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The congruence of mental models in entrepreneurial teams – implications for performance and satisfaction in teams operating in an emerging economy

Paweł Ziemiański, Katarzyna Stankiewicz, Michał T. Tomczak and Beata Krawczyk-Bryłka
Faculty of Management and Economics, Gdańsk University of Technology, Gdańsk, Poland

Abstract

Purpose – The paper aims to explore the relationship between the congruence of mental models held by the members of entrepreneurial teams operating in an emerging economy (Poland) and entrepreneurial outcomes (performance and satisfaction).

Design/methodology/approach – The data obtained from 18 nascent and 20 established entrepreneurial teams was analysed to answer hypotheses. The research was quantitative and was conducted using an online questionnaire. Data was collected from each of the teams at two stages. Members of entrepreneurial teams were surveyed independently, which allowed measuring the congruence of their mental models pertaining to running a venture.

Findings – Findings reveal that team members' mental model congruence is significantly related to financial performance and members' satisfaction in the case of established entrepreneurial teams. However, in the case of nascent teams, there is no relationship between analysed variables.

Practical implications – Implications for theory and practice are offered with a special emphasis on entrepreneurship education. The concept of team mental model congruence is proposed to be included in training of nascent entrepreneurial teams, experienced companies and students.

Originality/value – The concept of team mental models investigated by the authors has been underexplored in entrepreneurship research. Results indicate that at least in some entrepreneurial teams, team mental models' congruence is related to obtained outcomes. The paper proposes that principles of effectuation and causation can serve as the lens through which the mental model pertaining to running a venture can be analysed. It allows expanding studies on the congruence of team mental models in entrepreneurial teams beyond the strategic consensus.

Keywords Effectuation, Causation, Entrepreneurial teams, Team mental model

Paper type Research paper

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1. Introduction

Recently, there has been a shift from the traditional perception of entrepreneurs as lonesome decision-makers to an increased approach to entrepreneurship as a team-level phenomenon (Klotz *et al.*, 2014). As entrepreneurial teams are becoming more prevalent, studying their composition and intrateam interactions becomes an important task (Krawczyk-Bryłka *et al.*, 2020; Stankiewicz *et al.*, 2020). It seems that it is particularly important in emerging economies where entrepreneurial activity is one of the possible ways of accelerating the development of a country (Villegas Mateos and Amorós, 2019). In this paper, we seek to add to the current understanding of the way in which entrepreneurial teams operate and to factors related to their performance levels and satisfaction of individual team members.

In entrepreneurial research, relatively little is known about the significance of the similarity in which entrepreneurial team members think about running their businesses. The concept of the team mental model has been underexplored in entrepreneurial research. It has been studied in the context of the strategic consensus defined as the extent to which members of a management team are in agreement about the company's objectives that should be pursued (Floyd and Wooldridge, 1992; Knight *et al.*, 1999; Miller *et al.*, 1998). However, strategies of companies comprise only one aspect of running a venture even if it is a crucial one. Furthermore, not much is known whether a consensus between team members about other aspects of running a venture is related to outcomes (defined in this paper as performance and satisfaction) and whether this relationship differs in newly formed and established companies. It is important to address these gaps as examining factors related to entrepreneurial teams' effectiveness can help provide practical insights that allow to support entrepreneurs and enlarges the theoretical understanding of an important facet of entrepreneurship.

To achieve this aim, we examine whether a congruent team mental model is related to the entrepreneurial team's performance and team members' satisfaction in nascent and established entrepreneurial teams operating in an emerging economy. We use the concept of a team mental model and its congruence that pertains to the team members' common understanding of the way in which their team operates and approaches its tasks (Mohammed *et al.*, 2010). And we also adopt the definition of an entrepreneurial team as a group of entrepreneurs who act together during stages of the entrepreneurial process: identify opportunities, define the goal and the model of the venture, make strategic decisions, assess needs for various resources, acquire these resources, manage the company's development and share profits (Cooney, 2005, Cole *et al.*, 2018, Kamm, 1990).

We also propose that two different logics possible to be used by entrepreneurs – causation and effectuation – can be regarded as a lens through which a mental model of entrepreneurship can be perceived. In the case of an entrepreneurial team, such mental models refer to the way in which its members perceive different activities performed in the process of running a venture. Perceptions of members of a single team can be congruent with each other to a different extent.

