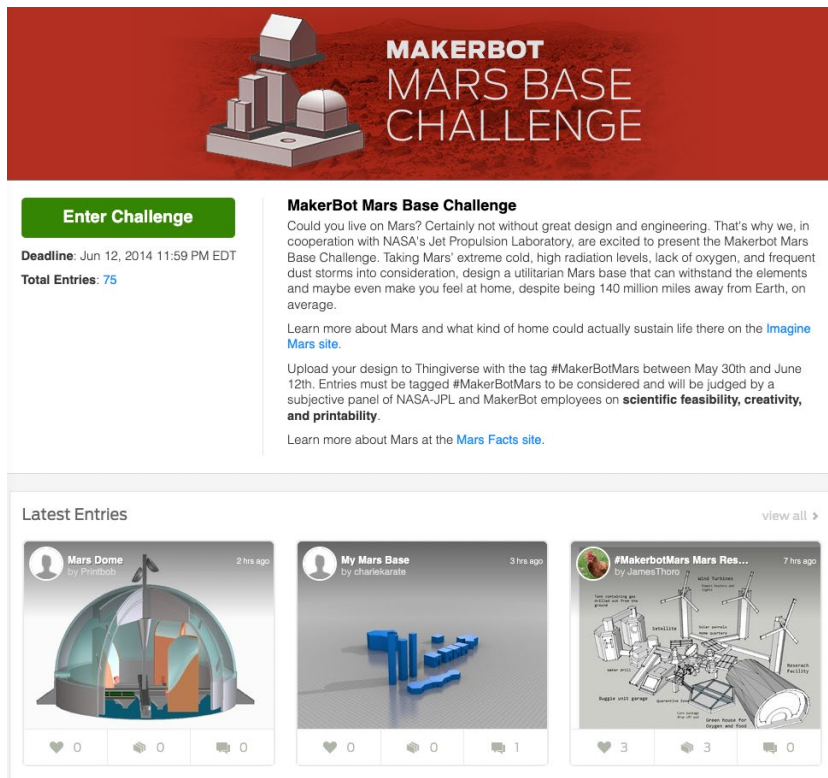


# Challenge Accepted: The Effects of Contest Participation on a User-Generated Content Community

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## Supplementary Material

Figure S1: Example for a challenge hosted on Thingiverse



The image shows a screenshot of the MakerBot Mars Base Challenge page on Thingiverse. At the top, there is a red banner with the text "MAKERBOT MARS BASE CHALLENGE" and an illustration of a Mars base. Below the banner, there is a green "Enter Challenge" button. To the left of the main text, it says "Deadline: Jun 12, 2014 11:59 PM EDT" and "Total Entries: 75". The main text describes the challenge: "MakerBot Mars Base Challenge. Could you live on Mars? Certainly not without great design and engineering. That's why we, in cooperation with NASA's Jet Propulsion Laboratory, are excited to present the Makerbot Mars Base Challenge. Taking Mars' extreme cold, high radiation levels, lack of oxygen, and frequent dust storms into consideration, design a utilitarian Mars base that can withstand the elements and maybe even make you feel at home, despite being 140 million miles away from Earth, on average." It also provides instructions on how to upload a design and lists the judging criteria: "scientific feasibility, creativity, and printability". Below the text, there is a section titled "Latest Entries" with three entries: "Mars Dome" by PrintBot, "My Mars Base" by charlekarate, and "#MakerbotMars Mars Res..." by JamesThor. Each entry has a thumbnail image and a small statistics box showing likes, views, and comments.

Source: <https://web.archive.org/web/20140607013545/http://www.thingiverse.com/challenges/Mars/>

