A Framework for Delineating the Emotive Character of Motorbikes in India

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Abstract

This paper proposes an approach to investigate the styling concept of motorbikes by establishing a relationship between its evaluative aesthetic properties and associated emotions. A framework is delineated in form of emotive words and representational image boards to map the emotive character of motorbikes. The framework forms the basis for investigating the emotional differentiation in the social structure of biking in India. The findings give insights on the emotive character of various motorbikes representing different emotional needs. The usability and efficacy of the framework was tested among styling designers and design students.

Home is an emotional expression of its inhabitants. A personal vehicle is an extension of the expression that one creates within the home. Motorbikes are the most popular personal transport vehicles in India (SIAM, 2008) and embody the emotions of millions of bikers around the country. Therefore in any emotion-centered design study a motorbike cannot be seen in isolation to its rider (Das and Singh, 2008).

Knowledge of 'soul of things' is possibly a new revolutionary way of discovering the soul of man (Ernest Dichter, 1960). At the same time discovering the soul of a man can give insights to his desires and preference for things. In this socially constructed world, man is seen as a product of the society (Perter Berger and Thomas Luckman, 1966). Therefore, examining the role of motorbikes as an expression of human personality can give insights into the beliefs, values, attitudes and emotions of the societies and cultures where these motorbikes are created, purchased or used.

Various motorbike manufacturers across the globe can be clearly differentiated on the basis of their choice of emotions and its subsequent reflection in their designing of bikes (Das and Singh, 2008). Motorbike designers give great importance to the aesthetic illustration of emotions. The styling concept of motorbikes, on the basis of which they are often categorized, therefore, defines its emotive character. This emotive differentiation has lead to a social structure of biking wherein each biking experience represents a distinct biker-bike personality. The personality of a bike is reflected through its configuration (sitting posture, layout design etc), performance (engine, chassis, frame and electrical) and styling (forms, colors and graphics) characteristics. Based on these characteristics and type of usage, bikes are often classified as utility, touring, cruiser, sports, sports cruiser or custom.

Cultural preferences for style further differentiate motorbikes within the same category. The awe-inspiring Italian design of a MV Augusta Brutale 910 can easily be differentiated from a sharp and chiseled Japanese designed Yamaha R1 or the dominating Suzuki Hayabusa. The BMW 1200RS boasts of German precision engineering whereas a Buell XB1 represents naked American sports styling. Even within the same cultural environment motorbike manufacturers offer bike variants in numerous colors and graphics to cater to an individual's desire and emotional need. The emotional propensity of users towards motorbikes is influenced by the social, cultural, and personal preferences for style (Fig.1). This paper confines itself to the study of motorbike emotions and associated style expressions within the socio-cultural precincts of Indian two-wheeler users.
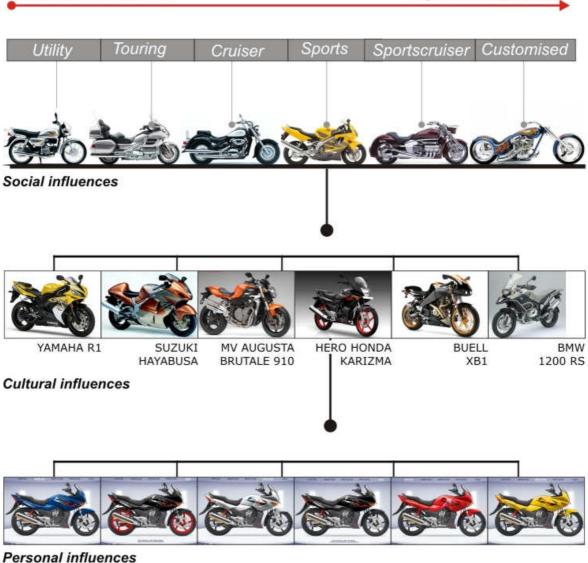
Figure 1: Social, cultural, and personal influences on Motorbike Style.

Social Structure of Biking in India

As already mentioned emotions are central to biker-bike personality and associated biking experience. However, the group of motorcyclists is not a homogeneous group (ATSB, 2007) and therefore, different riders can perceive emotions in different ways. This aspect of emotions is discussed by Savas (2004) in the context of social differentiation. He collected empirical data to suggest that social classes also differ in their emotional relationship with products. Similarly, bikers may experience different emotions with various bikes and differentiating associations to each emotion. The meanings and intensity of emotions associated with the same motorbike could also be different for different demographic and psychographic biking populations. Similarly, in

India, the emotions related to motorbikes need to be studied in the context of the social reality of biking.

