

Context-Aware Entrepreneurship Education: Exploring the Educators Perspective

Juha Saukkonen¹ and Alexandros Kakouris²

¹JAMK University of Applied Sciences, Finland

²University of Peloponnese, Greece

juha.saukkonen@jamk.fi

Abstract: The question that motivates the present study is whether entrepreneurship educators confront the context where entrepreneurship education is implemented. Recent studies indicate that homogenisation of entrepreneurial methods has occurred over time promoting a monolithic conception of innovation-driven start-ups, often technological, as a prototype for entrepreneurial courses' outcomes. Nonetheless, entrepreneurship does not only accommodate ambitious start-ups for growth but also small firms that significantly contribute to employability and social inclusion. Social problems are also tackled. Innovation needs to be translated to different disciplines and social contexts of populations instead of the mere proliferation of a few innovative firms' cases in classrooms. Concurrently, rapid changes in the business environment (crises) ask for reflections regarding the content of entrepreneurship from both educators and students. Thus, context and adjustment to contexts is a timely concern for the future of entrepreneurship education and its inclusive character. Given the previous considerations, the present study seeks for quantitative evidence from worldwide entrepreneurship educators on whether they adjust, or do not adjust, their teaching to the context. Contexts included in this study pertain to: political, economical, sociological, ecological/environmental and legal. Adjustment to context was also investigated for different entrepreneurial teaching tasks, such as idea generation, innovation, strategy, team formation, fundraising, social responsibility and others. The results indicate that educators take into account the context to an extent but there is a rising consensus that entrepreneurial teaching needs to be more context-aware in the future. The more the educators consider context in their current teaching the more they are willing to modify their teaching to different contexts in the future. The results show that there is room for future research regarding context-aware entrepreneurship whilst some research directions are derived in the last part of the article. This is a first attempt to quantitatively examine evidence for the role of the context in entrepreneurial teaching in order to obtain insights for a more precise confrontation of learning needs and educators' perspectives that could render entrepreneurship education more inclusive and efficient.

Keywords: entrepreneurship education, context, adjustment, teaching attitude, cross-national

1. Introduction

Context and context awareness are largely discussed as essential elements for successful education practice. The context can relate to the "learning space" in which the education, and learning occur. This concept of learning space does not in a modern view only refer to the physical environment (classroom or online, e.g.), but learning spaces also differ as cognitive and social environments (Psyché, Daniel and Bourdeau, 2019). Different stakeholders process bring into education their specific contextual variables. As Fischer et al. (2018) conclude: Contextual school- and teacher-level factors influence the classroom practices. Learning in modern education is a reciprocal process. The learners are not just receivers of information but active contributors to the learning process (Kyrö, 2018). Examples of pedagogical approaches embracing this view are, e.g., co-creation where students adopt active and participatory roles (Dollinger, Lodge and Coates, 2018), and flipped classrooms where information transmission is done before "classroom", and the time gained is spent in various student-centered learning activities (e.g. Wasserman, Quint, Norris, & Carr, 2015). Cutrer et al. (2018) state that the contextual factors of learners influence their study achievements: "An individual's ability to learn in this manner is driven by several internal characteristics and is also impacted by numerous aspects of their context". Hood, Littlejohn and Milligan (2018) noted that in a highly standardized (between students) MOOC learning space differences in students' achievements depend on their individual context. Also educators bring to the learning space their own attitudes and experiences.

According to Thibaut et al. (2018), multi-disciplinary experience is beneficial for attitudes toward the integration of different subjects. It is natural to assume that entrepreneurship education isn't an exception to other fields of education. Higher education entrepreneurship classrooms are nowadays typically multicultural due to increased student mobility and e.g., immigrants' high entrepreneurial intentions but also due to the cross-disciplinary nature of entrepreneurial endeavours. However, as Kickul et al. (2011) claim, the issue of economic context is often not considered, but entrepreneurship is often regarded a global phenomenon.

Given that entrepreneurship education is a fast-growing research field with certain research gaps (e.g. Kakouris and Georgiadis 2016), the considerations above directed this study to shed light via means of a qualitative study among entrepreneurship education (EE) practitioners on how much and which ways the context-awareness is perceived by educators to be present in the current EE.

2. Literature review

2.1 Defining context

Context is a term both wide and potentially ambiguous. Context can refer to the background where the stakeholders in a process under study are coming from. As Giunchiglia, Zeni and Big (2018) state, “each individual interprets her surroundings differently because of her habits, routines, and intelligence; this represents her personal context”. Since an individual’s attitudes and behaviours develop in interaction with their current environment or are inherited from the society from earlier generations, context is also a social and cultural phenomenon. We identify ourselves as individuals and as parts of social systems we are connected (Turner et al., 1994). This social context can be a positive asset – social capital – that supports one’s growth, self-identity, and well-being (ibid.). Social context can also limit one’s opportunities and achievement of goals, if they contradict the ones generally valued and supported by the community. Hampden-Turner and Trompenaars (1993) showed how individuals in seemingly similar socio-economic systems have fundamentally divergent motivations to innovative and entrepreneurial efforts.

