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Entrepreneurial Affect and Emotions in Entrepreneurship Education Impact Research: A Systematic Review and Research Agenda

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Pierre G. Keller^{1,2} and Inna Kozlinska^{3,4}

Abstract

In this research article, we systematically review literature on entrepreneurial affect and emotions in entrepreneurship education (EE) impact studies. In view of the increasing usage of entrepreneurial affect in the EE literature and the multiplicity of its facets, the main aim of this article is to create a definitional framework of affect. Based on the criteria of scientific standard and relevance for EE, we critically select 46 literature sources published from 1984 to 2017 and conduct a citation analysis of their impact. We then systemize and classify these sources using co-citation analyses as well as conduct a critical review of content similarities. As a result, we identify five main groups of the literature sources: (a) Affect in entrepreneurship research, (b) Affect in EE impact research, (c) Affect-cognition relationship, (d) Affect-conation relationship, and (e) Conceptual contributions. Our critical review of the literature sources further leads to the creation of the definitional framework of affect. The framework facilitates deeper understanding of affect and advocates terminological precision. It may, therefore, serve other EE researchers in conducting impact studies.

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In this vein, we formulate propositions for further research by combining the affect infusion model with the theory of planned behavior.

Keywords

entrepreneurial affect, emotions, systematic literature review, co-citation analyses, entrepreneurship education

Introduction

The literature on entrepreneurship education (EE) has witnessed rapid growth in the past 30 years (Katz, 2003; Martin, McNally, & Kay, 2013). Supposedly as part of this growth, scientific impact from psychology on the field of EE strengthened (Cardon, Foo, Shepherd, & Wiklund, 2012; Fayolle, 2013; Jones & Matlay, 2011), going hand in hand with increasing rigor of contributions. The interest in what makes an entrepreneurial individual in general and in entrepreneurial cognition in particular has been at the forefront of this strand of research.

The dominating theory in explaining behavioral consequences of entrepreneurial cognition is Ajzen's (1991) theory of planned behavior (TPB; Kautonen, van Gelderen, & Fink, 2015; Rauch & Hulsink, 2015). This theory is widely applied in the EE impact research where entrepreneurial intentions (EI) top the list of the most popular learning outcome measures (Liñán & Fayolle, 2015; Lorz, Mueller, & Volery, 2013; Nabi, Liñán, Fayolle, Krueger, & Walmsley, 2017). Although being meaningful for the field of EE, intentions and their antecedents (attitudes, self-efficacy, and norms) are by far not the only useful and informative measures (Grégoire, Cornelissen, Dimov, & Burg, 2015; Krueger & Sussan, 2017; Rauch & Hulsink, 2015; Schlaegel & Koenig, 2014).

Recent studies point out the importance of investigating affect/emotions in EE impact studies (Nabi et al., 2017; Zampetakis, Lerakis, Kafetsios, & Moustakis, 2015). These studies have focused primarily on the association between emotions and the known antecedents of intentions (Arpiainen, Lackéus, Täks, & Tynjälä, 2013; Baron, 2008; Cardon et al., 2012; Ravis, Sheeran, & Armitage, 2009). However, as the research on affect/emotions in entrepreneurship and EE research emerges and evolves, the phenomenon of affect/emotions tends to be defined very broadly (see, e.g., Cardon et al., 2012; Nabi et al., 2017). Consequently, the *affect in EE impact* studies face the risk of lacking conceptual robustness. In particular, we spot the need for a clearer theoretical understanding of the phenomenon. One way of addressing this is to develop a definitional framework of affect drawing upon the literature from psychology. Such a framework could act as a definitional anchor for emotion-based impact studies in pedagogical settings.

Despite the fact that recommendations for researching affect in EE impact studies emerged around a decade ago, empirical evidence in this research area

remains scarce (Nabi et al., 2017). In addition, systematizations and classifications of entrepreneurial affect and emotions are missing, making existing scarce evidence on *affect in EE impact* less replicable.

Our study, based on a systematic literature review (SLR), sets three major aims: (a) to deepen the knowledge about entrepreneurial affect and emotions through the systematic deduction and discussion of prior research coming from psychology, entrepreneurship, and EE; (b) to provide a definitional framework of affect as a result of this systematic deduction; and (c) to theorize yet under-researched links between entrepreneurial affect/emotions and EI. Ultimately, this article proposes directions for further research into the relationship between EE, affect/emotions, and EI.

This article is structured as follows. The first section sets up the theoretical scene of the article by overviewing main tendencies in the research on EI and emotions. The second section provides methodological details of the conducted SLR process and of the citation and co-citation analyses. The third section presents results of the SLR and the subsequent analyses—the definitional framework of affect and the research agenda for EE impact studies focusing on entrepreneurial affect and emotions. We conclude with the overall contribution and limitations of the study.

Theoretical Rationale

Scholarly interest in psychological insights to enrich the understanding of EE and EI increased in recent years (Liñán & Fayolle, 2015). EI is a critical outcome for EE because it is a strong predictor of subsequent entrepreneurial behavior (see, e.g., Rauch & Hulsink, 2015; Souitaris, Zerbinati, & Al-Laham, 2007). TPB, or the “theory of the proximal determinants of behaviour” (Conner & Armitage, 1998, p. 1432), is a helpful model for understanding the relationship between EI and entrepreneurial behavior as well as the relationship between EI and its antecedents (Kautonen et al., 2015; Nabi et al., 2017). The widely tested antecedents, according to TPB, are as follows:

- *attitude toward the behavior* reflects the degree of how favorable or unfavorable a specific behavior is evaluated by an individual (Ajzen, 1987);
- *subjective norms* refer to a social pressure to perform or not to perform a specific behavior (Ajzen, 1987); and
- *perceived behavioral control* implies the perceived ease or difficulty of performing a specific behavior and, thus, can include both experiences and anticipated obstacles (Ajzen, 1987, 1991).

