= Vocabulary development =

Vocabulary development is a process by which people acquire words . Babbling shifts towards meaningful speech as infants grow and produce their first words around the age of one year . In early word learning , infants build their vocabulary slowly . By the age of 18 months , infants can typically produce about 50 words and begin to make word combinations .

In order to build their vocabularies , infants must learn about the meanings that words carry . The mapping problem asks how infants correctly learn to attach words to referents . Constraints theories , domain @-@ general views , social @-@ pragmatic accounts , and an emergentist coalition model have been proposed to account for the mapping problem ...

From an early age , infants use language to communicate . Caregivers and other family members use language to teach children how to act in society . In their interactions with peers , children have the opportunity to learn about unique conversational roles . Through pragmatic directions , adults often offer children cues for understanding the meaning of words .

Throughout their school years , children continue to build their vocabulary . In particular , children begin to learn abstract words . Beginning around age 3 ? 5 , word learning takes place both in conversation and through reading . Word learning often involves physical context , builds on prior knowledge , takes place in social context , and includes semantic support . The phonological loop and serial order short @-@ term memory may both play an important role in vocabulary development .

= = Early word learning = =

Children begin to produce their first words when they are approximately one year old . Infants ' first words are normally used in reference to things that are of importance to them , such as objects , people , and relevant actions . Also , the first words that infants produce are mostly single @-@ syllabic or repeated single syllables , such as " no " and " dada " . By 12 to 18 months of age , children 's vocabularies often contain words such as " kitty " , " bottle " , " doll " , " car " and " eye " . Children 's understanding of names for objects and people usually precedes their understanding of words that describe actions and relationships . " One " and " two " are the first number words that children learn between the ages of one and two . Infants must be able to hear and play with sounds in their environment , and to break up various phonetic units to discover words and their related meanings .

= = = Phonological development = = =

Studies related to vocabulary development show that children 's language competence depends upon their ability to hear sounds during infancy . Infants ' perception of speech is distinct . Between six and ten months of age , infants can discriminate sounds used in the languages of the world . By 10 to 12 months , infants can no longer discriminate between speech sounds that are not used in the language (s) to which they are exposed . Among six @-@ month @-@ old infants , seen articulations (i.e. the mouth movements they observe others make while talking) actually enhance their ability to discriminate sounds , and may also contribute to infants ' ability to learn phonemic boundaries . Infants ' phonological register is completed between the ages of 18 months and 7 years .

Children 's phonological development normally proceeds as follows :

6 ? 8 weeks : Cooing appears

16 weeks : Laughter and vocal play appear

6 ? 9 months : Reduplicated (canonical) babbling appears

12 months : First words use a limited sound repertoire

18 months : Phonological processes (deformations of target sounds) become systematic

18 months ? 7 years : Phonological inventory completion

At each stage mentioned above , children play with sounds and learn methods to help them learn

words . There is a relationship between children 's prelinguistic phonetic skills and their lexical progress at age two : failure to develop the required phonetic skills in their prelinguistic period results in children 's delay in producing words . Environmental influences may affect children 's phonological development , such as hearing loss as a result of ear infections . Deaf infants and children with hearing problems due to infections are usually delayed in the beginning of vocal babbling .

= = = Babbling = = =

Babbling is an important aspect of vocabulary development in infants , since it appears to help practice producing speech sounds . Babbling begins between five and seven months of age . At this stage , babies start to play with sounds that are not used to express their emotional or physical states , such as sounds of consonants and vowels . Babies begin to babble in real syllables such as " ba @-@ ba @-@ ba , neh @-@ neh @-@ neh , and dee @-@ dee @-@ dee , " between the ages of seven and eight months ; this is known as canonical babbling . Jargon babbling includes strings of such sounds ; this type of babbling uses intonation but doesn 't convey meaning . The phonemes and syllabic patterns produced by infants begin to be distinctive to particular languages during this period (e.g. , increased nasal sounds in French and Japanese babies) though most of their sounds are similar . There is a shift from babbling to the use of words as the infant grows .

