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A support system for mentors of novice entrepreneurs

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Abstract

In this study we present online software to rapidly assess the impact of mentoring techniques on a novice entrepreneur. We have built a prototype that collects data from team members in less than five minutes and that automatically returns a diagnostic analysis to the mentor. Between 2012 and 2015 we have tested three versions of our prototype with longitudinal analyses of teams attending startup weekend competitions, to confirm that our prototype supports mentors with few and yet relevant information. The results of our studies open several avenues of research regarding rapid diagnostic of project teams, whereas, from a practical point of view, our prototype entirely done with Google Docs can be easily used by anyone interested in entrepreneurship education.

Keywords: Entrepreneurship education, effectuation, mentoring, decision support, design science

Problem statement. *Entrepreneurship education* provides individuals with the ability to recognize commercial opportunities and the insight, self-esteem, knowledge and skills to act on them [1], whereas *mentoring* can be defined as the establishment of a supportive relationship to a novice entrepreneur (mentee), thanks to the support of an experienced entrepreneur (mentor), allowing it to develop as a person [2]. To incorporate mentors in practical program increases the capabilities of novice entrepreneurs [3] and, once the novice entrepreneur acquires entrepreneurial experience, he/she should shift from a *causal logic* (from "business idea" to "necessary means") towards an *effectual logic* (from "available means" to "business idea") [4]. Nonetheless, there are no existing recommendations to design a tool to rapidly assess the impact of mentoring techniques, by measuring the change of dominant logic used by mentee. Therefore, our research question is: *how can we design an artifact to rapidly assess the impacts of mentoring techniques on novice entrepreneur?*

Theoretical model. We have developed a theoretical model to represent the change over time of three constructs to measure the common ground in a team [5]: joint objectives (JO), joint resources (JR) and joint commitment (JC). Our three constructs are operationalized by eight variables, which are measured by five-point Likert scales. Accordingly, JO is associated to (JO1) design and functionality of product/service; (JO2) distinctive image from competitors; (JO3) clearly defined market segment. JR is measured by (JR1) available time, (JR2) team competences and (JR3) useful contacts in their network. Finally, JC is measured by (JC1) goodwill trust and (JC2) competence trust.

Description of the prototype. Our prototype is composed by a Google Form to collect data and one Google Sheet with three tabs (participants' answers, group common ground and group coach's common group), that supports three dynamic graphs:

1. *Path analysis for the team*. Novice entrepreneurs are known to proceed in a different way than a team with expert entrepreneurs.
2. *Team members' opinion analysis for the coach*. The second graph represents the score of each team member and it is used by the coach to perform diagnostics on the team dynamics.
3. *Team-coach alignment of perceptions for the supervisor*. The third graph shows the coach's position to induce the mentoring technique used.

In each dynamic graph, the X axis of the first graph represents the average of team members' JO at time t, the Y axis represents the average of team members' JR at time t, whereas the bubble size represents the average of team members' JC.

Testing the prototype. Between 2012 and 2015 we tested our prototype at startup weekends (startupweekend.org), where teams create startup ideas in 54 hours. Starting from Saturday morning until Sunday afternoon, we have collected survey data from randomized participants and coaches after each coach intervention. Friday night we collected the opinions of the coaches and the crowd (pretest), whereas Sunday afternoon we assisted to the discussion among jury members (posttest). Accordingly, our preliminary results show that:

1. *Causal and effectual logics have different paths in graph 1*. Novice entrepreneurs work to increase JO first and then increase JR, whereas expert entrepreneurs advance in the opposite way.
2. *Team Joint Commitment (JC) increases by intervening on Joint Objectives (JO) and Joint Resources (JR) in graph 2*. Statistical analysis of collected data suggests that a coach can focus on JO and JR, leaving aside JC.
3. *Perceptions of successful coaches and teams in graph 3 converge over time*. Team-coach perceptions can be used as a predictor of team performance. Coaches appear to be reliable risk detectors and teams that do not take that into account eventually end up having coordination surprises, which lead to poor performance.

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