The social reality is a very hard, day-to-day, factual reality of birth, survival, and growth (Das, Amitoj, 2007). The social reality of biking is influenced by emotional needs of owning, purchasing or riding a motorbike. Unlike the west where motorbikes are seen as racing and sports machines, in India these are the most popular modes of personal transport. Biking offers mobility to millions of users and is therefore an integral part of Indian culture and society.

The emotional needs of biking are thus distinct for people in different countries, cultures, families and groups. This emotional differentiation in social reality of biking is reinterpreted on the Maslow's pyramid (Fig. 2). The figure illustrates the emotional levels of biking experience in the western world and in India.

Figure 1 : Global representation of emotional needs of biking.

Figure 2 : Indian representation of emotional needs of biking.

Figure 2: Social Structure of Biking: Global (left) and India (right).

Bread and butter biking

The bottom of the pyramid represents all formats of two wheelers, which are purchased and used by customers as a means to fulfill their basic physiological needs. Biking for them is a means of earning a livelihood. These products have the least personal influences in design. Such designs are

evaluated on rational parameters of cost and ability to perform the desired function. Bread and butter biking are often associated with commercial applications and therefore the riders in this category may not be the actual owners of their motorbikes. Commuters ride for practical reasons rather than the love for riding (Krige 1995).

Travel and comfort biking

The next level on the pyramid is of travel and comfort biking. This level represents a slightly more emotionally involved biker who uses the motorbike as a mode of transport for the family. Though the bikes are evaluated on rational parameters of safety, comfort, fuel efficiency, convenience and ease of maintenance but cultural mannerisms start influencing the user's preference at this level of biking. In the process the biker starts associating himself to a community of riders with similar motivational needs. Riders associated with this biking genre start becoming sensitive to the connotation of brand and associated communications as well.

Social networking biking

Brands and advertising communications play an important role in creating bonds among bikers. Motorbike manufacturers across the globe create brand personalities to develop meaningful brand associations among their followers. These associations facilitate in creating biking communities. A Harley cruiser rider can be distinctively differentiated from a Ducati sports enthusiast based on their distinct emotional connection with the respective brands. Social networking biking is all about loving a particular brand and belonging to a group of like-minded brand patrons. This genre of biking represents a collective community expression. Cotte and Ritchie (2005) further categorized such consumers as "tribal consumer" who is driven by a fundamental need to be accepted as a part of a larger group or a "sophisticated consumer" who is conscious of advertiser's persuasive intentions and communication tactics.

Dexterous & exploratory biking

Dexterous biking is a means of realizing the creative imagination of bike lovers. This category represents bike enthusiasts who are driven by the emotional need of exploring their self-potential. Krige (1995) describes such bikers as young and inexperienced "Boy Wonders" who love challenges, race their peers and often do not consider the consequences of their behavior. Dexterous biking lifestyle is often associated with sports and advanced riding skills. Such bikers are constantly looking for the up gradations in performance, technology and design of their bikes.

Bikes in this category are often associated with very high self-esteem. Manufacturers design and develop flagship premium models to cater to the "High Esteem" biking enthusiasts (such as the

HOGS: Harley Owners Group). Kridge (1995) describes these sub-groups as "Weekend Warriors" because they ride for hobby and fun. Bikes are often seen as an expression of self-image and esteem by such rider groups.

Religious biking

At the highest level of the Maslow's hierarchy biking is a religion rather than being a sport. At the top of the pyramid the Man and machine cannot be differentiated. The bike becomes an expression of the self. This level represents the highest degree of personalization in motorbikes. While personalizing a product's appearance, a person invests energy in the product to express his/her self (Mugge, Schifferstein, and Schoormans, 2004). Research shows that this personalization of products leads to a great degree of enhancement in the attachment that a person experiences towards this product (Mugge, Schifferstein, and Schoormans, 2004). Congruity between the personality of a person and the personality of his/her product leads to stronger product attachment (Govers and Mugge, 2004). Therefore, the emotional attachment of a religious biker with his motorbike is much more than any of the preceding levels of biking hierarchy.