We conducted our study on two groups of entrepreneurial teams – experienced teams whose members have collaborated with each other for at least two years and nascent teams that were not older than six months when they took part in the study. The results showed that in experienced teams, the congruence of mental models held by members of an entrepreneurial team was significantly and positively related to its financial performance (but not to non-financial performance) and to team members' satisfaction. In the case of nascent teams, however, such correlations were not found. Therefore, the study contributes to understanding processes that take place in new and experiences entrepreneurial teams.

2. Literature review

In this section, we first briefly describe team mental models and identify research gaps, which this study aim to address. Later, we state our hypotheses based on the literature review. In the last part of this section, we briefly describe effectuation and causation and provide the rationale for using them as a theoretical framework to conceptualise team mental models in entrepreneurial teams. We conclude this section by stating the context of our study.

2.1 Team mental models

Mental models are the result of cognitive operations and can be defined as "organised knowledge frameworks that allow individuals to describe, explain and predict behaviour" (Lim and Klein, 2006, p. 404). Team mental models comprise shared and organised knowledge held by team members that pertains to key elements of the team's relevant environment (Mohammed and Dumville, 2001). They may include multiple elements as they represent knowledge about the team's purpose, priorities and contingencies between particular tasks and actions that each team member needs to perform towards the completion of teams' goals (Marks *et al.*, 2002). These models are related to the quality of team results because they guide the actions of team members and influence the level of their coordination and satisfaction.

Scholars investigating team mental models have predominantly focused on structured tasks, with tasks that require more divergent thinking being much less explored in this research context (Santos *et al.*, 2015). In particular, entrepreneurial teams have not been sufficiently examined in terms of the team mental model held by their members. This paper seeks to address this research gap by adding new insights into the importance of team mental models in entrepreneurial teams.

There are two important characteristics of team mental models that can be analysed: similarity (i.e. the extent to which team members share a mental model) and accuracy (i.e. the extent to which a particular mental model accurately reflects the reality). Both of these characteristics are related to the process of teamwork and the team's subsequent performance level. When mental models held by team members are similar (i.e. congruent), teams face fewer problems related to the coordination of their activities (for example those related to running a venture in the case of entrepreneurial teams). As a result, one way of examining the development of a team towards higher performance levels is the analysis of the development of a shared mental model among its members (Mohammed *et al.*, 2010). In this paper, the term "mental model congruence" is used to refer to the degree to which members of an entrepreneurial team display a shared mental model of running a venture. Few studies using that concept of similar congruence in entrepreneurial teams were focused on the strategic consensus of team members (Floyd and Wooldridge, 1992; Knight *et al.*, 1999; Miller *et al.*, 1998). The strategy is crucial for ventures, but the similarity regarding the way of thinking about conducting business can be analysed beyond this area. This is the second research gap that we intend to address with this paper by exploring more widely understood mental models of entrepreneurial teams.

Seeking to verify how mental model congruence is related to obtained outcomes from the perspective of venture development, we use psychological models of team development (Tuckman, 1965; Rickards and Moger, 2000). They suggest that this relationship might be different in nascent teams and in established ones. Members of new teams are likely to be at a stage when affective and cognitive conflicts are not yet prevalent, and thus individual team members may not be yet able to benefit from establishing a common way of thinking (Ensley and Pearce, 2001). In this phase, they may focus more on, for example, opportunity

recognition and the formulation of team norms and less on developing a shared representation of their operations (Vanaelst *et al.*, 2006). The relationship between the congruence of team mental models and obtained outcomes should thus be weaker in nascent teams compared to established ones. We therefore propose the following hypotheses:

H1. There is a positive relationship between the congruence of the team mental model and venture performance in established teams (but not in nascent teams).

H2. There is a positive relationship between the congruence of the team mental model and the satisfaction of team members in established teams (but not in nascent teams).

After introducing the hypotheses, we provide a brief description of the effectuation and causation approaches to entrepreneurship that are used in this paper as a theoretical framework for conceptualising team mental models regarding entrepreneurial activities.