**Table S1: User survey questions and descriptive statistics**

Questions	Strongly Disagree/ Disagree	Neutral	Strongly Agree/ Agree	Mean	Standard Deviation
<i>Q1</i> : Did you enter the Challenge hoping you will win?	26.31	17.89	55.79	3.41	1.44
<i>Q2</i> : Did you enter the Challenge hoping to get more exposure to your work?	44.21	16.84	38.95	2.77	1.42
<i>Q3</i> : Did you enter the Challenge hoping to acquire new skills or knowledge?	49.47	29.47	21.05	2.46	1.27
<i>Q4</i> : Do you feel you invested more effort in a Challenge submission (compared to a submission to the regular Thingiverse community)?	33.7	15.22	51.09	3.22	1.43
<i>Q5</i> : Did participating in the Challenge encourage you to contribute more designs to the community?	48.42	27.37	24.21	2.52	1.26
<i>Q6</i> : After participating in the Challenge, did you feel it is better to focus on future Challenges - rather than submitting designs to the regular community?	76.84	16.84	6.31	1.73	0.99
<i>Q7</i> : Did participating in the Challenge help you socialize with the community?	64.22	16.84	18.95	2.19	1.28
<i>Q8</i> : After participating in the Challenge, did the AMOUNT of feedback from other users exceed your expectations?	58.95	23.16	17.89	2.21	1.26
<i>Q9</i> : Did participating in a Challenge boost your reputation within the community?	60	23.16	16.84	2.2	1.19
<i>Q10</i> : Did participating in the Challenge improve your skills?	37.9	23.16	38.95	2.84	1.28
<i>Q11</i> : Did participating in a Challenge encourage you to explore a new direction or field?	56.84	16.84	26.32	2.41	1.33
<i>Q12</i> : Did participating in the Challenge encourage you to submit to other Challenges?	49.47	24.21	26.32	2.52	1.29
<i>Q13</i> : When you enrolled in your first Challenge, were you an experienced maker?	25.26	22.11	52.63	3.39	1.29
<i>Q14</i> : Would you describe yourself these days as experienced in 3D printing?	4.22	11.58	84.21	4.34	0.91

*Notes*: Survey results based on the responses of 96 contest participants on Thingiverse.

**Table S2: Pairwise correlations (full sample)**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
<b><i>Dependent Variables</i></b>																
Community Reaction	1	1.00														
Future Content Creation	2	0.14	1.00													
Future Contest Content Creation	3	0.04	0.05	1.00												
Future Non-Contest Content Creation	4	0.13	0.98	-0.15	1.00											
Future Exploration	5	0.11	0.00	0.02	-0.02	1.00										
<b><i>Independent Variable</i></b>																
Contest Participation	6	0.05	0.00	0.37	-0.08	0.02	1.00									
Contest Participant	7	0.14	0.10	0.31	0.04	0.06	0.36	1.00								
<b><i>Exposure</i></b>																
Relative Exposure	8	0.04	0.00	0.31	-0.06	0.02	0.78	0.28	1.00							
<b><i>Submitter Characteristics</i></b>																
Intermediate Skills	9	0.04	0.11	0.01	0.11	0.08	0.00	0.02	0.01	1.00						
Advanced Skills	10	0.15	0.11	0.02	0.10	0.05	0.01	0.13	0.01	-0.23	1.00					
Biography Reported	11	0.17	0.19	0.03	0.18	0.04	0.02	0.16	0.02	0.13	0.22	1.00				
Pre-innovation platform activity	12	0.05	0.10	0.00	0.10	0.10	-0.01	-0.02	-0.01	0.12	0.00	0.03	1.00			
Prior Content Creation	13	0.08	0.31	0.01	0.31	0.01	-0.01	0.23	0.00	0.10	0.18	0.30	0.06	1.00		
<b><i>Design Characteristics</i></b>																
Quality	14	0.23	0.03	0.00	0.03	0.04	0.00	0.03	0.00	0.10	0.06	0.05	0.07	0.14	1.00	
Recombination	15	0.13	0.00	0.00	0.00	0.02	0.00	0.02	0.01	0.00	-0.01	0.00	0.09	0.01	-0.01	1.00
Description Length	16	0.34	0.05	0.02	0.05	-0.04	0.04	0.05	0.03	0.08	0.09	0.15	0.11	0.06	0.02	0.13