Previous studies demonstrate that these antecedents (see, e.g., the scales by Liñán & Chen, 2009) are the robust predictors of intentions (Armitage & Conner, 2001; Iakovleva, Kolvereid, & Stephan, 2011). In this vein, intentions describe

“indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour” (Ajzen, 1987, p. 44).

Despite the TPB’s popularity and robustness, a significant proportion of variance in entrepreneurial behavior in the frames of the theory remains unexplained (Armitage & Conner, 2001). Furthermore, attitudes toward entrepreneurial behavior, entrepreneurial self-efficacy, and subjective norms have also been attracting researchers’ attention to deepen understanding of their emergence. One stream of salient research into explaining the emergence of the TPB antecedents is the entrepreneurial identity research, for example, Rise, Sheeran, and Hukkelberg (2010) as well as Obschonka, Goethner, Silbereisen, and Cantner (2012). Alongside the recent critique of the latter tandem (Sparks & Guthrie, 1998), studies highlight the importance of investigating emotions (Baron, 2008; Cardon et al., 2012; Nabi et al., 2017). This stream of research appears promising because it deepens understanding of the association of emotions, known antecedents of intentions and intentions per se, on the one hand, and can add explanatory power to predicting intentions, on the other hand (see Ravis et al., 2009).

However, the basic question remains what researchers actually understand under the terms *emotion* and *entrepreneurial emotions*. Within the EE literature, for example, Nabi et al. (2017) subsume affect, emotion, and feeling under the umbrella term *entrepreneurial emotion*, which is very broad and unspecific, but goes hand in hand with other scientists using quite similar definitions. According to Cardon et al. (2012),

Entrepreneurial emotion refers to the affect, emotions, moods, and/or feelings – of individuals or a collective – that are antecedent to, concurrent with, and/or a consequence of the entrepreneurial process, meaning the recognition/creation, evaluation, reformulation, and/or the exploitation of a possible opportunity. (p. 3)

Both of the aforementioned definitions use the term *emotion* in defining the very phenomenon. Apart from that, the question arises what is understood by *affect*, *moods*, and *feelings*. From the viewpoint of terminological precision, it is crucial to define investigated variable(s) in a unified and clear manner to ensure findings are comparable, replicable, and interpretable by scholars from different fields. Therefore, we argue it is important to get insights from psychology research to contribute to EE impact studies focusing on affective feelings. This will help tackling terminological vagueness by providing specific definitions and theoretical anchors that EE scholars can use in the future empirical research.

Methodology

The SLR, which focused on entrepreneurial affect and emotions, was conducted to identify the main research directions, ensuring systematics, transparency, and replicability (Pittaway & Cope, 2007).

Table 1. Methodology of Selecting Relevant Literature Sources on Entrepreneurial Affect and Emotions for Citation Analysis.

Selection process of relevant literature sources								
Database	Academic OneFile	EBSCO	Elsevier	Google Scholar	JSTOR	Research Gate	Science Direct	Scopus
Keyword	Affect, Affective feelings, Emotion, Entrepreneurship Education, Entrepreneurial Emotion, Entrepreneurial Intention, Theory of Planned Behavior							
Objective quality criteria	Journal ranking according to CABS Academic Journal Guide 2018, h-index of the author(s), year of publication							
Subjective quality criterion	Evaluation of title, keywords, and abstract according to its relevance for affect and emotions and its potential relevance for EE impact studies							
No. 1								
Number of potential literature sources for citation analysis: 79								
Data cleaning	Recheck of the citation correctness (year, author/s, title, journal, pages), elimination of duplicate documents (2)							
Subjective quality criterion	Critical review of the whole document regarding its relevance for affect and emotions, its scientific standard, and potential relevance for EE impact studies							
No. 2								
Number of sources used for citation analysis: 46. Number of sources refused: 33								

Note. CABS = Chartered Association of Business Schools; EE = entrepreneurship education.

To protocol processes and methods applied as part of the literature review, we summarize the key methodological steps in Table 1 and elaborate on them herewith. In conducting the SLR, we took the work of Pittaway, Holt, and Broad (2014) as a reference point to select the literature sources to be included into the review, for example, downloading citations to identify and eliminate any duplicates. We also used a set of objective and subjective criteria to guide the selection process.

Literature sources were predominantly downloaded from *Google Scholar*, from electronic databases including *EBSCO*, *Elsevier*, *Science Direct*, *Scopus*, databases provided by *eLibrary USA* (*Academic OneFile* and *JSTOR*) as well as *ResearchGate*. *Affect*, *Affective feelings*, *Emotion*, *Entrepreneurship Education*, *Entrepreneurial Emotion*, *Entrepreneurial Intention*, and *Theory of Planned Behavior* were used as keywords.

One selection criterion was the journals' ranking (Nabi et al., 2017). We predominantly focused on those articles published in high-ranked journals (two to four-star) following the Chartered Association of Business Schools' (CABS, 2018) Academic Journal Guide 2018.

Besides that, we checked h-indices (Hirsch, 2005) of the authors of the literature sources. This was a particularly relevant criterion for the cases when a literature source on entrepreneurial affect/emotions was published in a book

or in a lower ranked journal yet still appeared relevant for the study. We evaluated the h-index in relation to the authors' years of scientific activity (indicated by the time frame of the year of the first published literature source until 2018) and set the cutoff ratio I , as Hirsch (2005) characterizes those reaching this h-index as successful scientists (e.g., an h-index of 20 after 20 years of scientific activity, resulting in a ratio of 1). If both the journal's ranking and the authors' h-index were weak, we eliminated a literature source. If only the journal's ranking was weak, but one of the author's h-index was above the cutoff ratio, we still considered a literature source to evaluate its scientific rigor. For example, in the article by Arpiainen et al. (2013), Arpiainen did not have any h-index ranking, but the h-index of the two coauthors—Lackéus (1.50) and Tynjälä (1.59)—were high enough. Therefore, the article was included into the 79 potential literature sources for the subsequent citation analysis. We believe that focusing not merely on the high-ranked journals was important to ensure the selection captures the most impactful works also in terms of their usability by other scholars.

