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The Scents of the Child, Memory and Children's Books: Alternative Perspectives in Culture and Teaching Methodology

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Abstract

This study reflects on theories and practices of scented/smelly books as a phenomenon that could offer new perspectives on writing for children and creating children's books. This approach can be an alternative methodological tool for children's learning at school. Smell has a very high retention rate in the learning process that influences the memory of a story and its impact on children's imagination and experience of the world around them. This forgotten value in school textbooks can be re-examined by specialists. Scented books as a teaching strategy and a methodological tool reveal how children can represent memories and express themselves effectively in a language class through the use of smelly books. In our study, we expected children to remember the main or essential points as the core of story plots when scents were involved between the child and the book. Perfume literacy in children's books and the e-book industry serve as theoretical components in our study and are described in detail. It is true that civilization has cost people a valuable sense. A nose alphabet could also present things from different perspectives for young children.

Keywords: scented books, perfume literacy, nose alphabet, sense of smell

Introduction

"Smell
[..] is a highly elusive phenomenon. Odours, unlike colors, for instance, cannot be named – at least not in European languages. 'It smells like...', we have to say when describing an odour, groping to express our smell experience by means of metaphors. Nor can odours be recorded: there is no effective way of either capturing scents or

storing them over time. In the realm of olfaction, we must make do with descriptions and recollections."

(C.Classen, D.Howes&A. Synnott, Aroma: The cultural history of smell, UK: Routledge, 1994, p.3)

Compared with other functions, people rely very little on smell. Rather, we limit ourselves to perceiving the world with the help of vision and hearing, while we attribute a secondary role to smell; for example, we do not use it to find our way, nor to identify our match. However, babies recognize their mother by smell, and adults are subconsciously aware that a forgotten scent that suddenly enters their nostrils can evoke memories and intense emotions.

Scientists have tried to decipher the alphabet of odors. The discovery of odorant receptors spurred many new investigations into the mammalian sense of smell. When educators try to put this knowledge into the everyday life of schoolchildren, a lot of experimentation can occur (Ferrero et al, 2011).

Recently, U.S. researchers at the Medical Institute Howard Hughe at Harvard University, in collaboration with Japanese colleagues at the Life Electronics Research Center in Amagasaki, shed light on the secrets of smell. Investigating how the nose – which has a relatively small number of odorant receptors (proteins which are found in certain cells of the epithelium of the nasal cavity and which " capture " molecules arriving there) – is able to recognize and distinguish thousands of different odors, Professor Linda Buck and colleagues decoded the mechanism of smell. According to an article by the researchers in the journal «Cell», the sense of smell in mammals is based on a combinatorial approach to the identification and registration of odors. Instead of an olfactory receptor corresponding to each odor, the olfactory system utilizes an " alphabet" of receptors in order to create the identity of the smell perceived by the brain (Buck & Axel, 1991).

As Mrs. Buck explained, "any container used again and again in order to fix an odor , just like the letters used most often to form different words . As to the language, the system utilizes our olfactory receptor combinations (combinations correspond to words) so as to reduce the number of receptors (letters), that are needed to yield a wide range of odors,(vocabulary)".

Creating codes that result from the combination of simpler units is not unknown in nature. From the four 'letters' of the genetic code (A – adenine, T – thymine, G – guanine, and C – cytosine), an endless number of gene sequences is formed. However, this is the first time it has been demonstrated how the nerve cells that make up the mammalian olfactory system use the same approach. The input from the millions of sensory cells in the nose creates an electrical pattern in the olfactory bulbs, which act like a switching station. From there, the messages containing coded smell information are relayed to various parts of the brain. Many of the nerve pathways lead to the temporal lobe, which stores memories, while others connect

with the most ancient parts of the brain that deal in the traffic of emotions, sex, appetite and survival behavior. We sense the smell of fear and other emotions. The researchers are discussing this option to identify genetic signatures in the neurons involved in fear responses. If they find unique molecular signatures for these specific neurons and if those signatures occur in humans too, such discoveries could lead to a better understanding of stress disorders, such as PTSD and depression, Buck noted, and perhaps even point to novel targets for therapeutics (2016). In the future, this can change all we know about children's literacy, human knowledge, and the interpretations of children's books. There is already evidence suggesting that other scents, like rose oil, can block the fear response to predator odors. Buck's research team is currently working to uncover the neurons that could suppress stress hormones and the fear response in rodents. (Kunio Kondoh, Zhonghua Lu, Xiaolan Ye, David P. Olson, Bradford B. Lowell and Linda B. Buck in *Nature.* Published online March 21 2016 doi:10.1038/nature17156).

