



Supplementary material for the CHI 2014 Paper

Opportunities for Odor: Experiences with Smell and Implications for Technology

Overview on the 'smell story' categorization (N = 439), including all 10 categories and 36 sub-categories, including example story titles, qualities of the smell (qualitative/affective terms), experienced emotions, and one full smell story per category.

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More information can be found on <http://www.multisensory.info/>

Category 1	Associating the past with a smell
Category 2	Remembering through a smell
Category 3	Smell perceived as stimulating
Category 4	Smell creating desire for more
Category 5	Smell allowing identification and detection
Category 6	Overwhelming power of smell
Category 7	Smell invading private and public spaces
Category 8	Social interaction is affected by the smell
Category 9	Smell changed mood, attitude, and behavior
Category 10	Smell built up and changed expectations

Associating the past with a smell

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell is associated with...	(157)			
...a person	24	The Scent of Unrequited Love; My grandmother's blankets; Starbucks and Katie	fresh (38%), reassuring (38%), sweet (38%) / happiness (46%), nostalgic (42%)	happy (58%), relaxed (38%)
...a first time encounter with a person	9	First Meeting; Smelling Love; The Smell of His Hair	attractive (78%), fresh (67%), seducing (67%) / romantic (78%), sensual (67%), sexy (67%)	happy (78%), excited (67%), aroused (56%)
... a location	22	Grandma's House; The Smells of Paris; My Friend's House	heavy (32%) / nostalgic (50%), happiness (36%)	calm (41%), joyous (41%), pleased (41%)
...a negative event/episode	15	Car Crash; First Time At The Nursing Home; The Essence of Surgery	nauseous (47%), penetrating (47%), heavy (33%) / sickening (60%), disgusting (47%)	disgusted (40%), worried (40%), distressed (33%)
...negative life event	8	When My Mother Died; Heartache and Pain; The End of His Life, Beginning of Flowers.	heavy (50%), foul (38%), penetrating (38%), persistent (38%) / sickening (63%), dissatisfying (38%)	sad (100%), depressed (88%), afraid (75%)
...a new beginning	3	Fresh Start; New Beginnings; First Day of Work	harmonious (67%), healthy (67%) / happiness (67%), invigorating (67%)	courageous (100%), happy (100%)
...a positive event/episode	57	My First Sporting Event; The Hot Illinois Summer; Disneyland	fresh (42%), reassuring (40%), mouthwatering (35%) / happiness (60%), nostalgic (56%)	pleased (65%), happy (63%), peaceful (54%)
...a positive life event	8	New Home; New House Smell; Wedding Day	attractive (38%), fresh (38%) / clean (75%), happiness (63%)	delighted (63%), excited (63%), happy (63%), pleased (63%)
...a tradition	6	The Smell of Thanksgiving; Family Pizza; Christmas Eve	mouthwatering (67%), sweet (50%), persistent (33%) / happiness (100%), excited (50%), invigorating (50%), nostalgic (50%)	content (83%), happy (83%), joyous (83%)
...an achievement/success	5	Scent of Published Book; The Smell of a New Car; New Car Smell	fresh (80%), distinguished (60%) / clean (100%), excited (60%), happiness (60%)	confident (80%), excited (80%), joyous (80%), adventurous (60%), enthusiastic (60%)

#488

Fresh Start

"I was taking a job in a new city. I had interviewed a few times with the manager of our team over the internet and was confident in being able to handle the new position. I needed to go out to actual meet him face to face though. I took a plane trip across the country and the moment I took a step off the plane and took a deep breath will always stick with me. It felt so clean and the air actually smelled fresh and new. I will remember that for the rest of my life."

