Hedonic Signals in Crowdfunding

A Comparison Across Crowdfunding Platform Types

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Appendix (available online via http://link.springer.com)

Online Appendix

Online Appendix 1. Crowdfunding Projects.

Table A1. Examined Crowdfunding Projects.

Project Title	Platform	Funding	Selection
TriviaTunes	Appbackr	1	F
refresh.me	Appbackr	1	R
Diet Watchers Diary	Appbackr	1	T
Lightspeed Getaway - Outer Space Police Chase	Appbackr	0	F
Crane & Rigger – iPad	Appbackr	0	R
Choose My Food	Appbackr	0	T
The New Trade	Appsfunder	1	F
myShopi	Appsfunder	1	R
Suspended coffees	Appsfunder	1	T
The Smoothie Channel	Appsfunder	0	F
From 1 To 10	Appsfunder	0	R
Farm Maker	Appsfunder	0	T
medeor: medizinische Hilfe für Erdbebenopfer	Betterplace	1	F
Gesundes Essen für die Kinder in Pengo	Betterplace	1	R
Food for Education	Betterplace	1	T
Education for Impoverished Children	Betterplace	0	F
The Upinde Centre for Abandoned Babies	Betterplace	0	R
Hungry Poor Orphan Kinder	Betterplace	0	T
RaterAgent	Crowdcube	1	F
Wrap it Up	Crowdcube	1	R
INEED	Crowdcube	1	T
Road Ahead (UK) Ltd	Crowdcube	0	F
Plant Pot Plus Ltd	Crowdcube	0	R
Barefoot Foods Ltd	Crowdcube	0	T
Snact.	Crowdfunder	1	F
Newcastle University Boat Club Row to Africa	Crowdfunder	1	R
SDLP Foyle Westminster Election Campaign	Crowdfunder	1	T
Help elect a UKIP Mpon on May 7th 2015	Crowdfunder	0	F
Rising - Rising the Volume	Crowdfunder	0	R
ZO_MY wear & share	Crowdfunder	0	T
About Face! A Hammock and a Beach...	DreamBank	1	F
Antoni Szymczak Fund	DreamBank	1	R
Mackenzie/Berdusco Wedding	DreamBank	1	T
Dog Adoption	DreamBank	0	F
iPad Mini	DreamBank	0	R
My Dream is to Help	DreamBank	0	T
Ledora. Einfach hell, überraschend wirtschaftlich	Econeers	1	F
DZ4. Mein Dach. Mein Strom. Meine Energiewende	Econeers	1	R
Tiefenschwarz. Nachhaltiger Biomasse-Reaktor	Econeers	1	T
Miller Waldenenergie. Ihre Grünanlage in Paraguay	Econeers	0	F
Biogas Dannemann. Bewährte Technologie optimal nutzen	Econeers	0	R
LCB Benneckenstein. Wir bringen Strom in die Stadt	Econeers	0	T
Mormor Magdas Glass	FundedByMe	1	F
Safello	FundedByMe	1	R
ParkingList - Shared Parking and more	FundedByMe	1	T
Corp Wars - Connected, cross-genre games	FundedByMe	0	F
Hubro Education	FundedByMe	0	R
Telemotix - Pay-as-you-drive insurance	FundedByMe	0	T
Hurricane Sandy Disaster Relief Fund	Fundly	1	F
TransForm's Cap-And-Trade Campaign	Fundly	1	R
The Super Local Food Project	Fundly	1	T
HELP The Amey Family Recover From A Fire Disaster	Fundly	0	F