= = = Vocabulary spurt = = =

As children get older their rate of vocabulary growth increases . Children probably understand their first 50 words before they produce them . By the age of eighteen months , children typically attain a vocabulary of 50 words in production , and between two and three times greater in comprehension . A switch from an early stage of slow vocabulary growth to a later stage of faster growth is referred to as the vocabulary spurt . Young toddlers acquire one to three words per month . A vocabulary spurt often occurs overtime as the number of words learned accelerates . It is believed that most children add about 10 to 20 new words a week . Between the ages of 18 to 24 months , children learn how to combine two words such as no bye @-@ bye and more please . Three @-@ word and four @-@ word combinations appear when most of the child 's utterances are two @-@ word productions . In addition , children are able to form conjoined sentences , using and . This suggests that there is a vocabulary spurt between the time that the child 's first word appears , and when the child is able to form more than two words , and eventually , sentences . However , there have been arguments as to whether or not there is a spurt in acquisition of words . Only about one in five children do have a spurt . This suggests that most children do not have a vocabulary spurt .

= = Mapping problem = =

In word learning , the mapping problem refers to the question of how infants attach the forms of language to the things that they experience in the world . There are infinite objects , concepts , and actions in the world that words could be mapped onto . Many theories have been proposed to account for the way in which the language learner successfully maps words onto the correct objects , concepts , and actions .

While domain @-@ specific accounts of word learning argue for innate constraints that limit infants ' hypotheses about word meanings , domain @-@ general perspectives argue that word learning can be accounted for by general cognitive processes , such as learning and memory , which are not specific to language . Yet other theorists have proposed social pragmatic accounts , which stress the role of caregivers in guiding infants through the word learning process . According to some research , however , children are active participants in their own word learning , although caregivers may still play an important role in this process . Recently , an emergentist coalition model has also been proposed to suggest that word learning cannot be fully attributed to a single factor . Instead , a variety of cues , including salient and social cues , may be utilized by infants at different points in

their vocabulary development .

= = = Theories of constraints = = =

Theories of constraints argue for biases or default assumptions that guide the infant through the word learning process . Constraints are outside of the infant 's control and are believed to help the infant limit their hypotheses about the meaning of words that they encounter daily . Constraints can be considered domain @-@ specific (unique to language) .

Critics argue that theories of constraints focus on how children learn nouns , but ignore other aspects of their word learning . Although constraints are useful in explaining how children limit possible meanings when learning novel words , the same constraints would eventually need to be overridden because they are not utilized in adult language . For instance , adult speakers often use several terms , each term meaning something slightly different , when referring to one entity , such as a family pet . This practice would violate the mutual exclusivity constraint .

Below , the most prominent constraints in the literature are detailed :

Reference is the notion that a word symbolizes or stands in for an object , action , or event . Words consistently stand for their referents , even if referents are not physically present in context .

Mutual Exclusivity is the assumption that each object in the world can only be referred to by a single label .

Shape has been considered to be one of the most critical properties for identifying members of an object category . Infants assume that objects that have the same shape also share a name . Shape plays an important role in both appropriate and inappropriate extensions .

The Whole Object Assumption is the belief that labels refer to whole objects instead of parts or properties of those objects . Children are believed to hold this assumption because they typically label whole objects first , and parts of properties of objects later in development .

The Taxonomic Assumption reflects the belief that speakers use words to refer to categories that are internally consistent . Labels to pick out coherent categories of objects , rather than those objects and the things that are related to them . For example , children assume that the word " dog " refers to the category of " dogs " , not to " dogs with bones " , or " dogs chasing cats " .

= = = Domain @-@ general views = = =

Domain @-@ general views of vocabulary development argue that children do not need principles or constraints in order to successfully develop word @-@ world mappings . Instead , word learning can be accounted for through general learning mechanisms such as salience , association , and frequency . Children are thought to notice the objects , actions , or events that are most salient in context , and then to associate them with the words that are most frequently used in their presence . Additionally , research on word learning suggests that fast mapping , the rapid learning that children display after a single exposure to new information , is not specific to word learning . Children can also successfully fast map when exposed to a novel fact , remembering both words and facts after a time delay .