Ethnographic data on how children learn illustrate that smell terms have detailed semantics tapping into broader cultural constructs. Contrary to the widespread view that languages cannot encode odors, the Maniq data show odor can be a coherent semantic domain, thus shedding new light on the limits of language (Wnuka & Majida, 2014). The recognition of the existence of the alphabet enabled U.S. researchers to provide answers to practical questions. Scientists observed that molecules with a similar chemical formula activate different combinations of cells in the olfactory epithelium. This explains why octanol smells like orange, while octanoic acid smells sweet. Correspondingly, it has also been observed that increased concentrations of the same substance trigger a greater variety of cells of the olfactory epithelium. As Ms. Buck, the Nobel laureate in odour science, characteristically said, " It is a matter of the alphabet ." This notion inspired us to try a kind of odour alphabet for children who are learning to read.

Creating the ABC of Our Nose as Readers

From ancient times and the Greek philosopher Plato until a few decades ago, there was a common belief that the experience of a smell is impossible to put into words. But the studies confirming the observations of scientists have focused on participants from urbanized Western societies. Cross-cultural research suggests that there may be other cultures where odors play a larger role in learning and education (Burenhult &Majid 2013, Fendt at al., 2016, Classen at al, 1994).

In recent years, Professor Linda Buck and colleagues, posing a series of logical questions, unraveled the tangle of smell, culminating in the discovery of the alphabet. According to an American researcher, their main goal was to investigate the mechanisms and strategies used by our olfactory system to understand smells. Thanks to their efforts, we can now follow the path of odor from the nose to the nerve centers of the brain: as scents entering the nose meet the olfactory epithelium, a cell layer lining the nasal cavity. It is estimated that about five million olfactory

nerve cells are located in the olfactory epithelium. On the surface of each of these nerve cells is only one out of 1,000 different types of olfactory receptors. The recruitment of odor receptors therefore leads to the activation of nerve cells and the transmission of their signals to other nerve cells in the olfactory bulb (Buck 1991, 2016, Doty & Laing, 2003).

It is a brain structure that is the focal point for the perception of odors. From there, the signal travels along neural pathways to the cortex, which manages conscious processes, and to the centers of the brain that are associated with the creation of emotions. This explains why an odor, besides conveying factual information, is able to awaken emotions as well. For example, the smell of hot milk probably takes adults back to their childhood, (LeDoux,2012 Datta at al, 2011). It is worth noting that the structure of the nerve cells at the different levels of the olfactory system is different. Thus, in the olfactory epithelium of the nose there are four different areas, in each of which olfactory nerve cells with characteristic olfactory receptors are randomly distributed. In other words, an olfactory receptor is found in only 25 % of the nasal epithelium, but within this zone its location is random. Then, however, information from all the olfactory nerve cells with identical receptors is concentrated in the same places in the olfactory bulb, (Brookes at al 2007).

According to Buck , the dispersion of receptors in the epithelium , preserving the sense of smell in cases where a portion of the damaged (for example , after an infection), while at the same time, the convergence of messages from thousands of olfactory cells with the same receptors in certain parts of the brain increases our sensitivity to low concentrations of odors and allows detecting odors even when they are in the environment at low concentrations. Through her research which was for many years, Buck was able to determine how the brain processed different types of smells. She made a portrait of how the brain's olfactory bulb functioned. In 2004, Buck and Axel were named co-recipients of the Nobel Prize in Physiology or Medicine "for their scientific achievements as odorant receptors and the organization of the olfactory system. In 2008 Avery Gilbert gives us a more detailed guide of information about " What the Nose Knows: The Science of Scent in Everyday Life".(Gilbert, 2008).

Introduction

In Greek folk wisdom, smell is associated with higher mental functions, such as perceptual ability and understanding. The allegorical Greek expression " got someone or something scent ' (:*τον πήρε μυρωδιά, το μυρίστηκε*, ton pire mirodia, to miristike) characteristically confirms this view. Smell is ' captured ' by the nose, which is the sense organ of smell, the sense that protects the body from harmful odors, such as poisonous gases (Kratskin & Belluzzi, 2003). On Creta island in the Mediterranean area, there is an unusual formulaic phrase, uncommon in the rest of Greece, used to express the verb "I smell" in the words: " I hear smells". This can

involve a more detailed aspect of the way other senses, such as hearing, serve olfaction.