To ascertain that articles in the selection capture historical legacy of the field, yet are not too old, and at the same time relevant for contemporary EE practices, we also accounted for the publication year and included only those literature sources that were published in the past 35 years (1983–2017), indicating the time frame where EE research has witnessed its rapid growth.

For the evaluation of *subjective quality criterion No. 1*, we made a subjective review of all the article abstracts to ensure that the articles do focus on entrepreneurial affect/emotions or that they bring about theoretical wisdom relevant for this subject. After the initial data cleaning, the scientific level of all selected literature sources ($N = 79$) was checked carefully (*subjective quality criterion No. 2*), especially those that had low or missing rankings as per the Academic Journal Guide 2018. Apart from that, this selection process stage included the assessment of literature sources' relevance and scientific novelty related to entrepreneurial affect/emotions. The resulting number of articles selected for the ensuing citation analysis totaled $N = 46$.

The citation analysis helped us identify those literature sources that had the greatest impact in the field of (entrepreneurial) affect/emotions (Ferreira, Santos, de Almeida, & Reis, 2014; Gundolf & Filser, 2013). The number of citations in the analysis indicates on the most influential literature sources that shape the field (Acedo & Casillas, 2005; Xi, Kraus, Filser, & Kellermanns, 2015). The co-citation analyses, in turn, served as a tool for identifying intellectual ties between literature sources in our sample as well as the ties' strength, indicated by the amount of co-citations (Shafique, 2013). Moreover, this analysis resulted in a first visual systematization overview of the research field on (entrepreneurial) affect/emotions (Liñán & Fayolle, 2015).

The citation analysis used in our study consisted of the following steps: (a) calculation of the amount of citations each literature source reaches within the selected 46 studies, (b) calculation of the ratio of these citation amounts in

relation to the highest possible amount within the sample of 46 (taking into account how many studies of the 46 selected articles have been published before the considered study, which consequently decreased the possible overall citation amount), ensuring comparability of the studies' influence, and (c) selection of those literature sources that have at least one citation within the sample, resulting in 30 literature sources used in the co-citation analyses (to detect linkages and groups).

The co-citation analyses, in turn, consisted of (a) detecting literature sources that had at least two co-citations together (stronger links), (b) detecting links among those literature sources that had only one co-citation (weaker links), (c) visualizing the links, and (d) investigating content similarities. We generated a cross-table in Excel and checked within our initial sample of 46 literature sources, how many citation pairs of the 30 literature sources exist. We further carried out a plausibility check of the number of citation pairs with the help of a mathematical formula.¹ It showed how many citation pairs exist for a given number of citations within one publication. After that, we displayed the results visually using Microsoft PowerPoint.

Finally, we investigated content similarities within our sample to identify groups of topics and to classify the literature sources according to these groups (Liñán & Fayolle, 2015; Xi et al., 2015). This qualitative classification procedure helped us in validating the results of the quantitative procedure, that is, of the co-citation analyses.

Results

Citation Analysis

Table 2 summarizes results of the citation analysis. The table shows the following:

1. the author information,
2. the number of citations within the sample comprising 46 literature sources, the ratio of citations in relation to possible citations, and
3. the journal as well as its ranking according to CABS (2018).

In terms of the ranking of the literature sources, the articles by Cardon et al. (2012) and Lackéus (2014) top the list as measured by the ratio of possible citations. In this case, 33.3% of the literature sources that could have referred to them—as they were published afterward—included their articles as a reference. In general, there is a high diversity of article types among the top-cited articles. Empirical studies (e.g., Foo, Uy, & Baron, 2009; Lackéus, 2014; Souitaris et al., 2007; von Graevenitz, Harhoff, & Weber, 2010) are clearly dominating in the selection. Literature reviews (e.g., Cardon et al., 2012;

Table 2. Literature Sources on Entrepreneurial Affect and Emotions According to Their Impact.

Rank	Short citation	Cit.	in % of possible cit. ^a	Journal	CABS (2018) ranking
1	Cardon et al. (2012)	3	33.33%	ETP	4
1	Lackéus (2014)	2	33.33%	IJME	1
3	Baron (2008)	7	31.82%	AMR	4*
4	von Graevenitz et al. (2010)	3	27.27%	JEBO	3
5	Souitaris et al. (2007)	7	26.92%	JBV	4
6	Cardon et al. (2009)	4	26.67%	AMR	4*
6	Foo et al. (2009)	4	26.67%	JAP	4*
8	Arpiainen et al. (2013)	2	25.00%	TRAMES	—
9	Tracy and Robins (2007b)	6	22.22%	JPSP	4
10	Stamboulis and Barlas (2014)	1	16.67%	IJME	1
11	Baron (2004)	5	15.15%	JBV	4
12	Forgas (1995)	6	14.63%	PB	4
13	Welpé et al. (2012)	1	11.11%	ETP	4
14	Watson et al. (1988)	4	9.09%	JPSP	4
14	Williams and DeSteno (2008)	2	9.09%	JPSP	4
14	Grichnik et al. (2010)	1	9.09%	JEBO	3
17	Schwarz and Clore (2007)	2	7.69%	Book	—
17	Tracy and Robins (2007a)	2	7.69%	CDPS	4
19	Hmieleski and Baron (2009)	1	6.67%	AMJ	4*
19	Rivis et al. (2009)	1	6.67%	JASP	2
19	Williams and DeSteno (2009)	1	6.67%	PS	4*
22	Goss (2005)	2	6.45%	HR	4
23	Clore et al. (2001)	2	5.41%	Book	—
23	Isen (2001)	2	5.41%	JCP	4*
25	Forgas (1992)	2	4.65%	Book	—
26	Barsade and Gibson (2007)	1	3.85%	AMP	3
27	Brockner et al. (2004)	1	3.03%	JBV	4
28	Lüthje and Franke (2003)	1	2.86%	RDM	3
28	Thrash and Elliot (2003)	1	2.86%	JPSP	4
30	Higgins (1997)	1	2.56%	AP	—
31	Gagné (1984)	0	0.00%	AP	—
31	Cloninger (1994)	0	0.00%	CON	—
31	Lea and Webley (1997)	0	0.00%	JEP	2
31	Bosman et al. (2005)	0	0.00%	JEP	2

(continued)

Table 2. Continued.