Hero Honda	Bajaj	Honda	TVS	Yamaha	Suzuki	Kinetic	Royal Enfield
CD- Dawn	XCD 125 DTS-Si	Unicorn	Star	Alba	Heat	Stryker	Buller Machismo
CD-Deluxe	Platina	Shine	Star City	G5	Zeus 125	Comet	Buller Machismo 500
Pleasure	Discover	Dio	Star Sport	Crux	Access 125	Aquila	Thunderbird
Splendor Plus	Pulsar DTS-i	Eterno	Flame	Gladiator		Flyte	Bullet Electra 5S
Splendor Nxg	Pulsar 200 DTS-I	Activa	Apache RTR 160	MT-01		Blaze	Bullet Electra
Passion Plus	Pulsar 220 dtx-Fi	Aviator	Scooty Pep	YZF-R1		4s	Bullet 350
Super Splendor	Avenger DTS-i					Nova 135	
Glamour	Kristal DTS-i						
Glamour Fi							
Achiever							
Hunk							
CBZ Xtreme							
Karizma							

■ (Bread blue)	Bread and Butter Biking
■ (Travel cyan)	Travel and Comfort Biking
■ (Social grey)	Social Networking Biking
■ (Dextereous orange)	Dextereous & Exploratory Biking
■ (High Esteem olive)	High Esteem Biking

Table 1: Classification of Indian two-wheelers models, on the social structure of biking.

These different emotional levels as seen in Maslow's pyramid clearly point towards the emotive character of motorbikes. Various Indian motorbikes can be classified on these biking levels on the basis of their perceived positioning. Table 1 illustrates the classification of 55 Indian two-wheeler models of eight different manufacturers, on the social structure of biking. However, the significance of these emotional levels needs to be experimentally assessed to further study their influence on motorbike design. A framework of emotions, specific to motorbikes in India, can facilitate such an experimental investigation to delineate the emotive character of motorbikes in India.

Emotions Associated with Motorbikes in India

Humans are affective beings, motivated to action by a complex system of emotions, drives, needs and emotional conditioning in addition to cognitive factors (Claire Dormann, 1984). There has been extensive research in the field of emotions by different researchers. The attempt has generally been to study the mechanisms which develop emotions. In doing so different researchers (Arnold, 1996, Ekman, Friesen & Ellsworth, 1982, Frijda, 1987, Gray 1982, Izard, 1972, Mc Dougall, 1926 and Plutchik, 1980) have proposed several ways of differentiating emotions.

While the basic or fundamental emotions do not represent all the emotions relevant to product experience, Pieter Desmet (2002), identified a set of 41 product relevant emotions in his pioneering and widely recognized research on 'Designing Emotions'. However despite being revolutionary, Desmet's research seems wanting in certain aspects. While Desmet's emotion words define the emotional end state of a user experiencing a product, the propensity among bikers to associate with these emotion words is something that needs to be explored. Also most of the emotion words like amused, satisfied, awaiting, deferent, bored, isolated, irritated etc. do not define the emotive character of a motorbike. For example, we do not talk of a Royal Enfield Bullet as an "Amused Bike" or a "Satisfied Bike". Instead we know it as a "Sturdy Bike" or a "Heavy Bike". The emotive character of a product (bike) can be defined by emotive words instead of emotion words. The emotive words have a tendency to trigger emotions. The emotive words are therefore productive of or directed to emotions.

One such group of emotive words is that of Adjectives. Adjectives in a language help in evoking emotions by defining an object. Mano (1996) developed adjective checklists to measure the sensory-aesthetic aspect of emotional experiences and relate to pleasure and arousal dimension of emotion. Researchers (Kim and Moon, 1998, Hassenzahl, 2000 and Hollbrock & O'Shaughnessy, 1984) commonly use semantic scales and set of emotive words as tools to measure emotions in product and advertising.Alan Goldman (1995) classified such words in eight evaluative aesthetic terms: evaluative, formal, emotion, evocative, behavioral, representational, perceptual and historical. According to him, critics and laypersons invariably ascribe properties to artworks that are beyond the ones described in purely physical terms. Similar to artworks, products like motorbikes are often described in formal terms ("a *precision* machine"), evocative terms ("a *powerful* engine"), behavioral terms ("a *confident* posture"), representational terms (" *a naked* motorbike"), perceptual terms ("*vivid* colors"), historical terms ("a *traditional* model"), broadly evaluative terms (" a *beautiful* scooter") and emotion terms (" a *joyful* ride"). In this context, an

experimental study was conducted to identify a set of emotion inducing evaluative aesthetic terms used by motorbike users and manufacturers in India.

Experimental Study to Identify Emotive Words

Procedure

Phase 1: The Oxford Advanced Learner's English dictionary (7th edition, 2005) database was analyzed to identify the list of adjectives and other grammar words.