The process, though considered simple, is based on a specialized structure designed to rapidly capture and transmit olfactory stimuli. Specifically, upon inhalation, aromatic molecules of various odors dispersed in the air enter the nasal cavity. Aromatic molecules stimulate the hairy body area, which stimulates pulsed olfactory neurons. These transmit successive stimuli to the olfactory bulb, from which olfactory nerves travel to different brain centers where their identification determines the reactions of the organism to them (Firestein 2001).

Human memory has the ability to record a large body of odors, which it retains for a very long time, arranging them into pleasant or unpleasant/harmful and linking them by association with incidents of everyday life, people, or environments. This can make reading literature that involves scents a very personal issue. The ability to smell is a normal function (Kaiser, 2006).

Scents are a cultural component of understanding the world around us: Historical references, (Keller &Vosshall 2004, Burr 2003) emphasize the use of perfumes in antiquity for perfuming a place of worship or halls. References e.g. divination in the stifling atmosphere of incense or the Function Rooms, mysteries or symposia in which herbs from different parts of the then known world flooded the atmosphere, are the texts of many writers of antiquity. As we already noted the olfactory stimuli leaves strong and lasting impressions mnemonic. In fact, it seems that exploited and ecclesiastical environment where incense is one of the ' raw materials cults ' implies how often a student may like going to the church. How can the scents of the church influence the memorization of the story plot and how much the reader liked the story? It may depend on the feelings of the reader for the implied smell in the story and the relationship of the reader with this smell in real life, (Ferrero at al 2011).

Something similar happens in all places of worship—Christian churches, mosques, and temples of all religions, especially ancient Eastern ones—where all the senses are stimulated simultaneously, immediately upon entering such spaces. Statues, paintings, beautiful architecture, or elaborate utensils attract the eye, creating admiration. Melodic sounds delight hearing, and the scent of incense and offerings of flowers with intense fragrance permeate the atmosphere, stimulating it with a pleasant smell. At the same time, the sense of touch from being barefoot creates feelings of hospitality, security, and warmth. Finally, the sense of taste is pleasantly stimulated as believers partake in an ecstatic ritual of a thanksgiving character, (Menashe at al, 2003).

The cultural component of the ecclesiastical model of freshening indoor places of worship, bringing together several dozen believers for a reasonable period, seems to be adopted today by the modern way of organizing the workplace, living spaces, commercial stores, and children’s books. The trend of freshening areas tends to

spread to open shops, services, etc. The long coexistence of workers in the same place inevitably creates odors. Such an atmosphere does not contribute positively to the development of a healthy communicative framework.

A "smelly" workplace, for example, discourages cooperation among employees. Something similar would happen in a home environment, where guests will be looking to leave despite the time. Similarly, a commercial-economic environment, such as a shop selling goods or a bank branch, may repel customers, possibly because they would associate it with negative connotations and their unpleasant experiences, (Schilling at al, 2010).

Especially for scenting premises, a huge chemical industry has developed with various aromatic and deodorant formulations for every taste, because it has been observed that each person expresses a different preference for a particular type of deodorant perfume, which they, of course, choose. The same applies to the choice of fragrance to deal with body odors, as we saw above.

There is a consensus that scent is associated with something pleasant, healthy, safe, harmless to health, and generally with positive emotions, as opposed to stench, which usually emerges from deterioration and rotting. So, by association, smell is associated with life and stench with death. This association explains why the modern fragrance industry and its products worldwide are welcomed, extending into more and more consumer goods. The olfactory sense captures pleasant odors, which it connects joyfully with the past or accepts as unprecedented. In a way, seductive scents work well; they not only attract attention to their emission sources but also affect the purchasing consumer. Commercially, for example, areas of shops are scented, while the goods themselves emit a smell. The smell of new clothes and shoes is typical. The smells in the detergent section of stores, from cleaners or deodorants for any space or object, are pronounced, as dozens of perfumes diffuse at the same time, which are chemical imitations of fruits, flowers, or herbs for every taste. In the realm of the daily diet, intense natural or artificial odors diffuse as flavor enhancers, given that taste is associated with olfaction. Baked goods and pastries, coffee, tobacco, gasoline, books, and newspapers each emit a unique natural aroma, a distinct smell, which is certainly stronger in the sales area of each product. Could we predict a book's sales success from its odor? This could be one of the reasons that readers like reading a storybook, especially in the children's industry, (Keller at al, 2007).