2.2 Effectuation and causation as the framework for operationalisation of team mental models

Team mental models comprise the representations of operations performed by the team members when they take actions to fulfil goals. To operationalise such models, the scope of possible activities must be defined. It is a challenging task, particularly when the area of the team's activity is not strictly limited or defined. This may be why, as already mentioned, team mental model investigations are often focused on structured tasks and have not been sufficiently explored in entrepreneurship research. In our study, effectuation and causation serve as a theoretical framework for defining and analysing team mental models held by entrepreneurs operating in a single team. This theoretical approach is well grounded in entrepreneurship research. In this section, effectual and causal approaches are briefly described. The rationale is given why they constitute a valid theoretical framework for defining and analysing the congruence of mental models in the case of entrepreneurs operating within a single team.

The distinction between effectuation and causation as two different logics that can be used by entrepreneurs who create and grow a venture was introduced by Sarasvathy (2001, 2009). The traditional logic, referred to as causation, leads an entrepreneur to conduct activities in a linear process on an established, known market. Potential failures might be analysed as resulting from a faulty or insufficient analysis of data or from the fact that not enough information was obtained. They might thus be prevented or dealt with by applying more analysis and planning. Strong emphasis on preparations suggests that the decision to start a venture is perceived as either a good one (thoroughly considered and rational) or erroneous (not resulting from an appropriate analysis) (Perry *et al.*, 2012). In turn, an entrepreneur who follows the effectuation logic can be perceived as someone who acts differently and sees the environment in another way. In this case, a new market might more often be created (Sarasvathy and Dew, 2005). Such a venture creator starts off with means that are already available and looks for ways to leverage previously established relationships. Objectives are changeable and possible failures can more easily be perceived as unexpected events that should lead to new goals or priorities and create new contingencies that may be exploited. Additionally, an entrepreneur accepts that certain resources might be lost and only risks what they can afford to lose (Chandler *et al.*, 2011).

It is important to point out that the tasks that lead to the entrepreneur's success are perceived differently under the effectual and causal approaches. For example, the causal approach suggests that opportunities are objective and should be identified. Their

identification leads to a decision to pursue them and to determine and obtain the necessary resources. Under the effectual approach, however, entrepreneurs use available resources and social networks that leads to the creation of opportunities. Under the causal approach, other entrepreneurs who operate on the market are more often regarded as rivals, whereas the effectual approach suggests perceiving them rather as potential collaborators. Individual beliefs of an entrepreneur can be more compatible with either the effectual or the causal approach and their integration can be considered an individual mental model of entrepreneurship. Different entrepreneurial teams will be characterised by a varying degree of consensus between their members about the extent to which their joint efforts follow (and should follow) the principles of the effectual and causal approaches.

To align efforts, entrepreneurial team members need to develop a certain level of agreement regarding the way in which they are trying to achieve what they are aiming for. Two entrepreneurs operating in accordance with causation and effectuation may both try to reach similar distant goals (Galkina and Lundgren-Henriksson, 2017). However, their idea about the best way in which this should be done will differ significantly. If both these entrepreneurs form a single entrepreneurial team, they might face certain difficulties. In the process of running the venture together, they may, however, develop a congruent mental model of their team's operations. This congruence may allow the team to minimise the misalignment of efforts put by particular members.

Matalamäki (2017) argued that research based on the causation–effectuation distinction has already taken steps towards the mature stage of its development. This is one of the reasons why this model is a potentially valid framework for conceptualizing mental models. Additionally, the causal and the effectual approaches can be translated into specific entrepreneurial behaviors defined as "concrete enactment of individual or team tasks required to start and grow a new organisation" (Bird and Schjoedt, 2009). Both approaches permeate multiple aspects that jointly constitute the process of running a company. This allows to use them to study mental models beyond the strategic dimension by focusing on cognitive representations of specific behaviors identified in previous research as characteristic to effectuation or causation (Chandler *et al.*, 2011, Fisher, 2012). To our knowledge, this paper is the first to use them for that purpose, which makes our approach novel.

The effectuation–causation distinction and team mental models provide the theoretical context of this study. It was conducted in a specific context of Poland, which is an emerging European economy. Findings from emerging countries have been underrepresented in the current academic discourse on entrepreneurship. Poland can be considered an interesting case as it is characterised by rapid development and an ambition to become an advanced economy (Sharma, 2017). In the last three decades, the process of growth in Poland has been delivered predominantly by the private sector. The transition to an advanced economy will require, among other things, providing support for entrepreneurs and entrepreneurial teams. Learning about their cognitions can help obtain valuable knowledge to be used by policymakers active in Poland to introduce regulations aimed at delivering entrepreneurship-led growth (Brooks *et al.*, 2019).