Rank	Short citation	Cit.	in % of possible cit. ^a	Journal	CABS (2018) ranking
31	Baumgartner, Pieters, and Bagozzi (2008)	0	0.00%	EJSP	3
31	Sandberg and Conner (2008)	0	0.00%	BJSP	3
31	Bryant (2009)	0	0.00%	JBV	4
31	Izard (2009)	0	0.00%	ARP	4
31	Orth et al.(2010)	0	0.00%	JPSP	4
31	Tracy et al. (2010)	0	0.00%	ER	–
31	Grégoire et al. (2015)	0	0.00%	IJMR	3
31	Liñán and Fayolle (2015)	0	0.00%	IEMJ	1
31	Zampetakis et al. (2015)	0	0.00%	JBVI	4
31	Farhangmehr, Gonçalves, and Sarmento (2016)	0	0.00%	E+T	1
31	Nabi et al. (2017)	0	0.00%	AMLE	4
31	Verzat, O'Shea, and Jore (2017)	0	0.00%	ERD	3

Note. AMJ = Academy of Management Journal; AMLE = Academy of Management, Learning and Education; AMP = Academy of Management Perspectives; AMR = Academy of Management Review; AP = American Psychologist; ARP = Annual Review of Psychology; BJSP = British Journal of Social Psychology; CABS = Chartered Association of Business Schools; CDPS = Current Directions in Psychological Science; CON = Current Opinion in Neurobiology; EJSP = European Journal of Social Psychology; ER = Emotion Review; ERD = Entrepreneurship and Regional Development; ETP = Entrepreneurship, Theory and Practice; E+T = Education + Training; HR = Human Relations; IEMJ = International Entrepreneurship and Management Journal; IJME = International Journal of Management Education; IJMR = International Journal of Management Reviews; JAP = Journal of Applied Psychology; JASP = Journal of Applied Social Psychology; JBV = Journal of Business Venturing; JBVI = Journal of Business Venturing Insights; JCP = Journal of Consumer Psychology; JEBO = Journal of Economic Behavior & Organization; JEP = Journal of Economic Psychology; JPSP = Journal of Personality and Social Psychology; PB = Psychological Bulletin; PS = Psychological Science; RDM = R&D Management; TRAMES = TRAMES: A Journal of the Humanities & Social Sciences.

^aPossible cit. takes into account how many studies of the initial list have been published before the considered study.

Belongs to the CABS ranking ranging from 1 to 4.

Cardon, Wincent, Singh, & Drnovsek, 2009) and conceptual articles (e.g., Baron, 2008) are also among the top-cited sources.

Apart from that, it gets obvious that higher comparability between older and recent literature through the use of a ratio consisting of citations and possible amount of citations was reached. Taking the article from Lackéus (2014) as an example, it would have a rank in the middle as it only generated two citations within the initial sample of 46 literature sources. However, because only six literature sources could have their work cited (leading to the ratio of 33.3%,

Robins (2007a, 2007b), and Williams and DeSteno (2008, 2009), have several citation ties but are somewhat disconnected from other articles in the sample.

For a closer examination of the ties as well as to facilitate categorization of the most influential literature sources, we analyzed content similarities of the top 30 articles (Liñán & Fayolle, 2015). This evaluation comprised the co-citation analyses itself and the subjective content appraisal. The literature sources were classified into five specific groups outlining different research scopes of the sources and were labeled with the most appropriate keyword/umbrella term (Rauber, Schweighofer, & Merkl, 2000): (a) Affect in entrepreneurship research, (b) Affect in EE impact research, (c) Affect-cognition relationship, (d) Affect-conation relationship, and (e) Conceptual contribution. See Table 3 for details.

The first group of studies, *Affect in entrepreneurship research*, includes predominantly empirical studies on affect in entrepreneurship, where more narrow topics can be identified. For example, Foo et al. (2009) investigate the effect of affect on entrepreneurs' effort toward specific tasks. Hmieleski and Baron (2009) focus on the effect of dispositional optimism on venture's performance. The most influential literature source comes from Baron (2008), providing us with a theoretical model of the role of affect within the entrepreneurial process. Therefore, we can conclude that the first observed cluster around the studies from Baron (2004, 2008), mentioned in the context of Figure 1, shows intellectual ties between literature on *Affect in entrepreneurship research*. Those studies having content similarities and, thus, being classified under the first group, show simultaneously visualized connections in the cluster around the work by Baron (2004, 2008) in Figure 1, for example, Cardon et al. (2009) and Foo et al. (2009).

Taking a narrower view of affect in entrepreneurship to our research scope, research on *Affect in EE impact* is scarce. Within our categorization, we found only four studies focusing on this subject. The most influential article by Souitaris et al. (2007) is devoted to intention and not on affect specifically. The study does look into inspiration but does not provide a substantial theoretical basis with regard to this emotion-related variable. The same room for improvement we spot in other studies by von Graevenitz et al. (2010), Arpiainen et al. (2013), and Stamboulis and Barlas (2014). Moreover, while all of them in one way or another research intentions and emotions, they do not research the relationship between the two phenomena. Just like in the first group, the logic of our visualization (Figure 1) holds for the classification made relying on the content similarities. We further noticed why we initially observed two different clusters: one around the article by Baron (2004, 2008) and another around the article by Souitaris et al. (2007). These clusters are indeed connected due to the similar research scope yet are set in different contexts—the study of Souitaris et al. (2007) is grounded in pedagogical context. Because the findings in this group are scarce, we are still caught in vagueness.

