their attention over time, typically towards a continuous sequence of stimuli. These includes tasks such as the sustained attention to response task (SART) and Conners continuous performance test (CPT), where participants are presented a continuous series of letters or images in a fixed or random fashion and have to press a spacebar whenever they see an X. This requires both being alert to the X and withholding response to other letters. The results have been shown to be sensitive to various clinical disorders (e.g. ADHD) and experimental interventions (e.g. caffeine administration). Other tasks which require sustained attention include the rapid serial visual presentation (RSVP) task, the psychomotor vigilance task (PVT) and the oddball task, where participants have to respond to a rare or deviant target. For example, the rapid serial visual presentation (RSVP) task can be adapted to measure the attentional blink phenomenon when two targets are presented in close succession.Schematic of the Sustained Attention to Response Task (SART), demonstrating the sequence of events and timings for the SART. Figure depicts (A) a go trial (requiring a response to the presentation of the go-digit 1), and (B) a no-go trial (requiring the withholding of a response to the no-go digit 3). In the Fixed version of the SART, the digits 19 are presented within a fixed sequence that is repeated 25 times. In the Random version of the SART, the digits are presented in a pseudo-random order. All participants respond on the response cue. Taken from Johnson et al 2007 4. Task for measuring visual search. Visual search uses a range of stimulus types from single letters through to complex scenes (see here for a large visual search dataset from Jeremy Wolfe lab). In both cases, participants have to search the array or scene for the target stimulus, keeping in mind what they are looking for and ignoring irrelevant distractors. There are various theories about how visual search best operates from the perspective of the brain and EEG studies can help to provide insights into the factors which influence searching performance.Example of visual search tasks using simple stimuli requires you to find the odd one out.(from Measuring attentional biases to emotion. The dot probe task allows researchers to measure the way attention is biased by emotional stimuli (e.g. by threatening information). The classical version of the task is a covert attention task with words or faces (a word version of the task can be downloaded here for research purposes), and allows the researcher to measure how rapidly the emotionally charged information grabs the participants attention. Strong biases to threatening or negative stimuli are often observed in patients with anxiety, however the reliability of the task is not always consistent and is a reminder that just because a task is used frequently, doesnt necessarily mean it is always the best task to use.A schematic of the dot probe task. On the left is a congruent trial where the dots are presented in the location of the emotional stimulus, whilst on the right is an incongruent trial where the dots are presented in the location of the neutral stimulus.In summary, attention is a multifaceted phenomenon and there are a range of tasks to measure these various facets. While we have presented a few that are primarily visual in nature, attention also extends to other sensory modalities and may indeed be different across modalities. A person may, for example, find directing visual attention easy but auditory attention more difficult. Furthermore, not all methods are discussed here there are a host of others as well, for example, relating to divided attention (e.g. between two modalities), attentional interference (e.g. stroop tasks) or attentional flexibility. Lastly, we point out that these tasks are simple in nature and how they relate to more complex paradigms is not clear. Indeed, there is no single test to truly assess the strengths and weaknesses in someones attentional functioning. Rather it would require a battery of tasks of increasing complexity that integrate different facets of attention and sensory modalities. Share copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Agelink van Rentergem, J. A., de Vent, N. R., Schmand, B. A., Murre, J. M. J., Staaks, J. P. C., ANDI Consortium, & Huizenga, H. M. (2020). 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PubMed Google Scholar Page 2CharacteristicsFrequency (%) or mean (SD)Age30.89 (14.33)1824292 (45.9%)25+344 (54.1%)GenderMale277 (43.6%)Female347 (54.6%)Missing12 (1.9%)EthnicityNon-Hispanic554 (87.1%)Hispanic40 (6.3%)Missing42 (6.6%)RaceWhite394 (61.9%)Black19 (3.0%)Asian134 (21.1%)Other34 (5.3%)Missing55 (8.6%)EducationHigh school or less179 (28.1%)Some college177 (27.8%)College or above267 (42.0%)Missing13 (2.0%) Education that meets International Standards, with optimum utilization of state-of-the-art technology & modern pedagogical tools. The OmDayal group schools and colleges have the infrastructure for live stre