Project Title	Platform	Funding	Selection
Blue Ocean Music Fest	Fundly	0	R
Miss DIVA 2013 - Proceeds To Be Given To RCD Food Pantry	Fundly	0	T
ShareCraft 2012 - Save the Children East Africa	Fundrazr	1	F
Ride to Give - Ironman Canada for Hawk	Fundrazr	1	R
Help a family of beavers in Mission BC	Fundrazr	1	T
Help me improve education in Tanzania!	Fundrazr	0	F
Maria's LEJOG Ride for Well Women Centre	Fundrazr	0	R
Samantha's Feline Food Bank	Fundrazr	0	T
Creating Girl Readers in Guatemala	GlobalGiving	1	F
Education For Rural Amazon Communities	GlobalGiving	1	R
Build A Kitchen In Cambodia That Feeds 800 Daily	GlobalGiving	1	T
Onetime Grant To Start 50 Vegetable & Fruit Vendor	GlobalGiving	0	F
Cancer Children Need Hospital Rooms In Nicaragua	GlobalGiving	0	R
Help Feed Thousands Of Refugees In Ethiopia	GlobalGiving	0	T
Flow Hive: Honey on Tap Directly from Your Beehive	Indiegogo	1	F
Oomi Smart Home. Redefined	Indiegogo	1	R
Borderlands: Singing Through the Prison Walls	Indiegogo	1	T
Titanic: Honor and Glory - Phase 3	Indiegogo	0	F
Meet Ember: The Worlds first Adventure Doll	Indiegogo	0	R
Melle Mad-Wedge!!!	Indiegogo	0	T
Pebble: E-Paper Watch for iPhone and Android	Kickstarter	1	F
Pack of Heroes - A Vintage Comic Superhero Card Game!	Kickstarter	1	R
The Hang Over Soap and Beverage Holder	Kickstarter	1	T
Shell Shock	Kickstarter	0	F
Aspergers in The Mirror	Kickstarter	0	R
RoRo's Baking Company ~ All Natural ~ Handmade With Love	Kickstarter	0	T
Extra Credits	Rockethub	1	F
Everything Will Be Okay - An Epic Documentary about ALS	Rockethub	1	R
Chop!	Rockethub	1	T
the information party	Rockethub	0	F
Support Maker House, the World's First Artisan-driven Makerspace	Rockethub	0	R
The Queens' Tea Startup Campaign: There's a Queen in Everyone	Rockethub	0	T
AOTERRA	Seedmatch	1	F
Covus Pro	Seedmatch	1	R
ERDBÄR	Seedmatch	1	T
ROOMSURFER	Seedmatch	0	F
Cloud & Heat 2	Seedmatch	0	R
SAUSTARK DESIGN 2	Seedmatch	0	T
Tiere in Not Brauchen Freunde	Socialfunders	1	F
Tiergestützte Therapie	Socialfunders	1	R
Arcus asbl	Socialfunders	1	T
Stiftung Zukunft schenken	Socialfunders	0	F
Ein E-bike für die Pflege	Socialfunders	0	R
Förderverein Grundschule Moselweiss	Socialfunders	0	T
iCrane	StartNext	1	F
Freifeld Festival 2013	StartNext	1	R
karma chakhs	StartNext	1	T
st_ry. deine doku.	StartNext	0	F
Berlin mal anders - Die Postkartenrevolution	StartNext	0	R
ice2go Eiskalt geniessen	StartNext	0	T
Geschichten hinter vergessenen Mauern - Lost Place Dokumentar-film	Visionbakery	1	F
Postindustriale - Ausstellung und Reflexionen zum Thema Industrie-kultur	Visionbakery	1	R
Schokolade RUM fahren	Visionbakery	1	T
U.F.O.-Kurzfilmfestival 2013 (Leipzig)	Visionbakery	0	F
Backstage – Serie	Visionbakery	0	R
La Corniche	Visionbakery	0	T

F = Featured Project; R = Recent Project; T = Typical Project.

**Online Appendix 2.** Construct Validation.

To explore the structure of our hedonic signal measure, we apply exploratory and confirmatory factor analysis. We start with modelling a "three factor model" in which we identify the three factors of entertainment, arousal, and imagination. Cronbach's alphas (> 0.7) and individual item reliabilities suggest a good reliability and the factors show convergent validity in terms of composite reliability (CR) and average variance explained (AVE) whose values should surpass the thresholds of 0.5 (Bagozzi and Yi 1988). To test for discriminant validity, we follow Fornell and Larcker (1981), who claim that the square root of one factor's AVE should be higher than its correlations with every other factor. However, the three factors are highly correlated—all correlation coefficients are above 0.8—such that discriminant validity cannot be assumed.

Thus, we test a series of alternative measurement models (see Figure A1). First, we model hedonic signal strength as a "single factor model" that subsumes all items. Exploratory factor analysis shows that all items load on a single factor and the other validity and reliability measures from the confirmatory factor analysis are satisfactory (see Table A2). To compare among these different measurement models for representing our hedonic signal measure, we investigate various fit measures: the Tucker-Lewis-Index (TLI; should be > 0.95), the Comparative-Fit-Index (CFI; > 0.95), the Root-Mean-Square-Error of Approximation (RMSEA; < 0.08), and the Standardized-Root-Mean-Square-Residual (SRMR; < 0.08) (Hu and Benteler 1999; MacCallum et al. 1996). However, these measures indicate that the single factor model shows inappropriate fit to the data (see Table A3). Thus, we test two approaches that can reflect an overarching hedonic signal factor. We test a "second-order model" in which we model the three first-order factors of entertainment, arousal, and imagination that form hedonic signals as a second order factor.[1] Further, we model hedonic signals as a "bifactor model" that assumes that all items are forming a general hedonic signal factor that accounts for the common variance among these items (Reise 2012).