3. Method

To verify the hypotheses, the authors have developed a research strategy based on the quantitative methodology as the most suitable for the study. The research was of a quantitative nature and was conducted using the online questionnaire – computer-assisted Web interview. The method was chosen because of both the speed of obtaining data for analysis and the low cost of the study.

The research sample was selected on the basis of non-random-purposive sampling and included 98 respondents (70.4% male and 29.6% female). The respondents represented 38 entrepreneurial teams operating in a metropolitan area in Poland, an emerging economy. The sample included a group of 18 nascent entrepreneurial teams (not older than six months) and a group of 20 established teams (operating together for at least two years). Different means were used in the sample recruitment process. These included contacting companies listed in a purchased professional database; contacting start-up incubators and technology parks operating in the metropolitan area; contacting university spin-offs, informing alumni and post-graduate/executive students about the project; and the snowball technique. Because of the performance of different activities, our sample might be considered quite heterogeneous, as it consists of entrepreneurial teams of different backgrounds and histories.

The definition of an entrepreneurial team adopted in this study was presented to potential participants, and they were asked whether it pertained to them. Only after their confirmation were they invited to take part in the study. Once the entrepreneurial team members gave their consent for research participation, they were asked to fill out an online questionnaire. They were informed about the confidentiality of provided answers and about the importance of not consulting their answers with other members of their team.

The questionnaire included several demographic questions and 34 items pertaining to the mental model of running a venture. It consisted of 18 items referring to effectuation and 16 items referring to causation. We developed the questionnaire based on the tools proposed by Chandler *et al.* (2011) and Fisher (2012), but we expanded them to cover additional areas of entrepreneurial activity. We included the following areas mentioned in publications on entrepreneurial activity in general (Glinka and Gudkova, 2011) and on the activity of entrepreneurial teams in particular (Jin *et al.*, 2017, Smolka *et al.*, 2018):

- establishment and development of business strategy,
- relationships with business partners and competitors,
- perception and exploitation of business opportunities,
- reaction to changes and unexpected events,
- utilisation of resources, and
- development of products and solutions.

The number of items in each category ranged from four to nine, and a five-point Likert scale was used. We are aware that our list of categories (areas of entrepreneurial activity) may be subject to discussion. However, our aim was to find a balance between including areas that are mentioned in the effectuation literature, as those that differentiate effectuation and causation (Fisher, 2012, Sarasvathy, 2009) and what scholars indicate as important individual and team entrepreneurial tasks. Examples of items congruent with the effectuation and causation principles within each of the categories used to measure the team mental model are listed in Table 1. Please note that we used a plural first-person pronoun in all statements so that our participants would focus on what they do as a team. We also explicitly asked the respondents to refer to the actions of their teams. Only by doing so could we obtain insight into a team mental model, i.e. the representation of what the team actually does.

Several weeks after filling out the mental model questionnaire, the participants took part in the second part of the research. It included a questionnaire concerning their satisfaction and results obtained by the venture (both financial and non-financial). We based our measurement method on scales used previously in entrepreneurial research and on

Entrepreneurial activity area	Effectuation	Causation
Establishment and development of business strategy	Our company's strategy is fluid; we change it regularly by adapting the plans to the situation	We prioritise work in accordance with the established business objectives
Relationships with business partners and competitors	We take advantage of relationships with family and friends in the process of developing our business	We analyse the activities of our competitors to beat them
Perception and exploitation of business opportunities	We determine what loss is affordable when taking a risk	We thoroughly analyse costs and profits to select the best solution
Reaction to changes and unexpected events	Our company quickly reacts to unexpected situations and treats them as development opportunities	Unexpected situations are not welcome; we try to be prepared for whatever comes
Utilisation of resources	Already possessed resources determine the directions of our activity and development of the company	We estimate what resources we need and act to make them available
Development of products and solutions	In our company, we experiment with various products and business models	In the beginning, we designed a new solution and we are implementing it in a consistent manner

Table 1.
Examples of items used in the entrepreneurial team mental model questionnaire

established ideas pertaining to conceptualizing satisfaction and performance (Cooper and Artz, 1995, Murphy *et al.*, 1996; Read *et al.*, 2009), but again we modified them to serve the purposes of our research project. The six items used to measure satisfaction are presented in the below list:

Satisfaction measurements

(1) Running this company gives me satisfaction.
(2) Thanks to running this company, I achieve the right profits.
(3) Thanks to my work, I can fulfil my dreams.
(4) My work is aligned with my interests.
(5) Running a company in this team gives me satisfaction.
(6) I am glad that I am an entrepreneur.