Phase 2: An online word count and frequency study was conducted using the identified list of adjective words. The online investigation was done on six Indian two-wheeler manufacturers websites (1) Hero Honda Motors Limited (www.herohonda.com), (2) Bajaj Auto (www.bajajauto.com), (3) TVS Motors (www.tvsmotor.in), (4) Royal Enfield Motors (www.royalenfield.com), (5) Yamaha Motor Company India (www.yamaha-motor-india.com) and (6) Honda Motor Company India (www.honda2wheelersindia.com) and India's largest biking community portal (7) XBHP (www.xbhp.com). The objective of the investigation was to identify the unique adjective words frequently used by manufacturers, owners and intending buyers of bikes in India.

Phase 3: The most frequently used adjective words were further analyzed and mapped on the Goldman's (1995) eight evaluative aesthetic terms in a series of design discussions and workshops with industrial design students at Indian Institute of Technology, Delhi. A set of opposite emotive words was identified from each of evaluative aesthetic term category.

Material

The Inspyder Inside Inc. word count software was used for the purpose of study.

Results

Phase 1: The Oxford Advanced Learner's English dictionary (7th edition, 2005) database of 42329 words comprises of 8797 adjectives, 5630 verbs, 28913 nouns, 614 abbreviation, 969 adverbs, 54 conjunction, 59 determiner, 247 exclamation, 103 pronouns, and 119 prepositions.

Phase 2: Inspyder Inside Inc. word count software identified 3161092 (unique words: 90210) words associated with motorbikes on the seven websites identified for study. These words were analyzed with respect to the 8797 unique adjectives to identify 438583 adjective words associated with motorbikes in India. The data was analyzed on frequency of occurrence of each word to identify:

Total number of unique adjective words: 3643

Adjectives with frequency of occurrence more than "1": 2880

Adjectives with frequency of occurrence more than "100": 456

Adjectives with frequency of occurrence more than "1000": 72

Phase 3: The adjectives with frequency of occurrence more than "100" (456 words) were analyzed by professional motorbike designers and design students to understand the context of usage of these words with respect to motorbikes. A set of 94 adjective words were selected for further study as the most relevant words that are often used to describe the motorbikes (for example word like 'royal' was not selected as it is used in the context of the company name "Royal Enfield"). These 94 words were classified on the Goldman's (1995) eight evaluative aesthetic terms (Table 2). A set of seven opposite emotive words (14 words) were identified from these words as:

(1) Formal   (2) Emotional

(3) Professional   (4) Sporty

(5) Extraordinary   (6) Popular

(7) Self-focused   (8) Friendly

(9) Aggressive   (10) Comfortable

(11) Sharp   (12) Heavy

(13) International   (14) Traditional

Total no. of words searched	3161092	Broadly Evaluative		Evocative		Perceptual
Unique words	90210	Formal		Behavoral		Historical
Total adjectives	438583	Emotional		Representational		
Unique adjectives	3643	*Eight Evaluative Aesthetic Properties (Alan H. Goldman, 1995)*				