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[1]A second-order factor with three first-order factors is just identified. Thus, it cannot be tested whether the second-order factor fits the data better than the model with three first-order factors without imposing additional constraints to the model. In so doing, we model that the effect of the three first-order factors on the second-order factor is identical.

Additionally, the items load on specific group factors, e.g., arousal, that model additional common variance among the items forming these constructs that is not shared by the general factor (Reise 2012). Comparing these models suggests that bifactor represents our data best. Likelihood-Ratio-Tests confirm that bifactor fits the data better than all other models (p < 0.01).

Figure A1. Tested Measurement Models.

Three Factor Model

Single Factor Model

Second Order Model
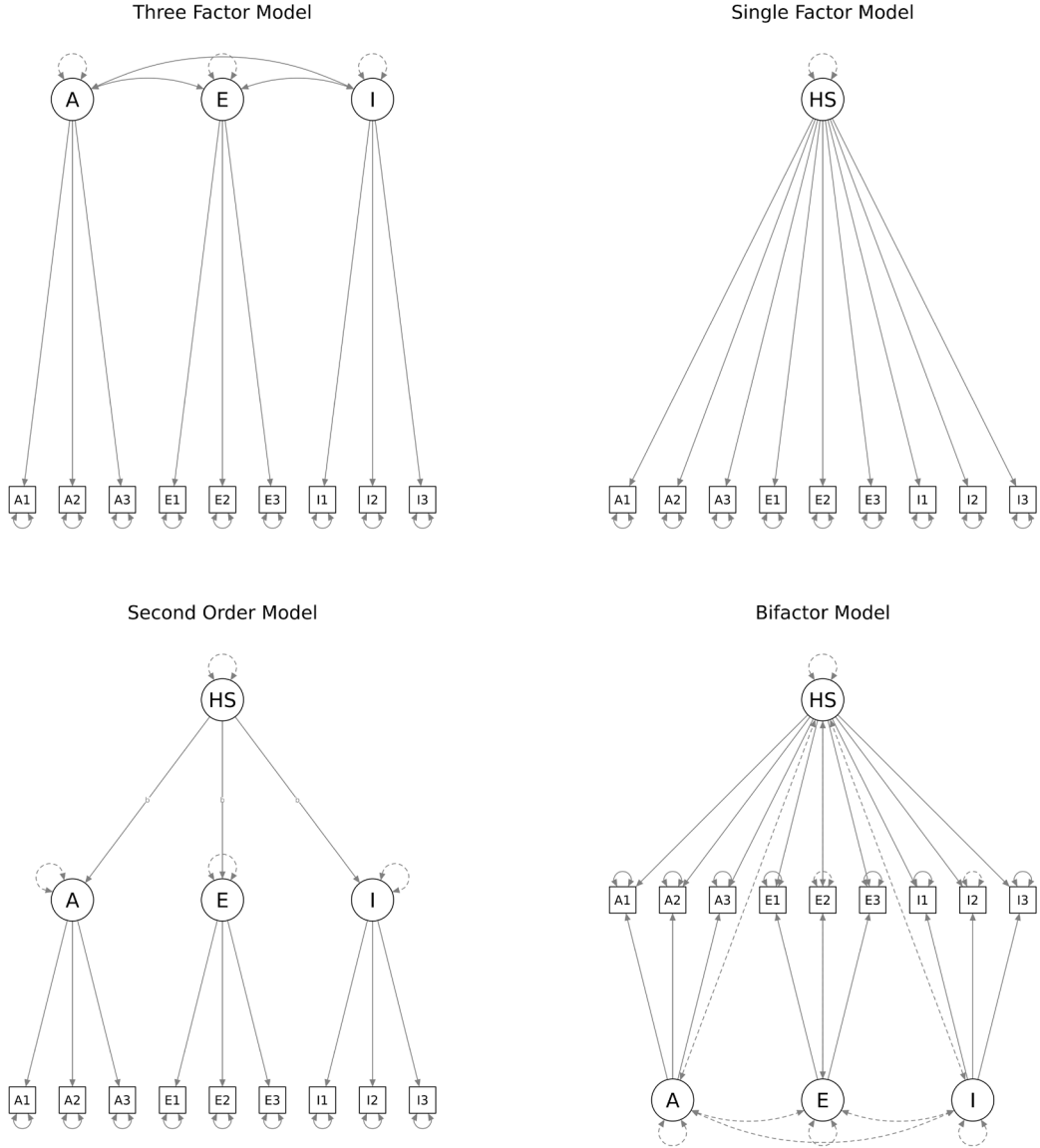
Bifactor Model

HS = Hedonic Signal; A = Arousal; E = Entertainment; I = Imagination.