The questionnaire items used to measure performance are presented in Table 2. Objective performance-oriented data were not available because of the fact that the research participants formed entrepreneurial teams that run small ventures and do not have to publish their results. However, it should be emphasised that the use of self-reported data is

Financial performance	Non-financial performance
Our company brings adequate profits compared to the invested funds	Our company has an established reputation among customers
Our company's investments bring the expected profits	Our company is currently hiring or is planning to
Our company brings adequate profits in relation to the invested effort and time	Our company is developing at least as fast as other companies operating in this industry
Our company increases its level of sales.	Our company's outcomes are good when compared to the competitions.

Table 2.
Performance measurement

common and accepted in entrepreneurial research (Smolka *et al.*, 2018). To make sure that the obtained data are accurate, we split the research process into two phases and ensured that the participants maintained confidentiality. The respondents were asked about their performance during the second phase to reduce the risk of obtaining responses about performance biased by responses provided in the mental model questionnaire.

4. Results

As already mentioned, this paper includes data collected from the sample of 98 participants (29.6% female). They were members of 38 entrepreneurial teams (18 nascent teams and 20 established ones). Similar to what Vanaelst *et al.* (2006) experienced, there were times in our research process when the researcher's patience was put to the test, and a certain level of resilience was necessary to ensure that the participants provided their answers. Table 3 presents descriptive statistics related to our sample of entrepreneurial teams.

Then, we verified the reliability of the variables that were of our main interest in this research, i.e. financial performance, non-financial performance, satisfaction, the perception of the extent to which the team acts in accordance with the effectuation principles and the extent to which the team acts in accordance with the causation principles. Descriptive statistics and reliability levels are provided in Table 4.

All of the analysed variables reached a higher reliability level than 0.7, which is commonly regarded as satisfactory. It is quite interesting that our study participants, on average, indicated that their teams followed both effectuation and causation principles to a considerable extent. This result seems to indicate that they can indeed operate in tandem.

To verify our hypotheses, we moved to the verification of the relationship between the congruence of the team mental model among team members and their satisfaction and assessed performance. The intraclass correlation coefficient was used as a measure of this congruence. This statistic represents the extent to which individuals who assess the same construct agree in their opinions and is used as a measure of inter-rater agreement (Mandrekar, 2011). We computed its value for each participating team in such a way that we verified the extent to which team members agree on their assessment of the extent to which they (as a team) follow effectuation and causation principles. We assigned the obtained

Table 3. Descriptives – entrepreneurial teams

	Nascent teams		Established teams	
	M	SD	*M*	SD
Number of entrepreneurial team members	3.33	1.53	2.05	0.22
Number of people used in the company	6.06	5.12	13.65	23.25
Age of the company	Less than six months		14.08	15.80
Age of the entrepreneurial team member	34.10	10.14	40.85	8.94

Table 4. Descriptives – entrepreneurial team members

	M	SD	Cronbach's α
Following causation principles	3.86	0.56	0.87
Following effectuation principles	3.96	0.47	0.83
Financial performance	3.59	0.81	0.91
Non-financial performance	3.49	0.77	0.78
Satisfaction	4.08	0.61	0.76

scores to individual team members accordingly. The intraclass correlation coefficient can range from 0 to 1. The following scores were obtained in this study: $M = 0.32$, SD = 0.20 for nascent entrepreneurial teams and $M = 0.45$, SD = 0.30 for established ones. The relationship between the intraclass correlation coefficient and the assessed performance and satisfaction in nascent and established teams are given in Table 5.

Table 5 presents the results obtained on an individual level. To verify whether there is evidence supporting the presence of the observed relationship on a team level, we averaged the scores of members of each team to obtain a single measure for every team and correlated them with the intraclass correlation coefficient for the team. The results are presented in Table 6.