**Table S3: Results without CEM - The effects of contest participation on community reaction**

	(1)	(2)	(3)	(4)	(5)
	<i>Dependent Variable: Community Reaction</i>				
<b><i>Independent Variable</i></b>					
Contest Participation	0.0862** (2.96)	-0.0220 (-0.49)	0.125*** (4.34)	0.0655* (2.36)	-0.0246 (-0.57)
Contest Participant	0.124*** (6.38)	0.124*** (6.37)	0.0777*** (4.32)	0.0900*** (5.45)	0.0641*** (3.95)
<b><i>Exposure</i></b>					
Relative Exposure		0.00425* (2.40)			0.00442** (2.58)
<b><i>Submitter Characteristics</i></b>					
Intermediate Skills			0.0225*** (4.66)		0.00950* (1.99)
Advanced Skills			0.129*** (10.76)		0.109*** (9.99)
Biography Reported			0.0396*** (7.35)		0.0114* (2.32)
Prior Content Creation			0.00678 (1.75)		0.00199 (0.56)
Pre-Innovation Platform Activity			0.00371 (0.57)		-0.0152* (-2.33)
<b><i>Design Characteristics</i></b>					
Quality				2.670*** (24.71)	2.535*** (25.63)
Recombination				0.0351*** (7.22)	0.0401*** (8.16)
Description Length				0.0778*** (28.39)	0.0751*** (28.13)
<i>N</i>	631273	631273	630959	631270	630956
<i>R</i> <sup>2</sup>	0.016	0.016	0.020	0.033	0.036

*Notes:* OLS point estimates with t-values based on standard errors clustered on the user level in parentheses. All specifications control for the linear and squared term of the days since a design has been uploaded, for category (80), release year (11), release month (12), and release day (7) fixed effects, and a constant but these terms are not reported. Asterisks denote significance levels (\*\*\*)  $p < 0.001$ , (\*\*)  $p < 0.01$ , (\*)  $p < 0.05$ .

**Table S4: Results without CEM - The effects of contest participation on future content creation**

	(1)	(2)	(3)
<b>Dependent Variables:</b>			
Future Content Creation			
<i>Independent Variable</i>	Contest	Non-Contest	All
Contest Participation	0.224*** (12.94)	-0.305*** (-19.83)	-0.0810*** (-8.06)
Contest Participant	0.0681*** (28.51)	-0.0666*** (-13.20)	0.00149 (0.25)
<b>Exposure</b>			
Relative Exposure	0.00125* (2.20)	0.0000138 (0.03)	0.00126*** (4.72)
<b>Submitter Characteristics</b>			
Intermediate Skills	0.00140** (3.22)	0.0885*** (41.54)	0.0899*** (42.45)
Advanced Skills	-0.00122 (-1.58)	0.0741*** (25.62)	0.0728*** (24.02)
Biography Reported	-0.0000348 (-0.08)	0.0503*** (24.96)	0.0503*** (25.09)
Prior Content Creation	-0.00219*** (-10.23)	0.0866*** (52.55)	0.0844*** (52.06)
Pre-Innovation Platform Activity	0.00152** (3.15)	0.0712*** (33.79)	0.0727*** (32.62)
<b>Design Characteristics</b>			
Quality	-0.00634 (-0.94)	0.500*** (11.35)	0.493*** (11.07)
Recombination	-0.000321 (-0.88)	-0.00819*** (-4.62)	-0.00851*** (-4.88)
Description Length	-0.000215 (-1.25)	0.00215** (3.08)	0.00194** (2.71)
<i>N</i>	630956	630956	630956
<i>R</i> <sup>2</sup>	0.177	0.161	0.163

*Notes:* OLS point estimates with t-values based on standard errors clustered on the user level in parentheses. All specifications control for the linear and squared term of the days since a design has been uploaded, for category (80), release year (11), release month (12), and release day (7) fixed effects, and a constant but these terms are not reported. Asterisks denote significance levels (\*\*\*)  $p < 0.001$ , (\*\*)  $p < 0.01$ , (\*)  $p < 0.05$ ).

**Table S5: Results without CEM - The effects of contest participation on future exploration**

	(1)
	<i>Dependent Variable:</i> Future Exploration
<i>Independent Variable</i>	
Contest Participation	0.0227*** (3.48)
Contest Participant	0.0318*** (5.43)
<i>Exposure</i>	
Relative Exposure	-0.000359* (-2.21)
<i>Submitter Characteristics</i>	
Intermediate Skills	0.0211*** (9.27)
Advanced Skills	0.0205*** (5.94)
Biography Reported	0.00624* (2.38)
Prior Content Creation	0.00113 (0.77)
Pre-Innovation Platform Activity	0.0310*** (11.24)
<i>Design Characteristics</i>	
Quality	0.0543 (1.09)
Recombination	0.00712** (2.94)
Description Length	-0.0137*** (-8.82)
<i>N</i>	484642
<i>R</i> <sup>2</sup>	0.097

*Notes:* OLS point estimates with t-values based on standard errors clustered on the user level in parentheses. All specifications control for the linear and squared term of the days since a design has been uploaded, for category (80), release year (11), release month (12), and release day (7) fixed effects, and a constant but these terms are not reported. Asterisks denote significance levels (\*\*\*)  $p < 0.001$ , (\*\*)  $p < 0.01$ , (\*)  $p < 0.05$ .