Table A2. Exploratory and Confirmatory Factor Analysis for Single and Three Factor Model.

Variable	ICC	Single Factor Model		Three Factor Model			
		HS	Measures	I	E	A	Measures
I2: The project creates a varied and diverse fantasy of participating.	0.909	**0.850**		**0.834**	0.337	0.279	Alpha: 0.879
I1: The project has an interesting story that creates the fantasy of being part of it.	0.946	**0.835**		**0.788**	0.246	0.399	AVE: 0.726
I3: The project makes the crowd feel as being part of the project team.	0.786	**0.780**		**0.711**	0.384	0.235	CR: 0.887
E2: The project gives a great pleasure.	0.747	**0.834**	Alpha: 0.938	0.329	**0.860**	0.244	Alpha: 0.897
E3: The project creates a strong sense of enjoyment.	0.905	**0.784**	AVE: 0.630	0.294	**0.852**	0.201	AVE: 0.757
E1: The project is entertaining.	0.932	**0.867**	CR: 0.939	0.370	**0.629**	0.507	CR: 0.904
A1: The project is emotional.	0.970	**0.724**		0.240	0.153	**0.898**	Alpha: 0.864
A3: The project is activating and emotionally arousing.	0.937	**0.854**		0.391	0.386	**0.721**	AVE: 0.681
A2: The project is exciting.	0.929	**0.837**		0.446	0.443	**0.568**	CR: 0.866
Eigenvalues		6.041		2.564	2.551	2.298	
Variance Explained in %		0.671		0.285	0.283	0.255	

N=384; Single Factor Model: Measure of Sampling Adequacy= 0.901; Bartlett's test of specificity: χ^2 = 164.6, p = 0.000; Three Factor Model: Measure of Sampling Adequacy= 0.901; Bartlett's test of specificity: χ^2 = 64.423, p = 0.000; principal component analysis; varimax rotation; bold values indicate the attribution of the variables to factors.

ICC = Intra Class Correlation; Alpha = Cronbach Alpha; AVE = Average Variance Explained; CR = Composite Reliability; HS = Hedonic Signal, I = Imagination; E = Entertainment, A = Arousal.

Table A3. Factor Loadings and Fit Measures for all Models.

Variable	Three Factor Model			Single Factor Model	Second Order Model				Bifactor Model			
	A	**E**	**I**	**HS**	**A**	**E**	**I**	**HS**	**A**	**E**	**I**	**HS**
A1	0.957**			0.883**	0.409**				0.418*			0.885**
A2	1.027**			0.992**	0.434**				0.137			0.999**
A3	1.109**			1.035**	0.475**				0.511*			1.044**
E1		1.019**		1.008**		0.438**				0.297**		0.985**
E2		1.070**		0.941**		0.453**				0.752**		0.879**
E3		1.001**		0.912**		0.426**				0.492**		0.856**
I1			1.149**	1.061**			0.488**				0.390**	1.038**
I2			1.148**	1.044**			0.490**				0.749**	1.009**
I3			0.943**	0.939**			0.403**				0.214**	0.917**
A								2.124**				
E								2.124**				
I								2.124**				
RMSEA (< 0.08)	0.109			0.161	0.106				0.078			
TLI (> 0.95)	0.905			0.803	0.911				0.955			
CFI (> 0.95)	0.937			0.853	0.936				0.975			
SRMR (< 0.08)	0.048			0.058	0.048				0.027			

N = 384; ** p ≤ 0.01; * p ≤ 0.05; † ≤ 0.1; A = Arousal; E = Entertainment; I = Imagination; HS = Hedonic Signals; RMSEA = Root Mean Sqaure Error of Approxiation; TLI = Tucker-Lewis-Index; CFI = Comparative Fit Index; SRMR = Standardized-Root-Mean-Square-Residual.

References

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