Domain @-@ general views have been criticized for not fully explaining how children manage to avoid mapping errors when there are numerous possible referents to which objects , actions , or events might point . For instance , if biases are not present from birth , why do infants assume that labels refer to whole objects , instead of salient parts of these objects ? However , domain @-@ general perspectives do not dismiss the notion of biases . Rather , they suggest biases develop through learning strategies instead of existing as built @-@ in constraints . For instance , the whole object bias could be explained as a strategy that humans use to reason about the world ; perhaps we are prone to thinking about our environment in terms of whole objects , and this strategy is not specific to the language domain . Additionally , children may be exposed to cues associated with categorization by shape early in the word learning process , which would draw their attention to shape when presented with novel objects and labels . Ordinary learning could , then , lead to a shape bias .

= = = Social pragmatic theories = = =

Social pragmatic theories , also in contrast to the constraints view , focus on the social context in which the infant is embedded . According to this approach , environmental input removes the ambiguity of the word learning situation . Cues such as the caregiver 's gaze , body language , gesture , and smile help infants to understand the meanings of words . Social pragmatic theories stress the role of the caregiver in talking about objects , actions , or events that the infant is already focused @-@ in upon .

Joint attention is an important mechanism through which children learn to map words @-@ to @-@ world , and vice versa . Adults commonly make an attempt to establish joint attention with a child before they convey something to the child . Joint attention is often accompanied by physical co @-@ presence , since children are often focused on what is in their immediate environment . As well , conversational co @-@ presence is likely to occur ; the caregiver and child typically talk together about whatever is taking place at their locus of joint attention . Social pragmatic perspectives often present children as covariation detectors , who simply associate the words that they hear with whatever they are attending to in the world at the same time . The co @-@ variation detection model of joint attention seems problematic when we consider that many caregiver utterances do not refer to things that occupy the immediate attentional focus of infants . For instance , caregivers among the Kaluli , a group of indigenous peoples living in New Guinea , rarely provide labels in the context of their referents . While the covariation detection model emphasizes the caregiver 's role in the meaning @-@ making process , some theorists argue that infants also play an important role in their own word learning , actively avoiding mapping errors . When infants are in situations where their own attentional focus differs from that of a speaker , they seek out information about the speaker 's focus , and then use that information to establish correct word @-@ referent mappings . Joint attention can be created through infant agency , in an attempt to gather information about a speaker 's intent .

From early on , children also assume that language is designed for communication . Infants treat communication as a cooperative process . Specifically , infants observe the principles of conventionality and contrast . According to conventionality , infants believe that for a particular meaning that they wish to convey , there is a term that everyone in the community would expect to be used . According to contrast , infants act according to the notion that differences in form mark differences in meaning . Children 's attention to conventionality and contrast is demonstrated in their language use , even before the age of 2 years ; they direct their early words towards adult targets , repair mispronunciations quickly if possible , ask for words to relate to the world around them , and maintain contrast in their own word use .

= = = Emergentist coalition model = = =

The emergentist coalition model suggests that children make use of multiple cues to successfully attach a novel label to a novel object . The word learning situation may offer an infant combinations of social , perceptual , cognitive , and linguistic cues . While a range of cues are available from the start of word learning , it may be the case that not all cues are utilized by the infant when they begin the word learning process . While younger children may only be able to detect a limited number of cues , older , more experienced word learners may be able to make use of a range of cues . For instance , young children seem to focus primarily on perceptual salience , but older children attend to the gaze of caregivers and use the focus of caregivers to direct their word mapping . Therefore , this model argues that principles or cues may be present from the onset of word learning , but the use of a wide range of cues develops over time .

Supporters of the emergentist coalition model argue that , as a hybrid , this model moves towards a more holistic explanation of word learning that is not captured by models with a singular focus . For instance , constraints theories typically argue that constraints / principles are available to children from the onset of word learning , but do not explain how children develop into expert speakers who

are not limited by constraints . Additionally , some argue that domain @-@ general perspectives do not fully address the question of how children sort through numerous potential referents in order to correctly sort out meaning . Lastly , social pragmatic theories claim that social encounters guide word learning . Although these theories describe how children become more advanced word learners , they seem to tell us little about children 's capacities at the start of word learning . According to its proponents , the emergentist coalion model incorporates constraints / principles , but argues for the development and change in these principles over time , while simultaneously taking into consideration social aspects of word learning alongside other cues , such as salience .