Each room has its own distinctive odor depending on the items or products it contains. It is possible, in our opinion, that the classroom could affect children's willingness to read stories, or does the school function in this way? Every person or every house smells differently. But how "different" is the atmosphere among butcher shops, fishmongers, pharmacies, hospitals, schools, cafes, libraries, clubs, casinos, electrical goods stores or automotive dealerships, hair salons, hotels, police stations, barracks, canteens, restaurants, and transportation? Do odors differ in each room, or

does this occur because of the different olfactory capacity of each individual? Scientifically, we raise a number of questions that the modern science of neuropsychology investigates, providing more enlightening answers, and education can take advantage of them or utilize this evidence in teaching methods for an unseen emotional and mnemonic alphabet—a language of odours.

In the education sector, products of the fragrance industry have already penetrated, aimed, of course, at sales and profit. Erasers with varied and pleasant aromas, markers with fruit flavours or aromas of flowers, stationery, etc., are some stationery items that attract the attention of children, who 'convince their parents to buy them regardless of their usefulness or appropriateness. In the electrical goods trade, attempts are being made—if not already achieved—to manufacture televisions and computers which, apart from image and sound, will emit odors, so that in this way the viewer or operator may experience multisensory ' virtual reality '. The automotive industry has already tapped this ' aromatic power ' in order to attract the buying interest of customers for cars whose cabin is appropriately fragranced to engage the buyer's preference. This use of ' aromatic power ' is also utilized in the most profitable way in aromatherapy programs, which " sell " fragrances for mental well-being, physical relaxation, and relief from daily stress, (Roberts&Williams 1992).

We mostly followed the examples of earlier scientists who had twenty-two subjects visualize positive and negative phrases following exposure to either chamomile oil or a placebo. Chamomile oil significantly increased the latency for all images and shifted mood ratings and frequency judgments in a more positive direction, suggesting a possible mode of action for such oils. Also, in other cases of experiments with children on reading and memorizing the plot, subjects were involved and fragrances were used for this purpose, (Roberts & Williams 1992, Smith, 1992). We also tried to use stories that children could be interested in and to present them in a play-training project in reading classrooms.

Our Hypothesis:

1. Normally, olfaction can help children in the memorization and understanding of a story,
2. Scents can help express a detailed narration in context.
3. Fairy tales may have scents in descriptions and function characteristically in Greek Literature.

Our Method

Ideas for engaging students' sense of smell as they explore the world include the *Safe Smelling Method of wafting (waving) an odor towards a nose* with the hand instead of sniffing directly from a container. This sensory method was used in order to detect pleasant odors for the children who participated in our study. These scents were

included in reading material through storytelling, listening, and reading fairy tales in two ways: scents as a physical presence in the room/classroom and scents in the symbolic language of the book (story heard or read).

We encouraged children to tell a story without the stimulation of scents and then with it, so as to find differences or changes in their speech (oral or written).

Another study of how smells function in typical fairy/folk tales from the Greek geographical region gave us enough teaching material for the case.

Duration of the Study

Three months, (From September to December 2014) and three months for testing the memory in relation with the story for a longer period of time, (January to February 2015).

Place: A typical classroom where we used an aromatherapy device with scents that children like (chocolate, vanilla, strawberry, bergamot, lemon, apple) and that are known to aid relaxation, concentration, and memory (basil, rosemary, geranium, jasmine, rose, neroli, ylang ylang). Before each session, we opened the windows for fresh air and created the scents of memory at the first level and the odors of the story at the second level.

Description of the Study

Initially, there was only one vivid scent connected to a story. Children who were between 8-10 years old, as an experimental group of 60 persons in comparison with a group of the same size at the same school, seemed to recall more information in the presence of scents than without scents (short-term memory). After the passage of months, they remembered a more detailed and richer narration of a story when the scent was present in the room, which indicates a connection between verbal ability and the stimulation of the sense of olfaction.

We also tried to see whether this verbal capacity is affected in writing. This is why we asked the children to write the story instead of telling it. Writing involved fewer mistakes in syntax and morphology and a better vocabulary. The content of the story had episodes with detailed descriptions of pictures and characters, and the children tended to involve other senses in their writing (what the hero looked like, what was heard at a moment). Especially for children with low assessment scores, the results show that the senses can help achieve a better linguistic result in terms of multisensory education by introducing smelly books to young readers and writers. Plot, characters, places, time, and incidents of the story were examined in particular items of the children's language. In many ways, the children's expressions were borrowed from the stories we worked on during the first three months of the experiment.