**Table S6: Restricted Sample - The effects of contest participation on community reaction**

	(1)	(2)	(3)	(4)	(5)
	<i>Dependent Variable: Community Reaction</i>				
<b><i>Independent Variable</i></b>					
Contest Participation	0.0862** (2.96)	-0.0220 (-0.49)	0.125*** (4.34)	0.0655* (2.36)	-0.0246 (-0.57)
Contest Participant	0.124*** (6.38)	0.124*** (6.37)	0.0777*** (4.32)	0.0900*** (5.45)	0.0641*** (3.95)
<b><i>Exposure</i></b>					
Relative Exposure		0.00425* (2.40)			0.00442** (2.58)
<b><i>Submitter Characteristics</i></b>					
Intermediate Skills			0.0225*** (4.66)		0.00950* (1.99)
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<b><i>Design Characteristics</i></b>					
Quality				2.670*** (24.71)	2.535*** (25.63)
Recombination				0.0351*** (7.22)	0.0401*** (8.16)
Description Length				0.0778*** (28.39)	0.0751*** (28.13)
<i>N</i>	631273	631273	630959	631270	630956
<i>R</i> <sup>2</sup>	0.016	0.016	0.020	0.033	0.036

*Notes:* OLS point estimates with t-values based on standard errors clustered on the user level in parentheses. The regression weights are based on Coarsened Exact Matching (CEM) based on the following matching variables on the user level: Intermediate Skills, Advanced Skills, Biography Reported, Registration Year, mean Release Year. All specifications control for the linear and squared term of the days since a design has been uploaded, for category (80), release year (11), release month (12), and release day (7) fixed effects, and a constant but these terms are not reported. Asterisks denote significance levels (\*\*\*)  $p < 0.001$ , (\*\*)  $p < 0.01$ , (\*)  $p < 0.05$ .

**Table S7: Restricted Sample - The effects of contest participation on future content creation**

	(1)	(2)	(3)
<b>Dependent Variables:</b>			
Future Content Creation			
	Contest	Non-Contest	All
<b>Independent Variable</b>			
Contest Participation	0.224*** (12.94)	-0.305*** (-19.83)	-0.0810*** (-8.06)
Contest Participant	0.0681*** (28.51)	-0.0666*** (-13.20)	0.00149 (0.25)
<b>Exposure</b>			
Relative Exposure	0.00125* (2.20)	0.0000138 (0.03)	0.00126*** (4.72)
<b>Submitter Characteristics</b>			
Intermediate Skills	0.00140** (3.22)	0.0885*** (41.54)	0.0899*** (42.45)
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Quality	-0.00634 (-0.94)	0.500*** (11.35)	0.493*** (11.07)
Recombination	-0.000321 (-0.88)	-0.00819*** (-4.62)	-0.00851*** (-4.88)
Description Length	-0.000215 (-1.25)	0.00215** (3.08)	0.00194** (2.71)
<i>N</i>	630956	630956	630956
<i>R</i> <sup>2</sup>	0.177	0.161	0.163

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Biography Reported	0.00624* (2.38)
Prior Content Creation	0.00113 (0.77)
Pre-Innovation Platform Activity	0.0310*** (11.24)
<i>Design Characteristics</i>	
Quality	0.0543 (1.09)
Recombination	0.00712** (2.94)
Description Length	-0.0137*** (-8.82)
<i>N</i>	484642
<i>R</i> <sup>2</sup>	0.097

*Notes:* OLS point estimates with t-values based on standard errors clustered on the user level in parentheses. The regression weights are based on Coarsened Exact Matching (CEM) based on the following matching variables on the user level: Intermediate Skills, Advanced Skills, Biography Reported, Registration Year, mean Release Year. All specifications control for the linear and squared term of the days since a design has been uploaded, for category (80), release year (11), release month (12), and release day (7) fixed effects, and a constant but these terms are not reported. Asterisks denote significance levels (\*\*\*)  $p < 0.001$ , (\*\*)  $p < 0.01$ , (\*)  $p < 0.05$ .