Context

Social	A group of strangers
Place	In a public building or in a stranger's home: "Airport in Portland Oregon"
Time	7 years ago
Age	33
Gender	male

Remembering through a smell

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell made me remember...	(40)			
...a location	3	Rainy Smell; The Timeshare; New Scent for Hawaii	fresh (67%), soft (67%) / clean (67%)	feel well (67%), pleased (67%)
...a person	6	Grandmother's Cookies; Grandmas perfume; Mom's Pumpkin Pie	sweet (83%), reassuring (50%) / nostalgic (67%)	peaceful (67%), calm (50%), pleased (50%)
...childhood	17	My Playhouse; Mom's Wonton Soup; The Smell of Christmas	sweet (47%), reassuring (35%), spring (35%) / nostalgic (82%), happiness (71%)	happy (71%), glad (59%), pleased (59%)
...old times	4	Christian Dior; Christmas Perfume; The Smells of Target	fresh (75%), attractive (50%), childish (50%) / invigorating (50%), romantic (50%), sensual (50%)	happy (100%), relaxed (100%), light hearted (75%)
Smell triggered a flashback	10	My First Love; Summer Fling; The Wafting of a Lost Love	feminine (50%), fresh (50%), sweet (50%) / nostalgic (80%)	happy (50%), pleased (50%)

#630

My First Love

“I was in college and there was someone I really liked. We started flirting around and I was asked up to their room. One thing led to another and we made out. I was the next day, when I was walking through the local Macy’s that I smelled something that threw me back into that situation, I could feel and see everything that had happened the day before when I smelled a perfume in the store. I later found out that it was the smell that my friend wore.”

Context

Social	Several friends / family members / acquaintances
Place	In a public building or in a stranger’s home: “Macy’s perfume counter”
Time	18 years ago
Age	38
Gender	male

Smell perceived as stimulating

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell perceived...	(62)			
...the first time	16	My First New Jersey Bakery Experience; My First Indian Dining Experience, Tornado Smell	fresh (44%) / desirable (50%), stimulated (44%)	delighted (56%), happy (56%), enthusiastic (50%), satisfied (50%)
...from perfume	7	J'adore Perfume; Girls Who Smell Like Candy; The Ingrained Scent	erotic (71%), seducing (71%), attractive (57%) / desirable (86%), invigorating (86%), sensual (71%)	calm (57%), excited (57%), interested (57%), joyous (57%), passionate (57%), peaceful (57%)
...from food	19	Slice of Heaven; Morning Bacon; Clam Box Smell	mouthwatering (63%) / desirable (42%), happiness (42%)	happy (74%), pleased (53%)
...from nature	20	Inhaling the Ocean; Fresh Rain; Grass	fresh (65%), pure (50%), spring (45%), soft (35%) / clean (45%), happiness (45%)	happy (75%), peaceful (70%), pleased (65%), serene (60%)

#713
Tornado Smell

“I never felt smell I smelt before a tornado hit my hometown. It was similar to smell before rain but had a certain sharpness to it, as if to warn of the incoming danger. I felt like i knew this smell but at the same time, it felt foreign to me. It wasn’t a bad smell, it was just slightly unfamiliar.”

Context

Social	Several friends / family members / acquaintances
Place	In my own home: “A few friends were at my home”
Time	3 years ago
Age	24
Gender	male

Smell creating desire for more

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell...	(48)			
made me fancy something	7	In Search of the White Honeysuckle; Cupcakes; The Best Perfume	sweet (43%) / desirable (43%), happiness (43%)	pleased (71%), elated (43%), peaceful (43%), relaxed (43%)
made me realize something	2	My Dad is a Pothead; Scent of Skin	"-" / pleasantly surprised (100%)	amused (100%), attentive (100%), happy (100%), joyous (100%), peaceful (100%)
triggered an action/ activity	12	Banana Bread Joy; A Surprising Gift From a Houseplant; From Smelling to Dating	fresh (67%), sweet (67%), attractive (58%) / happiness (42%)	happy (58%), interested (58%), excited (50%), pleased (50%)
triggered appetite	13	The Power of Pizza; Barbecued Ribs; The Bacon Experience	mouthwatering (85%), fresh (46%), like (46%) / desirable (54%), salivating (54%)	happy (62%), satisfied (54%), delighted (46%), excited (46%)
triggered reflection	1	The Scent of Moving On	beneficial, penetrating, persistent / clean	afraid, alarmed, anxious, desperate, discontented, gloomy, sad, tired, uncomfortable
triggered the sensation of newness	13	New Laptop; That Book Smell; New Car	pure (38%), attractive (31%), dynamic (31%) / invigorating (54%), refreshed (54%)	happy (92%), delighted (77%), excited (77%), joyous (69%), pleased (69%)

#672

The Scent of Moving ON

"One of the most memorable smells I've had to date was the odor that permeated the funeral home my grandmother was prepared in. The sharp semi-acidic tang of the embalming fluids combined with the plethora of babies breath flowers and other heavily scented objects in the room. You could pick out the alcoholic perfume they had picked out to mask the scent of a decaying cadaver as well as the scent of whatever they used to sterilize the floors. The way they combined put together a rather odd feeling related to those smells, one of this is where everything ends. It was one of those scents that rampantly remind one of their own mortality and just how many other people had gone through this exact same process beforehand. It was, after reflecting on it, the smell of moving on."