S.No.	Adjectives	Frequency %	S.No.	Adjectives	Frequency %	S.No.	Adjectives	Frequency %	S.No.	Adjectives	Frequency %	S.No.	Adjectives	Frequency %
1	global	6.81	101	mega	0.53	201	decent	0.26	301	British	0.14	401	youthful	0.08
2	royal	5.68	102	proud	0.52	202	victorious	0.26	302	excited	0.14	402	raring	0.08
3	best	5.61	103	positive	0.52	203	warm	0.26	303	thumping	0.14	403	glorious	0.08
4	next	5.60	104	motoring	0.52	204	useful	0.26	304	surprised	0.14	404	radiant	0.08
5	front	5.36	105	quick	0.51	205	dead	0.25	305	yellow	0.14	405	chill	0.08
6	quality	4.82	106	middle	0.51	206	masculine	0.25	306	refined	0.14	406	European	0.08
7	very	4.73	107	regular	0.51	207	unmatched	0.25	307	distinguished	0.14	407	prosperous	0.08
8	standard	4.36	108	friendly	0.51	208	forced	0.25	308	sensitive	0.14	408	thin	0.08
9	rear	4.24	109	awesome	0.50	209	immediate	0.25	309	adjustable	0.14	409	matching	0.08
10	long	4.13	110	poor	0.50	210	confused	0.25	310	frequent	0.14	410	concentrated	0.08
11	high	3.87	111	slow	0.49	211	loaded	0.25	311	favourable	0.14	411	unauthorized	0.08
12	better	3.47	112	steady	0.48	212	favourite	0.24	312	theme	0.13	412	academic	0.08
13	great	3.39	113	committed	0.47	213	tremendous	0.24	313	disabled	0.13	413	pleased	0.08
14	national	3.33	114	pretty	0.46	214	practical	0.24	314	extraordinary	0.13	414	passionate	0.08
15	class	3.32	115	innovative	0.46	215	satisfied	0.24	315	relentless	0.13	415	confirmed	0.08
16	excellent	2.48	116	regional	0.45	216	blazing	0.24	316	pleasant	0.13	416	swift	0.08
17	latest	2.43	117	exclusive	0.45	217	grey	0.23	317	relaxed	0.13	417	agile	0.08
18	sure	2.26	118	difficult	0.45	218	sufficient	0.23	318	instant	0.13	418	principal	0.08
19	strong	2.25	119	core	0.44	219	wonderful	0.23	319	inevitable	0.13	419	spectacular	0.08
20	comfortable	2.21	120	active	0.44	220	phenomenal	0.23	320	opposite	0.12	420	restricted	0.08
21	full	2.20	121	conventional	0.44	221	splendid	0.22	321	incomparable	0.12	421	dear	0.08
22	international	1.99	122	express	0.43	222	revolutionary	0.22	322	absolute	0.12	422	pilot	0.08
23	advanced	1.95	123	thinking	0.43	223	interested	0.22	323	terrific	0.12	423	maroon	0.08
24	light	1.93	124	confident	0.43	224	English	0.22	324	affirmative	0.12	424	uncomfortable	0.08
25	young	1.92	125	digital	0.43	225	inspired	0.22	325	smart	0.12	425	accidental	0.08
26	genuine	1.91	126	American	0.42	226	associated	0.22	326	comprehensive	0.12	426	rival	0.08
27	family	1.87	127	consistent	0.42	227	numerous	0.21	327	sturdy	0.12	427	brilliant	0.07
28	round	1.76	128	multiple	0.42	228	sharp	0.21	328	secure	0.12	428	absorbing	0.07
29	large	1.76	129	born	0.40	229	golden	0.21	329	plain	0.12	429	weird	0.07
30	easy	1.74	130	convenient	0.39	230	spacious	0.21	330	glad	0.11	430	coloured	0.07
31	economic	1.74	131	modern	0.39	231	rapid	0.21	331	incomplete	0.11	431	orange	0.07
32	higher	1.73	132	stable	0.38	232	classic	0.20	332	precise	0.11	432	rocky	0.07
33	executive	1.73	133	extensive	0.38	233	exceptional	0.20	333	promotional	0.11	433	compulsory	0.07
34	special	1.67	134	remarkable	0.37	234	overwhelming	0.20	334	ripping	0.11	434	thrilled	0.07
35	real	1.65	135	robust	0.37	235	automatic	0.20	335	remote	0.11	435	African	0.07
36	price	1.63	136	integrated	0.37	236	military	0.20	336	beige	0.11	436	rugged	0.07
37	cool	1.59	137	physical	0.37	237	ordinary	0.20	337	grayish	0.11	437	handsome	0.07
38	unique	1.56	138	dynamic	0.37	238	game	0.20	338	obvious	0.11	438	alive	0.07
39	black	1.55	139	popular	0.37	239	worst	0.19	339	memorial	0.11	439	dense	0.07
40	important	1.50	140	contemporary	0.36	240	racy	0.19	340	congested	0.11	440	enormous	0.07
41	necessary	1.50	141	western	0.36	241	expert	0.19	341	honourable	0.11	441	trendy	0.07
42	powered	1.46	142	interesting	0.36	242	eligible	0.19	342	animal	0.11	442	Latin	0.07
43	kinetic	1.44	143	prime	0.36	243	periodic	0.19	343	celebrated	0.11	443	precious	0.07
44	impressive	1.42	144	sound	0.36	244	touching	0.18	344	custom	0.11	444	pleasing	0.07
45	driving	1.40	145	rich	0.35	245	nationwide	0.18	345	spiral	0.11	445	refreshing	0.07
46	grand	1.39	146	fresh	0.35	246	firm	0.18	346	visual	0.11	446	slight	0.07
47	small	1.36	147	dedicated	0.35	247	ambitious	0.18	347	pure	0.11	447	exacting	0.07
48	smooth	1.25	148	dark	0.34	248	advance	0.18	348	female	0.11	448	strange	0.07
49	green	1.24	149	compact	0.34	249	sustainable	0.18	349	German	0.11	449	animated	0.07