Examples of children's language in children's discourse analysis:

"The bird had the glance of the grass as it smells early in the morning moist" (Andreas 9).

The burning fly donated to the hot air a scent of freedom. When the prisoners in the cave smell it, they escaped (Sophia 10) before they put in a tomb their chains of slavery and promised each other to live happily ever after.

"Get out of here you stink as a badger (8, Marissa)

-But I am a badger"/ Can you tell me how it smells?.. (Orestis 10)."

The sun smells like a lemon (8, Maria)

"The hawk smelled the fear of the bee and helped her find the treasure in the precious egg- looking flower". (Alexandros, 9).

Discussion -Conclusions

1. From the above remarks and our experimentation with scents in class, it follows conclusively that olfaction is a sensation that probably contributes to the realization of non-verbal communication. It relates both to protecting the individual from biological threats and to developing psychological and emotional bonds, which can be reflected in language communication whenever scented literature is involved. It therefore appears that smell can be utilized in various communication environments and diverse circumstances. As mentioned in the section on flavor space, materials and body, the production and use of chemical olfactory stimuli has already become well established in the everyday life of the consumer, consciously contributing to merchandising, marketing, and promoting over-consumption and therefore profit.

2. Smell is involved in trade marketing and is a fundamental component of interpersonal relations, the signing of agreements, politics and diplomacy, fun, the desire to reside or stay in a certain room, etcetera. It can be an educational good and an artistic link between the child and the book in school settings.

Smell is so heuristic in its function that it could be effectively utilized for better adaptation to diverse environments, and even in places where many people come together, such as public services, hospitals, asylums, etc. It could be harnessed systematically, including in education, either as a reinforcing agent in the context of the sensory acquisition of knowledge or as a means of employing deodorants to address odor, which creates positive feelings and therefore attracts children to the area of learning and education, if the right communication environment is configured.

3. It could finally be used more systematically in the sphere of bodily hygiene, aesthetics, educational and cultural areas, and in health more widely, read in conjunction with the application. As we saw above, more and more research in this

area highlights the psychosomatic, therapeutic, and intelligence effect of perfume, especially natural, which can both relieve students' stress and create a sense of security for children in learning environments. Spearheading the new initiative as a strategic partner is experimental psychologist Professor Charles Spence (2007), who runs the Crossmodal Research Laboratory at the University of Oxford. Toby Hoare, CEO of JWT Europe, called sensory marketing "something different and increasingly relevant". Professor Spence worked with JWT to evaluate and develop a multitude of sensory marketing implementations, including tactile packaging design, color choice, scent, and sound/music. Our opinion is that such an experimental use could be a teaching strategy for a language and literature approach. Spence has consulted for Unilever, Toyota, Starbucks, VF Group, and Nestlé on multi-sensory design, branding, and communication. Some of Spence's previous work has focused on designing foods to optimally stimulate the senses and on the effect of the indoor environment on people's mood, performance, and well-being. He has also investigated cross-modal ideas, where sensory input is associated with an entirely different sense. For example, one of his lectures asked, "Are lemons fast or slow? Is carbonated water round or angular?" Universally, people tend to answer that lemons are fast and carbonated water is angular, as they associate the taste with other sensations (speed or shape). The Hello Kitty products, such as a scented book, are only an example: an industry of books and other products for children has been produced. We find advertisements that call children to "Just touch the surface of the spine of each chunky board book to release the cherry scent". (http://smellessence.wordpress.com). Scratch-and-sniff, as a handmade book prepared by teachers, is also an example. The scratch-and-sniff project in reading classrooms could be an experiment for many schools.

The Study's Sequence In 2016

In our example, we involved two groups of children of the same age (8-10), and we asked the children to retell a story first when smells in the room were not involved, and afterward when favorite odors were used for exactly the same procedure with the same children and similar stories in vocabulary, complexity of episodes, number of characters, and length of sentences. Stories were of the same difficulty, and the only parameter that changed in the procedure was that of odor involvement. Favorite odors had been selected beforehand in a process of interviewing them, and the children had the chance to try perfumes in order to select the three favorite ones. An otolaryngologist also checked for problems in detecting smells within the study group.