Institutions also have their own contexts made of cultures, norms, and habits. Bowen and De Clercq (2008) argue that in entrepreneurship, “country’s institutional environment will influence the allocation of entrepreneurial effort, and in particular will influence the extent to which entrepreneurial effort is directed toward high-growth activities.” In entrepreneurial courses and incubators/accelerators operated by higher education institutions (HEIs), the multiple contexts include the national and local cultural and social contexts as well as HEIs as a specific environment. In cross-national studies (e.g., Fleck, Kakouris and Winkel 2019, 2021) strong correlations between EE constructs and national cultural indices were found.

Watson et al. (2018) identified eight external context constructs with impact on the implementation of systems and action: (1) professional influences, (2) political support, (3) social climate, (4) local infrastructure, (5) policy and legal climate, (6) relational climate, (7) target population, and (8) funding and economic climate. In business research the most common taxonomy of the environment analysis is PESTEL, made of political, economic, social, technological, ecological, and legal factors (Kotler, 1998). A relatively new framework REGLO (e.g., Menet, 2016) proposes that analysis on local/regional environment differs in results from the analysis of the global environment. The former scope can be assumed to have more impact on the starting up and resourcing of a new enterprise, whereas the latter scope may be more impactful to opportunities and growth of a new venture.

In this study, the following definitions of guidance were given to respondents: “There are various contexts that are considered to affect our teaching, e.g. political, social, economic, technological, etc.”, and, “With the keyword “context” we mean the background from where individuals (learners and educators) come from and also the operating environment where the action (education and entrepreneurship) takes place.”

2.2 Principles and practices of context-aware education

Learning environments are becoming made of multiple contexts simultaneously present and evaluated (e.g., Kakouris 2016). Globalized supply chains and enlarged market opportunities (by e-commerce and virtual goods) propagate recognition of varying contexts. Boyd (2008) claimed that the “global village” discussed since the 1960s describes well how digital communication empowers people to connect across wide geographic and cultural differences. The boundaries between contexts start to blur.

According to Akkerman and Bakker (2019) “students’ multiple and diverging interests differ in across-context continuity, some being shared across the school, family, and peer contexts”. Moreover, the impact of learners’ context is not solely about their identity as learners, but also about parallel pursuit of interests in studies and free time (ibid.).

In both views of increasing and decreasing varieties of contexts, modern educators are assumed to possess understanding for context, i.e., are expected to be context-aware. At the same time, teachers' attitudes and the context provided by the institution are affecting the learning process (e.g. Thibaut et al., 2019).

Earlier research has identified principles and practices that enable context-aware education. The underlying operating principle is that "a learning system that examines the learning context shall adapt learning process with respect to context change" (Wang, 2004). Educational processes are designed to match the context in which the learning happens, following the ideas of Design Science Research (DSR) more commonly discussed in the field of information systems (Collins, 1992; Yang, 2006). Similarly, modern teachers need to create relevant learning spaces, that (1) when optimized, deploy adequate learning paradigms to meet the current generations of learners and, (2) widen the idea of physical spaces virtual, cognitive, and social spaces (Psyché, Daniel and Bourdeau, 2017). Interestingly, a wide body of research of context-awareness is currently oriented to learning systems as technologies. This despite the generic nature of the context-aware education, which was coined by Hasanov, Laine and Chung (2019): "Adaptive context-aware learning environments (ACALEs) can detect the learner's context and adapt learning materials to match the context. The support for context-awareness and adaptation is essential in these systems so that they can make learning contextually relevant." Thus, educators and educational programs/schools could also be ACALEs principles.

Context-awareness leads to learning processes that are adaptive, learner-centred, and even individualized. These arrangements improve the academic achievement of the learners (Bernard et al., 2019). Fully context-aware education would allow learners to mould their learning trajectories to match their own relevant context and goals – self-mapped learning pathways (Crosslin, 2021). Just like in any activity adjusting to individually customized products (of education) to learner preferences implies opportunity costs for the learners, but also an additional cost burden to the educators (Jost and Süsser, 2020). The solutions to combine the contextual considerations to high efficiency is called mass tailoring or mass customization, where learners with a sufficient level of similarity are bundled together as learners.