= = Pragmatic development = =

Both linguistic and socio @-@ cultural factors affect the rate at which vocabulary develops . Children must learn to use their words appropriately and strategically in social situations . They have flexible and powerful social @-@ cognitive skills that allow them to understand the communicative intentions of others in a wide variety of interactive situations . Children learn new words in communicative situations . Children rely on pragmatic skills to build more extensive vocabularies . Some aspects of pragmatic behaviour can predict later literacy and mathematical achievement , as children who are pragmatically skilled often function better in school . These children are also generally better liked .

Children use words differently for objects , spatial relations and actions . Children ages one to three often rely on general purpose deictic words such as " here " , " that " or " look " accompanied by a gesture , which is most often pointing , to pick out specific objects . Children also stretch already known or partly known words to cover other objects that appear similar to the original . This can result in word overextension or misuses of words . Word overextension is governed by the perceptual similarities children notice among the different referents . Misuses of words indirectly provide ways of finding out which meanings children have attached to particular words . When children come into contact with spatial relations , they talk about the location of one object with respect to another . They name the object located and use a deictic term , such as here or " there " for location , or they name both the object located and its location . They can also use a general purpose locative marker , which is a preposition , postposition or suffix depending on the language that is linked in some way to the word for location . Children 's earliest words for actions usually encode both the action and its result . Children use a small number of general purpose verbs , such as " do " and " make " for a large variety of actions because their resources are limited . Children acquiring a second language seem to use the same production strategies for talking about actions . Sometimes children use a highly specific verb instead of a general purpose verb . In both cases children stretch their resources to communicate what they want to say .

Infants use words to communicate early in life and their communication skills develop as they grow older . Communication skills aid in word learning . Infants learn to take turns while communicating with adults . While preschoolers lack precise timing and rely on obvious speaker cues , older children are more precise in their timing and take fewer long pauses . Children get better at initiating and sustaining coherent conversations as they age . Toddlers and preschoolers use strategies such as repeating and recasting their partners ' utterances to keep the conversation going . Older children add new relevant information to conversations . Connectives such as then , so , and because are more frequently used as children get older . When giving and responding to feedback , preschoolers are inconsistent , but around the age of six , children can mark corrections with phrases and head nods to indicate their continued attention . As children continue to age they provide more constructive interpretations back to listeners , which helps prompt conversations .

= = = Pragmatic influences = = =

Caregivers use language to help children become competent members of society and culture . From birth , infants receive pragmatic information . They learn structure of conversations from early interactions with caregivers . Actions and speech are organized in games , such as peekaboo to

provide children with information about words and phrases . Caregivers find many ways to help infants interact and respond . As children advance and participate more actively in interactions , caregivers adapt their interactions accordingly . Caregivers also prompt children to produce correct pragmatic behaviours . They provide input about what children are expected to say , how to speak , when they should speak , and how they can stay on topic . Caregivers may model the appropriate behaviour , using verbal reinforcement , posing a hypothetical situation , addressing children 's comments , or evaluating another person .

Family members contribute to pragmatic development in different ways . Fathers often act as secondary caregivers , and may know the child less intimately . Older siblings may lack the capacity to acknowledge the child 's needs . As a result , both fathers and siblings may pressure children to communicate more clearly . They often challenge children to improve their communication skills , therefore preparing them to communicate with strangers about unfamiliar topics . Fathers have more breakdowns when communicating with infants , and spend less time focused on the same objects or actions as infants . Siblings are more directive and less responsive to infants , which motivates infants to participate in conversations with their older siblings . There are limitations to studies that focus on the influences of fathers and siblings , as most research is descriptive and correlational . In reality , there are many variations of family configurations , and context influences parent behaviour more than parent gender does . The majority of research in this field is conducted with mother / child pairs .