Study's Limitations

A limitation of the study as well as of the experimentation was the possibility of health problems, such as allergies to scents or *anosmia* (which can be detected at the scent of Moschos/musk at 10% of population that shares the problem), a phenomenon related to the human capacity to interact with scents, or children

having health problems temporarily with making sense of smells (such as a common cold or a flu). Anosmia can be caused either by a severe head injury or even from a viral infection (Crawford & Sounder, 1995. Gillyatt, 1997). Gender is also a factor that creates differences in the olfactory ability of people. Girls are, as our research and others have shown, more sensitive to odors and therefore exhibit greater olfactory ability, which can perceive even the impending danger from natural disasters (Ackerl et al., 2002).

The use of smells in our study turned out to be an advantage for children who have a physical skill in recognizing scents or who are socially aware of scents in the environment from their earliest years (this can be shown from interviews with parents about family habits in cooking, cosmetics and the importance of scents in their discussions).

More Results

Children's scent awareness can prove to be an advantage in the case of using odors in reading books at school, but not for children with a problem in their sense of smell, whether temporary or permanent. This means that it can be used as an alternative method of learning, but not as the only one. Odors and children's memory were checked a month after the first application of the experiment: it became clear that scents are important for children in order to demonstrate what happened in a story and to remember characters, plot, places or time incidents. Although it is not clear how gender and children's previous engagement in scent issues influence their language communication while representing a smelly story, it is true that they prefer smelly storybooks to non-smelly ones, as they told us (56 of the 60 persons), and they are more involved in stories that denote or express scents in storytelling or writing for children (54 persons).

Suggestions-Discussion

Smell essence is a typical leading publisher of 'scented' books for children that are fun, engaging and encourage children to read. This new and exciting technology involves children in the story, as we noticed, and allows them to interact with the books on a multisensory level. Children love books that make them laugh and yet will subtly take them on a journey.

The *Fabulous Scented Books* range, using a certain patented technology to engage and educate children, is another suggestion for developing literacy through the senses in class. Some funny stories with a character named *Theo*, the little dog who loses his family, provide an example of a book used as a global teaching tool. The book "helps" the dog find his sense of smell so as to find his family, and pictures assist in this process as an activity book for children. Hyde wrote a series of six books, beginning with Mo Smells Red. Her latest is Mo Smells Pink, in which the dog, Mo, smells pink grapefruit bubble bath and pink peppermint ice cream, among other pink things. She tried to use scents that would be safe and hypoallergenic for

children, and she settled on essential oils. The oils are dispersed through a "Press 2 Smell" technology developed by Hyde that holds the scent until pressed. Each scent can be pressed up to 150,000 times. This example showed us that in a different culture, these approaches can be adapted to the cultural influences of the teaching strategies and environment.

In addition to the general children's market, our study agrees with the suggestion that the books have had a great reception from learning-disabled and autistic children. Research has shown that they react very positively to multi-sensory experiences and are able to learn better when more senses are used[1].

Although smelly books are not available in all languages and cultures, teachers can create handmade storybooks as teaching tools using culturally and geographically common smells, or select their own alphabet where each smell reminds us of a letter of the alphabet.

The area which we introduce and encourage is rather a new in educational experimentation in Greek Schools and the educational tools which help children summarize or recall a story from the smell that reminds a plot or certain episodes of a sequence in a storyline. We assume that there are probably as many alphabets of odors as the cultures and each one of us can affect in creating such a production.

Authors publishing and educators teaching their own *Scratch and Sniff Smelly Book* is a step toward exploring what works in children's memory when other strategies for remembering certain details of a cognitive procedure collapse as a methodology. We suppose that our world would probably be an impoverished world if there were no teaching activities incorporating the possibilities of an olfactory world.

Educators and language researchers can think of all the wonderful 'smells' associated with preparing, cooking and eating food. Children as students or simply as explorers of language, especially younger writers, can add scented ink to books if their teachers are aware and willing to try what really works in language learning in terms of multisensory memory and cognition. The more senses we use, the more real the experience is, just as the father of pedagogy, Friedrich Froebel, has encouraged educators since 1800 to use children's play as a freedom to learn, (Liebschner 1992). Humans have four genes for vision, whereas there are 1,000 allocated to smell, which means we have the ability to utilize this opportunity and differentiate more than 10,000 combinations of smells. This information contributes ideas to the process of searching for teaching methodologies and classroom applications. Perhaps a children's scratch-and-sniff book, cookbook, holiday book, gift book, textbook, promotional book, new product announcement, wedding book, travel book, or many other creative ideas can help educators explore how memory works in learning from their experience with children. Scented products and book creations often draw on the most powerful of the five human senses, both in

marketing for the hobby of reading books at home and in education as a teaching methodology for sensory language items[2].

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