Context

Social	Several friends / family members / acquaintances
Place	Some other place: "We were at the funeral home my grandmothers body was being prepared at for her last viewing before burial"
Time	14 years ago
Age	27
Gender	male

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell allowed me...	(11)			

[5]

Smell allowing
identification and
detection

to identify and detect something	Gas Leak, Hearty Marinara vs. Regular Pizza Sauce How I Tell The Difference; The Smell in the NICU	penetrating (36%) / unpleasant (36%)	annoyed (27%), attentive (27%), excited (27%), happy (27%)	#801 <i>Don't forget to check your gas stove before you leave the house</i>
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“When I was in college. I had an apartment with a gas stove. One day when I came home, as soon as I walked through the door, I could smell that the whole place was full of gas because I had accidentally left the stove on. I was prettyscared at the time, but luckily nothing bad ended up happening.”

Context	
Social	Nobody
Place	In my own home: "It happened in my apartment in Manhatten, KS"
Time	12 years ago
Age	35
Gender	male

Overwhelming
power of smell

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell...	(37)			
...overwhelmed me	22	The Smell of Death and Dumps; First Day in Rendering; The Chocolate Factory	foul (68%), nauseous (59%), penetrating (55%) / disgusting (77%), sickening (64%), dirty (55%)	disgusted (64%), uncomfortable (55%), taken aback (45%), miserable (41%)
...traumatized me	15	Visit to a Local County Jail; Smoldering; The Smell of Death	nauseous (67%), penetrating (67%), heavy (60%) / disgusting (67%), sickening (67%)	uncomfortable (60%), miserable (53%), disgusted (47%), distressed (40%), tense (40%)

#605
Visit to a local county jail

“As part of a research project, I visited a jail in a small county in Southern California, and this was my first time at a jail. My guide warned me ahead of the time that it was going to be a little foul in there, but nothing could have prepared me for the obscenely acrid stench of hundreds of men crammed into every available space of the jail, right down to windowless storage rooms converted into more cells. There was no air conditioning and it was a warm day in June, so the stink pervaded the place and seemed to envelop me and seep into my pores. For days afterwards, I couldn’t shake the smell. It would come to me out of nowhere, more vivid than anything I had seen. There weren’t enough showers to take it away. It’s been several years since then, and my memory of that smell is just as strong as ever.”

Context

Social	Others: staff member I had just met
Place	In a public building or in a stranger’s home: “A small county jail in Southern California”
Time	4 years ago
Age	29
Gender	female

Smell invading private and public spaces

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell invades...	(32)			
private space	22	Sewer backup; Cat Poop Emergency; The Garbage Day Scent	stinky (77%), foul (73%), penetrating (64%) / disgusting (68%), sickening (64%)	disgusted (59%), uncomfortable (59%), distressed (55%)
public space	10	The Customer May Be Right But the Stench Isn't; Race Track; Rotting Carcass Overwhelms Everything	heavy (90%), stinky (90%), foul (70%) / disgusting (70%), sickening (70%), dirty (60%)	disgusted (80%), miserable (50%), taken_aback (50%), uncomfortable (50%)

#530
Don't want to smell that twice!

"I woke up one morning suddenly confused and was hit with an odor so horrible I couldn't figure out what it was. My first thought was something was burning but my husband came up the stairs saying it was a skunk under the porch. It was not like the smell you get a whiff of when a skunk stinks up the outdoors, no this was something so incredibly overwhelming. My dog wouldn't eat his breakfast and I had to take it outdoors before he would eat or drink. It was impossible to stay inside. We opened all the windows and doors, plugging in fans everywhere and went out to our shop behind the house to spend the day. The smell lingered for hours."