The results obtained on the team level are thus similar to those previously described. *H1* is partially supported. Evidence supporting a significant and positive relationship between team mental model congruence and financial performance of companies ran by established entrepreneurial teams was found, whereas no such relationship was observed in the group of ventures ran by nascent teams. There was, however, no such relationship for non-financial performance in both analysed groups. *H2* was supported. A positive relationship between team mental model congruence and team members' satisfaction was discovered but only in established entrepreneurial teams.

5. Discussion

The role of entrepreneurial activities in the development of emerging economies, including Poland, where this study was conducted, has become significant and is likely to increase (Villegas Mateos and Amorós, 2019). As entrepreneurial teams become more prevalent, studying factors associated with their outcomes is important (Stankiewicz *et al.*, 2020). In

Table 5.
Relationship between team mental model congruence and satisfaction and performance in new and established entrepreneurial teams (individual team member level)

r-Pearson correlation coefficients between team mental model congruence and three analysed variables related to entrepreneurial outcomes (individual team member level)			
	Financial performance	Non-financial performance	Satisfaction
Nascent entrepreneurial teams	−0.02	0.02	0.03
Established entrepreneurial teams	0.58**	0.19	0.40*

Notes: *$p < 0.05$; **$p < 0.01$

Table 6.
Relationship between team mental model congruence and satisfaction and performance in nascent and established entrepreneurial teams (team level)

r-Pearson correlation coefficients between team mental model congruence and three analysed variables related to entrepreneurial outcomes (team level)			
	Financial performance	Non-financial performance	Satisfaction
Nascent entrepreneurial teams	0.01	0.07	0.13
Established entrepreneurial teams	0.67**	0.22	0.44*

Notes: *$p < 0.05$; **$p < 0.01$

our research, we focused on both nascent and established entrepreneurial teams and verified the relationship between their team mental model congruence and performance and satisfaction.

Proposed hypotheses received either partial or full support. As was assumed, in established teams, the congruence of members' perception of their joint entrepreneurial efforts plays a more important role. It was found to be significantly and positively related to financial performance and satisfaction. Theoretical models of team development (Tuckman, 1965; Rickards and Moger, 2000) suggest that members of such teams might have already undergone stages when they developed an agreement about their approach to running a business and created a shared representation of their operations. On the other hand, as hypothesised, the investigated relationships were not significant in nascent teams. Their members may still be at a stage when a strong focus is placed on opportunity recognition, team norms are being established and a certain level of agreement about conducting operations is not yet associated with the obtained results and satisfaction level. Based on these findings, it can be cautiously proposed that the importance of the mental model congruence increases over the team's lifespan.

Interestingly, in both of the investigated groups, the relationship between the mental model congruence and non-financial performance was insignificant. Non-financial performance was measured with items pertaining to the company's growth, reputation and relative position on the market. It is possible that even in established teams, these effects are simply influenced by other factors, unrelated to the consensus within the entrepreneurial team, e.g. the fit between the strategy and the current economic situation. Hence, a further investigation of their correlates is required.

Another result obtained in this study that is worth discussing is the degree to which study participants, on average, declared that their teams followed the principles of both effectuation and causation. As these results are clearly above the midpoint of the scales included in the questionnaire, they indicate that participating companies declare actively performing actions congruent with both entrepreneurial logics. Authors of previous studies have demonstrated that using both these logics may bring positive, synergistic results (Smolka *et al.*, 2018).

Our findings corroborate previous results that emphasise the importance of congruence among people who jointly manage a company (Floyd and Wooldridge, 1992; Knight *et al.*, 1999). This study reaches a similar conclusion and indicates that, at least in established teams, higher performance level are associated with higher congruence (Carrington *et al.*, 2019; Rapert, Lynch, and Suter, 1996). Previous studies, however, were focused on only one aspect of this congruence, namely, strategic consensus. This study differs from them as it uses an understanding of mental models that goes beyond the consensus about strategy.

6. Implications

The implications of our investigation can be categorised in two distinctive ways: implications derived directly from the research findings and implications stemming from the existing research gap.

