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# Collaboration imprint for entrepreneurs in innovative projects

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# Collaboration Imprint and the Performance of Creative Projects

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# Background:

- Creative activities are increasingly done by small groups of part-time amateurs or entrepreneurs outside of permanent organizations.
- These groups disband after the completion of the project and the individuals regroup for the next project.
- The creative process is highly uncertain and complex, and the outcome of the creative process is depending on the interactions in a group.
- How would the collaboration pattern between individuals account for the performance improvement of successive creative projects?
- *Our argument: repeated collaboration with “imprinting” partners is beneficial for performance improvement over successive creative projects.*

# Repeated Collaboration in Creative Projects

- Repeated Collaboration helps Performance Improvement in Successive Creative Projects
  - Repeated collaboration facilitates mutual communication with common knowledge and common language (Stasser and Titus, 1985).
  - Repeated collaboration promote a sense of “psychological safety” (Edmondson, 1999) and smoothed the “creative abrasions” (Skilton and Dooley, 2010) among group members.
  - Repeated collaboration help form the mental models or relational schemas among collaborators (Elsback et al. 2005; Skilton and Dooley, 2010).
  - Repeated collaboration helps the transfer of knowledge from one project to another (Taylor and Greve, 2006).

# Repeated Collaboration with Imprinting Effects

- Earlier events of individuals or founding condition of organizations can have the imprinting effects (Kimberly 1979; Simsek et al., 2015; Stinchcombe, 1965)
- Repeated collaboration with earlier collaborators carries more imprinting effects for future collaboration
  - Collaborative mental models emerge quickly in the initial stages of collaboration (Barley, 1986; Harrison et al., 2003).
  - The feeling of a good match of characters among group members, if formed in the early time, can be retrieved in later collaborations (DeFillippi and Arthur, 2002).
- *H1: Repeatedly working with imprinting collaborators leads to incrementally better performance in creative projects.*
- *H2: Repeatedly working with an imprinting collaborator leads to better performance in creative projects than working with a general collaborator.*

# Data

## Context of Facebook Apps

- May 2007 to December 2008.
- Atomistic in choosing what to develop
- Incentives for more download
- Commercial performance unpredictable *ex ante*.
- The know-how for successful apps is multi-dimensional.

## Sampling:

- Inclusion criteria: non-corporate entities, at least 5 apps; collaborated at least once with another developer
- 416 apps created by 80 developers
  - Then we include the entire history of these developers

# Variables

## Dependent variables

- *Log downloads* (end 2008), panel data analysis
- *Killer apps* (top 5% in downloads among apps in 30-day window), logit model

## Independent variables

- (1) *PriorAppsWithImprintPartner* (H1, positive effect)
- (2) *PriorAppsWithOtherPartners* (H2, less positive than (1))
  - Defining imprinting partner: the most frequent partner in a focal developer's first 5 apps

# Results: Impact on Downloads

$N = 416$	Model 1		Model 2		Model 3	
Predictors						
<u>PriorAppsWithImprintPartner</u>	-		0.14**	(0.06)	0.14***	(0.05)
<u>PriorAppsWithOtherPartners</u>	-		-		-0.43***	(0.12)
Controls						
Solo	-1.97**	(0.60)	-2.01**	(0.59)	-2.04**	(0.59)
<u>PriorSoloApps</u>	-0.12**	(0.04)	-0.16**	(0.05)	-0.15**	(0.05)
<u>NumberCollegeNetworks</u>	-0.38	(0.31)	-0.31	(0.31)	-0.31	(0.32)
<u>LnDaysAppsReleased</u>	-0.30	(0.41)	-0.06	(0.39)	-0.05	(0.39)
<u>EarliestApps</u>	1.36†	(0.81)	1.36†	(0.81)	1.35†	(0.81)
<u>ImprintPartnerExperience</u>	-0.15***	(0.03)	-0.19***	(0.03)	-0.19***	(0.03)
<u>OtherPartnerExperience</u>	-0.01	(0.32)	-0.06	(0.33)	0.50†	(0.26)
<u>DataSelectionBias</u>	-0.17	(0.18)	-0.22	(0.18)	-0.21	(0.18)
Intercept	9.20***	(2.09)	8.00***	(1.98)	8.00***	(2.00)
Categories, Timing	Yes		Yes		Yes	
Maximum likelihood	-972.479		-970.822		-968.956	
Wald test, $\chi^2$ (between models)			3.315† from Model 1		3.731† from Model 2	



# Results: Impact on Killer Apps

$N = 416$	Model 4		Model 5		Model 6	
Predictors						
<u>PriorAppsWithImprintPartner</u>	-		0.29***	(0.09)	0.29***	(0.09)
<u>PriorAppsWithOtherPartners</u>	-		-		-13.32***	(0.78)
Controls						
Solo	-0.93	(0.63)	-0.81	(0.66)	-0.82	(0.66)
<u>PriorSoloApps</u>	-0.13*	(0.06)	-0.24***	(0.07)	-0.23***	(0.07)
<u>NumberCollegeNetworks</u>	0.02	(0.25)	0.13	(0.23)	0.13	(0.23)
<u>LnDaysAppsReleased</u>	1.02*	(0.47)	1.55**	(0.54)	1.56**	(0.54)
<u>EarliestApps</u>	-1.30	(1.27)	-1.45	(1.29)	-1.48	(1.28)
<u>ImprintPartnerExperience</u>	-0.06	(0.04)	-0.24**	(0.08)	-0.23**	(0.08)
<u>OtherPartnerExperience</u>	0.64†	(0.24)	0.74*	(0.36)	1.42**	(0.49)
<u>DataSelectionBias</u>	-0.07	(0.22)	-0.13	(0.27)	-0.12	(0.26)
Intercept	-6.87**	(2.39)	-9.60***	(2.75)	-9.64***	(2.74)
Categories, Timing	Yes		Yes		Yes	
Maximum likelihood	-133.774		-130.596		-126.935	
Wald test, $\chi^2$ (between models)			6.355* from Model 4		7.323** from Model 5	

# Conclusion

- Repeated collaboration, especially with the imprinting collaborators, is good for performance improvement in successive creative projects.
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- Implications:
  - The presence of mental model, not the superiority of a particular one, that matters for the creative performance.
  - The imprint is important for the on-and-off self-organized collaborations in creative projects.