50	premium	1.20	150	idle	0.34	250	fair	0.18	350	mighty	0.11	450	sporting	0.07
51	universal	1.19	151	simple	0.33	251	lovely	0.18	351	virgin	0.11	451	delighted	0.07
52	safe	1.19	152	famous	0.33	252	designer	0.18	352	momentous	0.11	452	everlasting	0.07
53	maximum	1.18	153	worth	0.33	253	accurate	0.18	353	meaning	0.11	453	outdated	0.07
54	superior	1.15	154	continuous	0.33	254	happening	0.17	354	formal	0.11	454	funny	0.07
55	metallic	1.14	155	undisputed	0.32	255	substantial	0.17	355	enlightened	0.11	455	striking	0.07
56	super	1.14	156	neutral	0.32	256	impossible	0.17	356	immense	0.10	456	loud	0.07
57	different	1.13	157	mechanical	0.32	257	sizeable	0.17	357	intensive	0.10	457	effortless	0.07
58	wide	1.07	158	fluid	0.32	258	weak	0.17	358	cheap	0.10	458	countrywide	0.06
59	hard	1.03	159	macho	0.32	259	directional	0.17	359	breathtaking	0.10	459	eager	0.06
60	winning	1.02	160	serious	0.31	260	soft	0.16	360	acceptable	0.10	460	uphill	0.06
61	sporty	1.01	161	dual	0.31	261	rare	0.16	361	traditional	0.10	461	baby	0.06
62	nice	1.00	162	professional	0.31	262	evident	0.16	362	afraid	0.10	462	enduring	0.06
63	environmental	1.00	163	intelligent	0.31	263	vibrant	0.16	363	spirited	0.10	463	secret	0.06
64	prestigious	0.91	164	incredible	0.31	264	sensible	0.16	364	scared	0.10	464	bored	0.06
65	outstanding	0.89	165	stunning	0.31	265	hungry	0.16	365	ultimate	0.10	465	supreme	0.06
66	heavy	0.88	166	extreme	0.31	266	promising	0.16	366	prospective	0.10	466	inexhaustible	0.06
67	rural	0.84	167	narrow	0.30	267	enthusiastic	0.16	367	careful	0.10	467	unprepared	0.06
68	exciting	0.83	168	standing	0.30	268	lean	0.16	368	typical	0.10	468	fabulous	0.06
69	basic	0.82	169	focused	0.30	269	travelling	0.16	369	adult	0.10	469	confidential	0.06
70	blue	0.81	170	reliable	0.30	270	engaged	0.16	370	massive	0.10	470	harsh	0.06
71	stylish	0.80	171	potential	0.30	271	prominent	0.16	371	comparable	0.10	471	unfamiliar	0.06
72	silver	0.79	172	Asian	0.30	272	utility	0.15	372	durable	0.10	472	unattended	0.06
73	huge	0.79	173	essential	0.30	273	mass	0.15	373	intrinsic	0.10	473	unfair	0.06
74	running	0.76	174	beat	0.30	274	ranking	0.15	374	lightning	0.10	474	cohesive	0.06
75	competitive	0.75	175	separate	0.29	275	sophisticated	0.15	375	honorary	0.10	475	alert	0.06
76	superb	0.75	176	stringent	0.29	276	French	0.15	376	dangerous	0.10	476	desirable	0.06
77	successful	0.74	177	rough	0.29	277	strategic	0.15	377	quiet	0.10	477	interior	0.06
78	ready	0.74	178	healthy	0.29	278	eastern	0.15	378	male	0.09	478	inviting	0.06
79	happy	0.73	179	sudden	0.29	279	minimal	0.15	379	peak	0.09	479	tall	0.06
80	growing	0.71	180	variable	0.29	280	visible	0.15	380	adjacent	0.09	480	modest	0.06
81	fast	0.71	181	reasonable	0.29	281	excess	0.15	381	sweet	0.09	481	compulsive	0.06
82	beautiful	0.71	182	consequential	0.28	282	sarcastic	0.15	382	consequent	0.09	482	sculptured	0.06
83	sleek	0.65	183	usual	0.28	283	emotional	0.15	383	touched	0.09	483	steadfast	0.06
84	efficient	0.65	184	bright	0.28	284	privileged	0.15	384	boring	0.09	484	systematic	0.06
85	chief	0.62	185	critical	0.28	285	sheer	0.15	385	thick	0.09	485	democratic	0.06
86	aggressive	0.62	186	flying	0.28	286	reputed	0.15	386	illustrious	0.09	486	occasional	0.06
87	extra	0.61	187	crazy	0.28	287	metro	0.15	387	unbelievable	0.09	487	harmful	0.06
88	attractive	0.58	188	plastic	0.28	288	inspiring	0.15	388	worthy	0.09	488	armed	0.06
89	powerful	0.58	189	brief	0.28	289	upcoming	0.15	389	gold	0.09	489	stupid	0.06
90	urban	0.58	190	distinctive	0.28	290	appealing	0.15	390	worse	0.09	490	cooperative	0.06
91	choice	0.57	191	effective	0.27	291	shaped	0.15	391	astounding	0.09	491	disappointed	0.06
92	immediately	0.57	192	wrong	0.27	292	musical	0.15	392	successive	0.09	492	unusual	0.06
93	clean	0.56	193	wild	0.27	293	intense	0.15	393	passive	0.09	493	dirty	0.06
94	amazing	0.56	194	certain	0.27	294	festive	0.14	394	dominant	0.09	494	magic	0.06
95	automotive	0.56	195	fundamental	0.27	295	empty	0.14	395	enjoyable	0.09	495	futuristic	0.06
96	natural	0.56	196	common	0.27	296	unlike	0.14	396	lazy	0.09	496	noteworthy	0.06
97	moving	0.55	197	ideal	0.26	297	enabled	0.14	397	unclaimed	0.09	497	utilitarian	0.06
98	mean	0.54	198	himself	0.26	298	distinct	0.14	398	legendary	0.09	498	rushed	0.06
99	flash	0.54	199	white	0.26	299	assured	0.14	399	compromising	0.08	499	handy	0.06
100	perfect	0.53	200	appropriate	0.26	300	fantastic	0.14	400	diverse	0.08	500	dramatic	0.06