Within the literature selection process, we initially broadened our focus to the studies focusing on affect and emotions in addition to entrepreneurial affect and

Table 3. Five Major Groups of the Most Influential Studies on Entrepreneurial Affect and Emotions.

Groups	Short citation	Journal	Co-citations
Group 1. Affect in entrepreneurship research	Baron (2008)	AMR	28
	Cardon et al. (2009)	AMR	24
	Foo et al. (2009)	JAP	23
	Baron (2004)	JBV	22
	Cardon et al. (2012)	ETP	12
	Goss (2005)	HR	12
	Hmieleski and Baron (2009)	AMJ	9
	Lackéus (2014)	IJME	8
	Grichnik et al. (2010)	JEBO	7
	Brockner et al. (2004)	JBV	1
	Lüthje and Franke (2003)	RDM	1
Group 2. Affect in EE impact research	Souitaris et al. (2007)	JBV	14
	von Graevenitz et al. (2010)	JEBO	7
	Stamboulis and Barlas (2014)	IJME	5
	Arpiainen et al. (2013)	TRAMES	1
Group 3. Affect-cognition relationship	Baron (2008)	AMR	28
	Cardon et al. (2009)	AMR	24
	Foo et al. (2009)	JAP	23
	Baron (2004)	JBV	22
	Clore et al. (2001)	Book	16
	Forgas (1995)	PB	12
	Schwarz and Clore (2007)	Book	10
	Hmieleski and Baron (2009)	AMJ	9
	Isen (2001)	JCP	9
	Lackéus (2014)	IJME	8
	von Graevenitz et al. (2010)	JEBO	7
	Grichnik et al. (2010)	JEBO	7
	Welpé et al. (2012)	ETP	4
	Forgas (1992)	Book	3
	Rivis et al. (2009)	JASP	3
	Williams and DeSteno (2009)	PS	3

(continued)

Table 3. Continued.

Groups	Short citation	Journal	Co-citations
Group 4. Affect-conation relationship	Forgas (1995)	PB	12
	Goss (2005)	HR	12
	Higgins (1997)	AP	9
	Williams and DeSteno (2008)	JPSP	4
	Welpel et al. (2012)	ETP	4
	Forgas (1992)	Book	3
	Brockner et al. (2004)	JBV	1
Group 5. Conceptual contribution (definitions, methodologies, scales, and frameworks)	Clore et al. (2001)	Book	16
	Schwarz and Clore (2007)	Book	10
	Barsade and Gibson (2007)	AMP	7
	Tracy and Robins (2007b)	JPSP	5
	Tracy and Robins (2007a)	CDPS	5
	Forgas (1992)	Book	3
	Rivis et al. (2009)	JASP	3
	Watson et al. (1988)	JPSP	3
	Lüthje and Franke (2003)	RDM	1
	Thrash and Elliot (2003)	JPSP	1

Note. AMJ = Academy of Management Journal; AMP = Academy of Management Perspectives; AMR = Academy of Management Review; AP = American Psychologist; CDPS = Current Directions in Psychological Science; ETP = Entrepreneurship, Theory and Practice; HR = Human Relations; IJME = The International Journal of Management Education; JAP = Journal of Applied Psychology; JASP = Journal of Applied Social Psychology; JBV = Journal of Business Venturing; JCP = Journal of Consumer Psychology; JEBO = Journal of Economic Behavior & Organization; JPSP = Journal of Personality and Social Psychology; PB = Psychological Bulletin; PS = Psychological Science; RDM = R&D Management; TRAMES = TRAMES: A Journal of the Humanities & Social Sciences.

emotions (in line with our initial stance to search for more insights and clarity from psychology research). This way, we captured the studies that focus on the affect-cognition relationship and the affect-conation relationship, deriving possible contributions for EE impact research.

The third group—*Affect-cognition relationship*—includes few studies from the first group and adds some valuable insights coming from psychology, for example, from Forgas (1992, 1995), Clore, Gaspar, and Garvin (2001), and Schwarz and Clore (2007). These literature sources provide us with the key theories serving as a basis of emotion-intention investigations, called affect-as-information theory, which, in turn, is part of the affect infusion model (AIM; Forgas, 1995). We refer to these theories in more detail further in the research agenda section.

Affect infusion is also part of the fourth group, the *Affect-conation relationship*. For instance, Welpel, Spörrle, Grichnik, Michl, and Audretsch (2012) link

opportunity evaluation, fear, joy, and anger with entrepreneurial exploitation. In addition to the affect infusion, this category is dominated by the regulatory focus theory (see Brockner, Higgins, & Low, 2004; Higgins, 1997)—yet another input from psychology for EE impact investigations. However, according to Brockner et al. (2004), it rather applies to the entire entrepreneurial process, and thus to the first group of studies (*Affect in entrepreneurship research*).

Finally, *Conceptual contribution*, the fifth group, combines knowledge generated through definitions, methodologies, scales, and frameworks. For example, Tracy and Robins (2007a, 2007b) highlight the importance of investigating pride. The authors argue that it is the most important emotion with regard to motivating behavior. Watson, Clark, and Tellegen (1988) contribute with the so-called positive and negative affect schedule. It reminds of the positive and negative anticipated affect in the article by Ravis et al. (2009) but shifts from a holistic measurement of positive and negative affect to a more precise one. It asks about specific discrete emotions such as “I feel *excited* of being part of entrepreneurial projects” or “I feel *scared* of being part of entrepreneurial projects.”