Peers help expose children to multi @-@ party conversations . This allows children to hear a greater variety of speech , and to observe different conversational roles . Peers may be uncooperative conversation partners , which pressures the children to communicate more effectively . Speaking to peers is different from speaking to adults , but children may still correct their peers . Peer interaction provides children with a different experience filled with special humour , disagreements and conversational topics .

Culture and context in infants ? linguistic environment shape their vocabulary development . English learners have been found to map novel labels to objects more reliably than to actions compared to Mandarin learners . This early noun bias in English learners is caused by the culturally reinforced tendency for English speaking caregivers to engage in a significant amount of ostensive labelling as well as noun @-@ friendly activities such as picture book reading . Adult speech provides children with grammatical input . Both Mandarin and Cantonese languages have a category of grammatical function word called a noun classifier , which is also common across many genetically unrelated East Asian languages . In Cantonese , classifiers are obligatory and specific in more situations than in Mandarin . This accounts for the research found on Mandarin @-@ speaking children outperforming Cantonese @-@ speaking children in relation to the size of their vocabulary .

= = = Pragmatic directions = = =

Pragmatic directions provide children with additional information about the speaker 's intended meaning . Children 's learning of new word meanings is guided by the pragmatic directions that adults offer , such as explicit links to word meanings . Adults present young children with information about how words are related to each other through connections , such as " is a part of " , " is a kind of " , " belongs to " , or " is used for " . These pragmatic directions provide children with essential information about language , allowing them to make inferences about possible meanings for unfamiliar words . This is also called inclusion . When children are provided with two words related by inclusion , they hold on to that information . When children hear an adult say an incorrect word , and then repair their mistake by stating the correct word , children take into account the repair when assigning meanings to the two words .

= = Vocabulary development in school @-@ age children = =

Vocabulary development during the school years builds upon what the child already knows , and the child uses this knowledge to broaden his or her vocabulary . Once children have gained a level

of vocabulary knowledge , new words are learned through explanations using familiar , or " old " words . This is done either explicitly , when a new word is defined using old words , or implicitly , when the word is set in the context of old words so that the meaning of the new word is constrained . When children reach school @-@ age , context and implicit learning are the most common ways in which their vocabularies continue to develop . By this time , children learn new vocabulary mostly through conversation and reading . Throughout schooling and adulthood , conversation and reading are the main methods in which vocabulary develops . This growth tends to slow once a person finishes schooling , as they have already acquired the vocabulary used in everyday conversation and reading material and generally are not engaging in activities that require additional vocabulary development .

During the first few years of life , children are mastering concrete words such as " car " , " bottle " , " dog " , " cat " . By age 3 , children are likely able to learn these concrete words without the need for a visual reference , so word learning tends to accelerate around this age . Once children reach school @-@ age , they learn abstract words (e.g. " love " , " freedom " , " success ") . This broadens the vocabulary available for children to learn , which helps to account for the increase in word learning evident at school age . By age 5 , children tend to have an expressive vocabulary of 2 @,@ 100 ? 2 @,@ 200 words . By age 6 , they have approximately 2 @,@ 600 words of expressive vocabulary and 20 @,@ 000 ? 24 @,@ 000 words of receptive vocabulary . Some claim that children experience a sudden acceleration in word learning , upwards of 20 words per day , but it tends to be much more gradual than this . From age 6 to 8 , the average child in school is learning 6 ? 7 words per day , and from age 8 to 12 , approximately 12 words per day .

= = = Means for vocabulary development = = =

Exposure to conversations and engaging in conversation with others help school @-@ age children develop vocabulary . Fast mapping is the process of learning a new concept upon a single exposure and is used in word learning not only by infants and toddlers , but by preschool children and adults as well . This principle is very useful for word learning in conversational settings , as words tend not to be explained explicitly in conversation , but may be referred to frequently throughout the span of a conversation .

Reading is considered to be a key element of vocabulary development in school @-@ age children . Before children are able to read on their own , children can learn from others reading to them . Learning vocabulary from these experiences includes using context , as well as explicit explanations of words and / or events in the story . This may be done using illustrations in the book to guide explanation and provide a visual reference or comparisons , usually to prior knowledge and past experiences . Interactions between the adult and the child often include the child 's repetition of the new word back to the adult . When a child begins to learn to read , their print vocabulary and oral vocabulary tend to be the same , as children use their vocabulary knowledge to match verbal forms of words with written forms . These two forms of vocabulary are usually equal up until grade 3 . Because written language is much more diverse than spoken language , print vocabulary begins to expand beyond oral vocabulary . By age 10 , children 's vocabulary development through reading moves away from learning concrete words to learning abstract words .