Table 2: Most Frequently used Adjective words among Motorbike users and manufacturers in India.

Another experimental study was conducted using the identified framework of fourteen emotive words to investigate the significance of five emotional levels described earlier in the paper.

Experimental study to delineate the Emotive Character of Motorbikes

Procedure

An ethnographic survey was conducted among bike users (N=50, Male, Age=20-30 years) in Delhi. Six motorcycles were identified (each representing a biking category): CD Dawn (*Bread and Butter Biking*), Splendor (*Travel and Comfort Biking*), Passion Plus (Social *Intimacy Biking*), Hunk (*Dexterous and Exploratory Biking*), and Karizma (*High Esteem Biking*). All the bikes were identified from the same Indian manufacturer (Hero Honda Motors Ltd.: India's largest two-wheeler manufacturer) to avoid the influence of company brand character in the study of emotive character. A verbal self-reporting method was adopted wherein each respondent was asked to rate the bikes on 14 sets of emotive words on a 3-point rating scale (weak, neutral and dominant). The participants were users and intending buyers of the motorcycles under investigations.

Material

A verbal-self report response sheet was developed using six bike images. The images were edited using CorelDraw Graphics Suite X4 software to ensure standardization in illustration of images. Each sheet represented one bike with a set of 14 words along with a 3-point rating scale (weak, neutral and dominant).

Results

Fig. 3 illustrates the findings of the survey. Almost all respondents differentiated the six bikes on the emotive character. The emotive character of a motorbike was represented by the dominant emotion traits. The dominant emotive words associated with different bikes are as follows:
(1) CD Dawn (bread and butter biking): Traditional, Professional, Heavy, and Comfortable.
(2) Splendor (Travel and Comfort biking): Emotional, Traditional, Professional, Comfortable, Popular and Formal.
(3) Passion Plus (Social Networking Biking): International, Sporty, Emotional, Friendly, Popular and Heavy.
(4) Hunk (Dexterous & exploratory biking): International, Sporty, Heavy, Emotional, Popular, Aggressive and Extraordinary.
(5) Karizma (High Esteem Biking): International, Sporty, Sharp, Emotional, Heavy, Self-focused, Aggressive, Extraordinary and Professional.
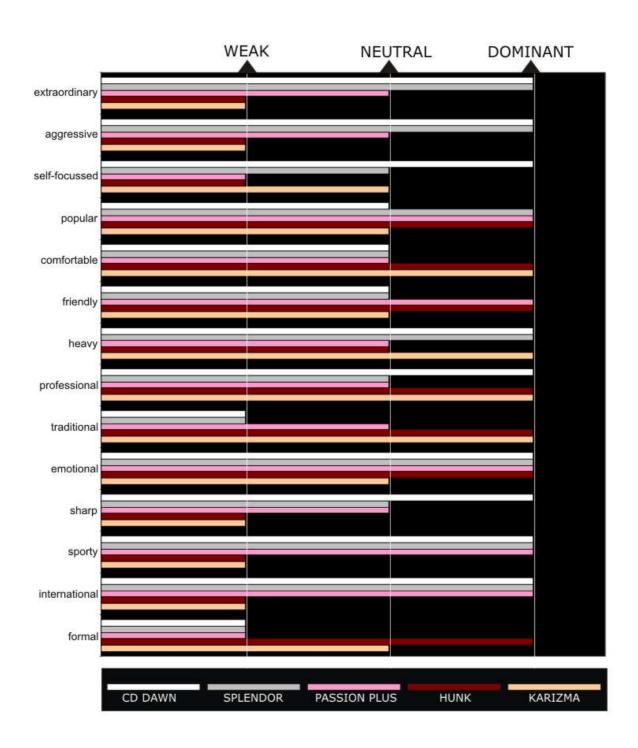
Figure 3: Findings of the emotive character survey.