Within the scope of EE impact studies, we argue that the use of a more detailed measurement is a promising approach for increasing the amount of explained variance in EI. Furthermore, particularly the fifth group’s influential contributions, from Clore et al. (2001), Barsade and Gibson (2007), and Schwarz and Clore (2007), provide us with valuable insights for a better terminological understanding of affect.

Developing a Definitional Framework of Affect

One of the common tendencies that we observe in the overviewed articles relates to the use of the concept of affect. Namely, affect (or its synonym emotion) is referred to as a generic—umbrella—term for a broad range of individuals’ affective feelings (Barsade & Gibson, 2007; Schwarz & Clore, 2007). However, this comes with no further specification what kind of affect or emotion is being investigated (Baron, 2004; Bosman, Sutter, & van Winden, 2005; Forgas, 1992). The classification and distinction of affect and affective feelings is complex, as various synonyms and definitions exist for different types of affective feelings. As such, affect consists of *feeling states*, happening in the moment, and *feeling traits* characterizing stable tendencies of feeling and behaving in certain ways (Barsade & Gibson, 2007). We posit it is crucial to delineate different constituents of affect to ensure terminological precision in EE studies.

Feeling States: Discrete Emotions and Mood

Feeling states are current affective feelings, including *discrete emotions* and *mood* as two established categories (Barsade & Gibson, 2007; Clore et al., 2001). As a synonym to feeling states, Grichnik, Smeja, and Welpe (2010) make use of *state*

emotions as an umbrella term instead, indicating no clear consensus about terminology in social psychology literature.

Discrete emotions, implying the first category of feeling states/state emotions, always have a salient object; they are intense and short-lived (or current) affective feelings focused on a specific target or event and have a reciprocal relationship to mood (Barsade & Gibson, 2007; Clore et al., 2001; Forgas, 1992; Schwarz & Clore, 2007). Discrete emotions arise “when an event (stimulus) is appraised as relevant for one’s concerns or interests” (Bosman et al., 2005, p. 411); positive emotions thus happen when one’s interests are promoted (Bosman et al., 2005; Grichnik et al., 2010). In this vein, primary (or basic) emotions portray the result of the discrete emotion approach, including joy, love, anger, fear, among others. Yet, much debate about the precise number of discrete emotions exists (Barsade & Gibson, 2007).

Moods, representing the second category of feeling states/state emotions, are defined as “low intensity, diffuse, and relatively enduring affective states without a salient antecedent cause” (Forgas, 1992, p. 230), whereby they have only little cognitive content (Forgas, 1992). They thus have no salient object and do not induce this high intensity as discrete emotions do (Clore et al., 2001; Forgas, 1992; Schwarz & Clore, 2007); they generally take the form of a positive (pleasant) or negative (unpleasant) feeling (Barsade & Gibson, 2007; Bosman et al., 2005).

Feeling Traits: Attitude and Temperament

In contrast to feeling states, labeling current affective feelings, feeling traits display chronic affective feelings, defined as “personality tendency to respond to situations in stable, predictable ways” (Barsade & Gibson, 2007, p. 38) and imply two categories: *attitudes* and *temperament* (Barsade & Gibson, 2007). According to Gagné (1984), an attitude can be defined as “internal state that influences the choice of personal action” (p. 383), which always has a salient object (Clore et al., 2001)—showing similarities to discrete emotions. However, attitudes differ from discrete emotions in the way that they represent a personality tendency, characterized by chronic affective feelings instead of current affective feelings (Barsade & Gibson, 2007; Clore et al., 2001). The same holds for temperament, which is also characterized by chronic affective feelings determining habits and moods (Cloninger, 1994; Clore et al., 2001).

Similarities between temperament and mood do exist due to the missing salient object as a common feature (Cloninger, 1994; Clore et al., 2001). Connections of temperament with mood (or more generally, feeling traits and feeling states) are also possible. This approach of summarizing the variety of possible human affective experiences is known as the *affective circumplex* (Barsade & Gibson, 2007). As a remark of the feeling traits investigation, Barsade and Gibson (2007) label attitudes and temperament besides feeling

traits also as *dispositional (trait) affect*, whereas Isen (2001) and Grichnik et al. (2010) use the umbrella term *dispositional emotions* instead of feeling traits, again indicating the diversity of synonyms in social psychology literature. Herewith we emphasize the importance of being aware of this diversity.

Figure 2 summarizes the aforementioned overview and illustrates the resulting definitional framework.

Even deeper categorizations of affect are possible, such as primary and secondary emotions within discrete emotions. However, we believe that this framework should primarily serve as a terminological basis for EE researchers, to help them focus on particular aspects of affect. The depth of the offered classification is sufficient yet not overly detailed to support its usability.

Within the affect classification, two umbrella terms of affective feelings including *emotion* are observable: state and dispositional. However, ambiguities might arise, if no clear terminology is used as a basis, for example, if one merely uses *emotions* when one actually focuses on *state emotions*. Thinking of an

Figure 2. The definitional framework of affect.

Source. Barsade and Gibson (2007), Cloninger (1994), Clore et al. (2001), Forgas (1992), Gagné (1984), Grichnik et al. (2010), Isen (2001), Schwarz and Clore (2007).

empirical study that shows a significant impact of a state emotion (which is only labeled as emotion) on a specific dependent variable, a misinterpretation could be that a reader takes for granted that affect/emotion in general (state *and* dispositional emotion) influences this variable, even if no effect of dispositional emotions exists or has been shown.

Summing up, the definitional framework of affect brings about not only theoretical but also practical value, as it allows researchers specifying certain kind of affect/emotion they investigate and maintaining terminological rigor.