First, taking into account the results of the conducted research aimed to explore a consensus (congruence) between team members about aspects of running a venture related to outcomes such as performance and satisfaction, our practical implications mainly refer to entrepreneurial education. As entrepreneurship is increasingly becoming a team and not an individual phenomenon, the concept of the team mental model could be made more prevalent in entrepreneurship teaching and training. Specifically, those who consider pursuing entrepreneurial careers should be made aware that among many differences

possibly affecting team processes and performance, they should pay attention to the congruence of the way in which team members think about running a venture. It seems that as opposed to many stable characteristics such as demographics and personality, the team mental model is much more malleable and at the same time related to obtained outcomes. It means that investing time and effort in developing the clarity of the team mental model among team members may be profitable. It concerns not only those who intend to become entrepreneurs or members of nascent or young teams, but also lifelong learning and experienced entrepreneurs whose education needs to involve critical reflection (Kakouris, 2015). They could also benefit from learning about team mental models and the significance of their congruence. As one of the incentives to take part in the study, entrepreneurial teams were offered an opportunity to participate in a session explaining the purpose of the study and its implications (the session took place after both study phases). The teams that decided to take part in it described it as a useful and valuable experience that allowed them to see their collaboration and operations from a new perspective. Additionally, the results obtained in this study allow us to make a careful judgement that the importance of mental model congruence might greatly increase in an entrepreneurial team over time.

Second, there are also implications derived directly from the research gap, which has not been sufficiently explored in the studies conducted so far, namely, the analysis of entrepreneurial teams from the unique perspective of the team mental model held by their members. During the entrepreneurship education process, those who plan to form entrepreneurial teams (and those who already operate in them) might be made aware that – at different stages of their team development – they would face diverse challenges not only related to running their venture but also to parallel internal processes. The importance of focusing on the latter has been emphasised by other scholars (Brettel *et al.*, 2012). This notion could be of even greater significance to those who already operate in nascent teams and may become part of their training in, for example, business incubators. Entrepreneurial education might help formulate specific action plans that can be put into practice at a later time. It is worth stressing that the opinion on the mental model held by team members when the performance and/or satisfaction level is below expectations is an example of such potential trigger for a plan.

The next implication and practical suggestion that we would like to make is related to the specificity of such plans. It is important to assert that making people realise certain phenomena might be insufficient in the entrepreneurship education process. Even though awareness is essential, sometimes those who are forewarned are not forearmed. Thus, it is vital to develop an idea about specific actions that might be put into practice or experimented with by an entrepreneurial team. This study implies that the principles of effectuation and causation can be translated into a list of specific activities to be used by members of nascent and established entrepreneurial teams (as well as people who consider forming one) as a tool in the process of aligning their team mental models. This could provide a means of discussing their current way of thinking about running a venture and opportunities and risks related to both approaches and ways in which they may use the principles of both in tandem to obtain the best possible results. An interesting aspect of such guided discussion might include careful thought to whether individuals demonstrate a relatively stable propensity to think and act in accordance with either effectuation or causation principles. This question also seems to be an interesting avenue to explore in further research.

The authors are aware that the study was not longitudinal and is not free from limitations, which include a small sample size and the use of self-reports. Therefore, it would be beneficial to corroborate obtained results with further evidence.

7. Conclusions

The study contributes to the literature on nascent and established entrepreneurial teams and intrateam processes (Jin *et al.*, 2017). We demonstrated that the mental model congruence level is significantly and positively associated with financial performance and with team members' satisfaction in the case of experienced teams, but not in the case of newly established ones. This perspective allows emphasis to be placed on internal organisational processes that are related to obtained results (Brettel *et al.*, 2012).

The next contribution is related to the effectuation theory. We proposed that as its principles can be translated into specific entrepreneurial actions, the effectuation–causation distinction may be regarded as a lens through which the entrepreneurial team mental model can be perceived. Our findings can be regarded as an addition to the current understanding of entrepreneurial teams.

Further exploration of the dynamics of team mental models and phases of team development when they become critical is an interesting future research opportunity. This study has been conducted in the specific context of an emerging economy that has the ambition to become an advanced one. Therefore, it sheds light on entrepreneurial teams operating in this relatively underrepresented context that deserves more attention from scholars and represents an interesting case related to the time of transition and rapid changes.

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Corresponding author
Paweł Ziemiański can be contacted at: pawel.ziemianski@pg.edu.pl