In this experimental study it was observed that the number of dominant emotive words associated with bikes increase as the bike segment changes from lower level of Maslow's pyramid to higher level of pyramid. The findings thereby support the emotional differentiation at various levels of biking hierarchy proposed earlier in the paper. A larger study is currently in progress to establish these findings across different cities and biking populations in India.

Also the designs of bikes in these different bike segments bring to the fore the observation made earlier in the paper, that emotions influence the styling and designing of a bike. Several researchers (Sevener and Asatekin, 2004, Chang and Wu, 2004, and Tsai, Hung and Hung, 2007) have studied the psychological responses to product visual characteristics. As already mentioned emotive styling defines the emotive character of a bike. However, the designing of a bike on the basis of a desired emotive character also requires delineation of the aesthetic properties associated with each emotive word. A series of workshops were consequently conducted among design students and practicing styling designers to develop a set of image boards that represented different emotive words. The participants were asked to select motorbike images representing each of the 14 emotive words. Fig. 4 illustrates the emotive image boards developed for each emotive word. The image boards allow designers to associate affective words and images. The visual illustration of emotive words in the form of image boards forms the basis for further research to develop design tools for creating new motorbike designs for the desired emotive character.
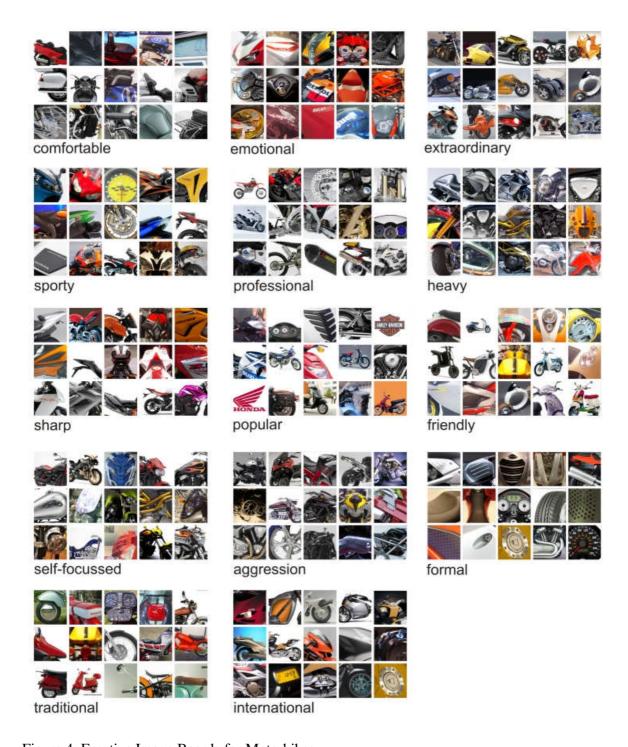
comfortable

emotional

extraordinary

sporty

professional

heavy

sharp

popular

friendly

self-focussed

aggression

formal

traditional

international

Figure 4: Emotive Image Boards for Motorbikes.

Conclusion

Motorbikes manufacturer world-over use design as one of the most important tools to distinguish their products from the competition. Manufacturers vary the design of motorbikes and their individual components to generate a wide variety of product image perceptions. Designers, market researchers and product planning teams are constantly tracking the emotional needs of various regional markets to understand the user's preference for design and to develop emotion centered design strategies for motorbikes.

The paper establishes the relationship between emotional need of biking and emotive character of motorbikes. The theoretical framework of biking hierarchy based on Maslow's pyramid is investigated using the 14 adjective emotive words. The findings illustrate the differentiation in the emotive character of motorbikes representing each level of biking hierarchy. The representation of emotive words in the form of image boards forms the basis for further research in the field of motorbike design and emotions. By understanding the relationship between the emotional need of biking and aesthetic properties it is possible to predict the design preferences based on the emotive character of motorbikes.

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