Research Agenda: Propositions for Further Research

EI is the most frequently used measure in the studies on learning outcomes and impact of EE (Liñán & Fayolle, 2015; Nabi et al., 2017). In contrast, the evaluation of emotion-based variables, which closely relate to the AIM, is given little consideration. To the best of our knowledge, only Souitaris et al. (2007) through investigating inspiration and Zampetakis et al. (2015) through investigating affective forecasting looked at the outcomes matching this theory within EE impact studies. Drawing upon the third and fourth groups of studies (*Affectcognition and Affect-conation*) in the resulting classification of the SLR, we see an opportunity for the integration of emotion-based variables into EE impact studies that measure EI to generate novel evidence on the affect-intention relationship (Cardon et al., 2012; Nabi et al., 2017; Ravis et al., 2009; Zampetakis et al., 2015).

In this section, we make two general propositions for further EE impact research, linking back to the SLR and terminologically relying on the definitional framework of affect.

EE and Discrete Emotions

The AIM and its constituent affect-as-information theory are the key useful standpoints that span across mainly the third and fourth groups of studies in the SLR. The AIM is defined as the “process whereby affectively loaded information exerts an influence on and becomes incorporated into the judgmental process, entering into the judge’s deliberations and eventually colouring the judgmental outcome” (Forgas, 1995, p. 39). The affect-as-information theory is one part of the AIM and hypothesizes that affective feelings provide a source of information about the object of judgment, helping individuals within the decision-making process (Forgas, 1995; Clore et al., 2001). This theory thus states that affective feelings serve as affective feedback (i.e., bodily information how an individual feels) about the salient object, having cognitive consequences (Clore et al., 2001; Schwarz & Clore, 2007; Welp et al., 2012). Besides the affect-as-information theory, AIM brings about the notion of *concept-priming*, assuming that current emotions serve as the basis for judgmental processes because

they prime emotion-congruent memories—the more positive these emotions are, the more positive the evaluation is (Baron, 2008; Grichnik et al., 2010). Consequently, positive affect developed through EE could possibly influence judgments on EI at a future date.

Few previous studies in the broader EE research field did use the AIM. Foo et al. (2009) discovered that positive affect influences venture efforts. Ravis et al. (2009) found that anticipated affect can be a significant predictor of intentions. Therefore, there are indications that novel contribution can be made in applying this theory also to EE impact studies. Affect is an inextricable part of the learning processes of an individual, alongside cognition and conation (Hilgard, 1980). Discrete entrepreneurial emotions, which are in the moment and not chronic, are expected to arise and vary throughout educational interventions.

EE practices have been evolving over the past decade. A clear emphasis is made on experience-based learning that engages students and lets them feel as prospective entrepreneurs during their studies (e.g., Mason & Arshed, 2013). This type of learning is arguably more emotional than traditional practices of textbook reading, case studies, and formal business plan writing. Hence, it should trigger and develop current feelings states toward entrepreneurial action as a salient object. In line with this reasoning, the following is our first proposition:

P1: EE strengthens students' discrete entrepreneurial emotions.

As another outcome of SLR, we find promising to explore such emotions as inspiration, authentic pride, and affective forecasting.

Thrash and Elliott (2003) provide a general conceptualization of inspiration: It (a) implies motivation, involving the energization and direction of behavior, (b) is evoked rather than initiated directly through an act of will or arising without apparent cause, and (c) “involves transcendence of the ordinary pre-occupations or limitations of human agency” (p. 871). Moreover, inspiration arises through a specific trigger (Arpiainen et al., 2013; Lackéus, 2014; Thrash & Elliott, 2003) and refers “to the object toward which the resulting motivation is directed” (Thrash & Elliott, 2003, p. 871). Taking this conceptualization, inspiration constitutes a promising variable for investigations in studies focusing on discrete entrepreneurial emotions in the context of EE impact studies for three main reasons. First, inspiration is directed toward behavior, showing possible linkages with the prediction of behavior likewise, that is, intention. Second, inspiration can be triggered, for example, through an EE intervention working as a stimulus, in line with the findings by Souitaris et al. (2007). And, third, inspiration is directed toward a salient object, fulfilling this definitional part of discrete (entrepreneurial) emotions (see Figure 2).

Pride is a “pleasant emotion in response to meeting internalized social standards” (Orth, Robins, & Soto, 2010, p. 1061), requiring a self-evaluation experience (Tracy, Shariff, & Cheng, 2010). According to Williams and DeSteno (2008,

2009), pride implies a motivational force, whether in present moments or in the simulation of future performance-dependent outcomes. Moreover, Lea and Webley (1997) argue that pride can have an effect on behavior. Tracy and Robins (2007a) suggest that pride is the most important emotion with regard to motivating behavior.

Affective forecasting is a central aspect of human decision-making and includes individual forecasts of potential future events as well as how a person anticipates specific emotions that may arise in these potential future events (Zampetakis et al., 2015). In comparison with inspiration and authentic pride, it summarizes anticipated discrete emotions as feelings, that is, capturing how positive and negative a person anticipates his or her feelings to be with regard to a specific forecast. It thus fulfills the selection criteria captured by the definitional framework of affect, including acting entrepreneurially as a salient object.

Discrete Emotions as Antecedents of Attitudes (and Mediated Predictors of EI)

Baron (2004) recommends exploring discrete emotions from the cognitive perspective, including all mental processes through which individuals acquire, store, transform, and use information. In this vein, Schwarz and Clore (2007) argue that affective feelings (such as discrete entrepreneurial emotions) can serve as a source of information influencing subsequent behavior, or, logically, EI in the first place. This argumentation matches well the affect-as-information theory (Clore et al., 2001; Forgas, 1995). Departing from the assumption that affective feelings serve as affective feedback (i.e., bodily information how an individual feels) about the salient object, these feelings, in turn, are likely to have an effect on one's cognition in line with the affective processing principle (Clore et al., 2001; Welpel et al., 2012).