Context

Social	A partner / friend / family member
Place	In my own home: "In my house."
Time	11 years ago
Age	50
Gender	female

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell is affecting...	(11)			

[8]

Social interaction is affected by the smell

social interaction

I Can’t Smell You; Stinky Pits; Dragon Breath Teacher

stinky (73%), foul (64%), heavy (55%), / disgusting (73%), dirty (45%)

uncomfortable (55%)

#744
Dragon Breath Teacher

“Once a teacher yelled at me during class. She got so close up into my face that I could smell her bad breath. This made the experience much worse because I wanted to get up and walk away but she was grabbing me to keep me focused on her while she was talking.”

Context	
Social	Several friends / family members / acquaintances
Place	In a public building or in a stranger’s home: “High School in Texas”
Time	20 years ago
Age	34
Gender	male

Smell changed mood, attitude, and behavior

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell changes...	(23)			
attitude	1	The Road to Sous Chef	fresh, like, mouthwatering / desirable, happiness, salivating	ambitious, enthusiastic, excited, interested, joyous, passionate, polite, tense, triumphant
behavior	14	Accidental Vegetarian; The Overwhelming Odor of Hops; Saved by the Smell!	penetrating (57%), foul (43%), heavy (43%) / dissatisfying (36%), sickening (36%)	disgusted (36%), taken aback (36%)
mood	8	Get Home to a Wonderful Meal; Comforting Sweater Scent; Smell of Death	reassuring (50%), fresh (38%), mouthwatering (38%) / happiness (63%), nostalgic (38%), relaxed (38%)	peaceful (63%), content (50%), happy (50%), pleased (50%), relaxed (50%)

#526
White Lilac Sheets

“My brother arrived at my home to help me move the bed from the guest room into the master bedroom. He had to help me do that because my husband had taken our king size bed with him when he left earlier that day. I actually helped him load the u-haul and hated myself for not letting him struggle. The bed was moved easily, it was my old bed, the one I bought for myself when I left him. It had a lovely and romantic brass headboard and seeing it in the room made me feel a bit better. The walls had already been freshly painted. I just needed to wash my sheets and make my bed and the room would be mine. Only mine. I used my expensive white lilac laundry detergent to wash the sheets and covers. When they came out of the dryer the sheets smelled like home and comfort. I made the bed with my lilac sheets and the atmosphere changed. I still remember that scent and how I felt on that day. I was going to be okay. The room didn’t look or feel or smell lonely anymore. It looked and smelled fresh and clean and lovely and a bit romantic and it was mine.”

Context

Social	A partner / friend / family member
Place	In my own home: “In my house.”
Time	11 years ago
Age	50
Gender	female

Main and sub-categories	N	Examples of story titles	Qualities of the smell	Experienced emotions
Smell...	(18)			
built up expectations	11	PomVinegar Surprise; The Smell of Hungry Anticipation; Aroma of the Beans	sweet (55%), mouthwatering (45%), attractive (36%) / desirable (55%), salivating (55%), stimulated (55%)	excited (73%), happy (73%), interested (55%)
surprised me	7	Is it a bakery or a house?; Really--A Skunk?; First Taste of Ambrosia	elegant (57%), fresh (43%), sophisticated (43%) / desirable (57%), feelingawe (57%), pleasantly surprised (57%)	pleased (86%), enthusiastic (71%), happy (71%), impressed (57%), interested (57%)

[10]

Smell built up and changed expectations

#542

PomVinegar Surprise

“I once went to a high-end restaurant and tried out its house salad. I believe the dressing was a somewhat sour brand of pomegranate vinegar, along with parmesan cheese or something similar. As the salad arrived, I could smell the pomegranate and vinegar from about 10 steps away, and it was a very pungent (thought not unpleasant) odor. I almost felt my nose becoming runny and took out a tissue. When I tasted the dish, however, the taste wasn’t nearly as sour as I expected it to be from the smell. So this fact, along with the fact that this occasion was my 3rd-year anniversary with my wife, probably makes this experience memorable to me.”

Context	
Social	A partner / friend / family member
Place	In the street or another public space: “Upscale restaurant in Atlanta, Georgia (Buckhead Area)”
Time	3 months ago
Age	36
Gender	male