Generally , both conversation and reading involve at least one of the four principles of context that are used in word learning and vocabulary development : physical context , prior knowledge , social context and semantic support .

= = = = Physical context = = = =

Physical context involves the presence of an object or action that is also the topic of conversation . With the use of physical context , the child is exposed to both the words and a visual reference of the word . This is frequently used with infants and toddlers , but can be very beneficial for school @-@ age children , especially when learning rare or infrequently used words . Physical context may include props such as in toy play . When engaging in play with an adult , a child 's vocabulary is

developed through discussion of the toys , such as naming the object (e.g. " dinosaur ") or labeling it with the use of a rare word (e.g. , stegosaurus) . These sorts of interactions expose the child to words they may not otherwise encounter in day @-@ to @-@ day conversation .

= = = = Prior knowledge = = = =

Past experiences or general knowledge is often called upon in conversation , so it is a useful context for children to learn words . Recalling past experiences allows the child to call upon their own visual , tactical , oral , and / or auditory references . For example , if a child once went to a zoo and saw an elephant , but did not know the word elephant , an adult could later help the child recall this event , describing the size and color of the animal , how big its ears were , its trunk , and the sound it made , then using the word elephant to refer to the animal . Calling upon prior knowledge is used not only in conversation , but often in book reading as well to help explain what is happening in a story by relating it back to the child 's own experiences .

= = = = Social context = = = =

Social context involves pointing out social norms and violations of these norms . This form of context is most commonly found in conversation , as opposed to reading or other word learning environments . A child 's understanding of social norms can help them to infer the meaning of words that occur in conversation . In an English @-@ speaking tradition , " please " and " thank you " are taught to children at a very early age , so they are very familiar to the child by school @-@ age . For example , if a group of people is eating a meal with the child present and one person says , " give me the bread " and another responds with , " that was rude . What do you say ? " , and the person responds with " please " , the child may not know the meaning of " rude " , but can infer its meaning through social context and understanding the necessity of saying " please " .

= = = = Semantic support = = = =

Semantic support is the most obvious method of vocabulary development in school @-@ age children . It involves giving direct verbal information of the meaning of a word . By the time children are in school , they are active participants in conversation , so they are very capable and willing to ask questions when they do not understand a word or concept . For example , a child might see a zebra for the first time and ask , what is that ? and the parent might respond , that is a zebra . It is like a horse with stripes and it is wild so you cannot ride it .

= = = Pictures support = = =

Pictures support involves two memory techniques - association and visualization . Associating an image with a word helps a user learn word in a more effective way . Anshul Agarwal , Founder of dailyvocab.com mentioned in his interview to Career360 - " memory aid for each word help student learn words more faster and effectively "

= = = Memory and vocabulary development = = =

Memory plays an important role in vocabulary development , however the exact role that it plays is disputed in the literature . Specifically , short @-@ term memory and how its capacities work with vocabulary development is questioned by many researchers .

The phonology of words has proven to be beneficial to vocabulary development when children begin school . Once children have developed a vocabulary , they utilize the sounds that they already know to learn new words . The phonological loop encodes , maintains and manipulates speech @-@ based information that a person encounters . This information is then stored in the phonological memory , a part of short term memory . Research shows that children 's capacities in

the area of phonological memory are linked to vocabulary knowledge when children first begin school at age 4 ? 5 years old . As memory capabilities tend to increase with age (between age 4 and adolescence) , so does an individual 's ability to learn more complex vocabulary .

Serial @-@ order short @-@ term memory may be critical to the development of vocabulary . As lexical knowledge increases , phonological representations have to become more precise to determine the differences between similar sound words (i.e. " calm " , " come ") . In this theory , the specific order or sequence of phonological events is used to learn new words , rather than phonology as a whole .