The known antecedents of EI, such as attitudes, self-efficacy, and subjective norms, are essentially affective and conative phenomena linked to one's cognition. Among the three antecedents, attitudes as a chronic affect (see Figure 2; Barsade & Gibson, 2007; Clore et al., 2001) might be more closely related to discrete entrepreneurial emotions (current affect). Because chronic affect is more stable and can be triggered by a short-lived feeling state, that is, discrete emotion, it would be reasonable to study whether discrete entrepreneurial emotions exert an effect on attitudes and, through attitudes, on EI. This logical chain goes into a similar direction as the one stated by Souitaris et al. (2007), who argued that inspiration (as one example of discrete entrepreneurial emotions) raises attitudes and intention. As discrete emotions are short-lived, we believe that they are not strong enough for predicting (changes in) intention without attitudes. Therefore, our second proposition is as follows:

P2: Entrepreneurial attitudes mediate the effect of discrete entrepreneurial emotions on EI.

Figure 3. The research model combining AIM and TPB.

Source: Ajzen (1991), Forgas (1995).

Summing up, inspired by the studies of Foo et al. (2009) and Ravis et al. (2009), we suggest that combining the AIM (Forgas, 1995) with the TPB (Ajzen, 1991) in the context of EE impact studies might be a valuable development direction. Figure 3 illustrates the proposed model.

Conclusion

This article makes a major contribution to the systematization of existing scholarly knowledge on entrepreneurial affect and emotion. Based on the citation analysis of 46 leading literature sources published from 1984 to 2017 and the subsequent co-citation analyses, we came up with five major groups of articles: (a) Affect in entrepreneurship research, (b) Affect in EE impact research, (c) Affect-cognition relationship, (d) Affect-conation relationship, and (e) Conceptual contributions. The citation and co-citation analyses conducted to create the categorization are arguably more credible than a subjective literature review approach when sources are most often selected arbitrarily. Our analyses allowed reviewing the links among various literature sources and assessing the strength of these links, thus enabling the thematic categorization. This overview is likely to be useful to other researchers and educators not only because it classifies most influential articles on affect in entrepreneurship and EE research but also because it can help seeing possible links among different groups of studies.

Another important contribution of the article is the definitional framework of affect which addresses some limitations of prior studies, such as subsuming feeling states and feeling traits under the generic label of affect. The framework facilitates deeper understanding of affect and advocates terminological precision. The main recommendation that we make in connection to this framework is as follows. Studies on emotion-related variables in EE interventions should precisely label investigated variable(s) because conceptual differences exist among different kinds of affect and emotions. Furthermore, generating a unified terminology should be integral to the future EE impact research, as the wide variety of nonunified synonyms may limit our knowledge and interpretations of empirical results. Other EE researchers may find the definitional framework useful for labeling and defining their investigated variables more precisely.

Finally, this article contributes to the EE research by formulating novel propositions that suggest combining the AIM with the TPB. One of the key findings of the SLR is the missing yet promising link between affect and attitudes toward entrepreneurial behavior, on one hand, and between affect and EI, on the other hand. Even though the current scholarly knowledge about TPB and its antecedents is quite deep, we spot an opportunity for further exploration. To date, TPB captures only the feelings traits, that is, attitudes, while the role of feelings states remain underresearched. Because attitudes as chronic affect are more stable and can be triggered by a short-lived feeling state, that is, discrete emotions, we suggest testing whether discrete entrepreneurial emotions exert an effect on attitudes and, subsequently, on EI. We see it as promising direction of research that can help deepen scholarly understanding of the action-oriented entrepreneurial decision-making process in educational settings. At a broader level, testing the proposed model could not only contribute to EE research but also potentially feed back into psychology research, the works on the antecedents of TPB in particular.

Ultimately, this research stream has potential practical benefits. It can stimulate entrepreneurship educators to explicitly target the development of entrepreneurial affect among students. As a result, the educators may focus their efforts not only on teaching entrepreneurial skills but also on developing discrete emotions such as inspiration and pride in relatively short EE interventions. This purposeful activity may, in turn, result in the formation of more stable dispositional effects on students' behavior (through intentions).

Another implication of our research that relates to both theory and practice of EE is the impact comparison of teaching models in EE from the perspective of entrepreneurial affect versus other educational outcomes such as skills and knowledge (Nabi et al., 2017). For example, an investigation of whether experiential teaching (based on learning-by-doing) is more effective in developing entrepreneurial emotions and intentions than traditional teaching (based on classical lecturing), or vice versa, could give a clearer roadmap of what kind of learning outcomes and in what type of interventions to target. A traditional

course may result in greater levels of inspiration, but would this outcome hold after students face the reality of entrepreneurship practice? An experiential course might result in a greater level of skills but a lower level of inspiration. Our findings, therefore, highlight the relatedness of Nabi et al.'s (2017) call for emotion-based indicators in EE impact research to their importance in teaching design and the educational experience of entrepreneurship.

Our study naturally has some limitations, mainly due to the chosen methodological approach to conducting the SLR. First, we recognize the subjective aspect in choosing literature sources for the subsequent citation analysis. Second, this subjectivity is, in a way, ingrained into the resulting classification of articles, even though we mixed the subjective and objective selection criteria. Third, despite the ratio of possible citations within the citation analysis, the application of bibliometric methods still induces constraints, as we cannot effectively predict how recent articles would evolve in the future, restricting us to merely showing the most evident trends.

Nevertheless, we believe that the article's contributions outweigh its limitations. Providing critical insights into the lacking research on affect in EE and into the more rigorous use of terminology, our work also illuminates divergent use of vocabulary and, through this, facilitates the explanation of contradictory findings in the affect and emotions research. Furthermore, by putting forward the novel propositions about the linkages of EE with the state affect and dispositional affect variables, we encourage further research on testing them and constructing new knowledge rooted in the two influential models (AIM and TPB) in the world of psychology. Altogether, we hope that this research supports the advancement of the theory and practice of EE, its impact measurement, and can contribute back to the field of psychology through the future empirical studies.

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