2.3 The specific cases of context and context awareness in entrepreneurship (education)

Entrepreneurship is a field and research area that typically is organized in HEIs within the frame of business and engineering schools or in and institutes of entrepreneurship that serve various faculties. Lately, the trends in social entrepreneurship and self-employment have widened the area where entrepreneurship emerges. This also has enriched the contexts from which entrepreneurship educators and learners come as well as the contexts where entrepreneurial learners will apply their entrepreneurial ideas.

The ideas of being aware of the context in entrepreneurship research, education, and practice are not new. Back in 2001 Aldrich and Martinéz noted the growing interest in an entrepreneurial context. The importance of context was defined by Welter (2011): "Context simultaneously provides individuals with entrepreneurial opportunities and sets boundaries for their actions; in other words, individuals may experience it as an asset and a liability." Despite the growing interest, research focused on the topic is scarce and different facets of context have gained differing interests. Some studies focus on the technological context (e.g. Tatpuje et al., 2022) and some on the social context (e.g. Sheth, 2010).

If there are gaps and resulting quest for knowledge in the research on the *context of entrepreneurship*, the need is even more imminent for studies on *impact of context in entrepreneurship education*. Leitch, Hazlett, and Pittaway (2012) and Walter & Dohse (2012) reviewed the role of regional context in entrepreneurship education. Also, HEIs as an institutional context for entrepreneurship education has been studied (Johnson, Graig and Hildebrand, 2006; Johannisson, 2018). Relatively few works have had the entrepreneurship educator as the unit of analysis (Wraae and Walmsley, 2020). The studies by Jones and Matlay (2011) and Wraae and Walmsley (2020) are rare exceptions. The modest role of educators in the studies on context-awareness repeats in the professional practice. As Seikkula-Leino et al. (2010) remarked; "... when asked to give the aims, the teachers describe the practices. Moreover, they "outsource" themselves but refer to aims from the pupils' perspective."

Typically, entrepreneurship is treated as one entity, phenomenon rather than as a process, where different states/stages of being and doing vary. This processual view poses a additional challenge to contextual EE research as it proposes a new fragmentation of the phenomenon, in addition to the richness of contexts and stakeholders involved in the processes studied.

2.4 Key postulates derived from literature review for the empirical study

Built on findings from earlier research, the following hypotheses were created to be tested via quantitative analysis from the responses of 60 EE practitioners.

H1: The EE practitioners whose own context differs from that of their institutions (i.e., see the multi-contextuality in their own immediate environment and live it personally) are more likely to act in a context-aware manner in their EE

H2: Experience in EE (years of EE practice) will add to one's context awareness since the longer experience is likely to bring more real-life cases that are of different context to the EE learnings spaces

H3: Different entrepreneurial tasks (such as financing vs. technology or ideation vs. teambuilding) are different also their perceived context-boundedness

H4. Context-awareness is sticky and a permanent personal context of an educator. The more context-aware an educator behaves the more likely he/she is to increase context-awareness also in the future.

3. Methodology

The research approach applied was a quantitative one. The survey was created with the Webropol survey tool, the link to which was then sent by e-mail to the known members of the academia who (a) had published articles and conference papers during the last three years in some selected conferences and open access journals, or, (b) were personally known by the authors to be active practitioners of EE and/or members of EE communities (e.g. the members of different Entrepreneurship Education associations). The invitation e-mail was sent to each respondent's e-mail address (some 300 e-mails sent) in addition to which the respondents in scope were requested to "snowball" the invitation further to their own EE network. With the assumption of the message having been sent further to some 50 potential EE practitioners and 10% of responses coming from those second-tier recipients, an assumption of response rate of magnitude some 15-20 % can be made. Responding the survey was anonymous, but in the end of the survey the respondents were able to leave their contact (e-mail) data in order to get an executive summary of the findings once the data analysis is done.

3.1 The instrument

For the needs of the survey an online questionnaire was constructed consisted of 47 items shown in Table 1. The 4-point ordinal scales are also Likert scales without the central (zero) value. The absence of the central value seeks to identify whether participants value or not the item than identifying if the participants comprehend the item.

Table 1: Questionnaire parts and items (EE = Entrepreneurship Education)

Part	Name	Items	Scale	Reliability
Demographics (11 items)	IL	Educational institute location	6 continents	
	IMPL	EE implementation (place)	6 continents	
	AGE	Age	5 age groups	
	GEND	Gender	4 options	
	OWE	Work experience (overall)	5 groups	
	EEWE	Work experience (EE)	6 groups	
	ENTR	Entrepreneur	Yes/No	
	EEXP	Entrepreneurial experience	(If yes) 6 groups	
	STLOC	Where do students come from	6 continents	
	MIN	Educate minority people	3-point (ordinal)	
	MULT	Classroom multiculturality	4-point (ordinal)	
Contextual background (3 items)	CB1	Difference between person / institute	5-point (Likert)	Cronbach alpha = .715
	CB2	Difference between person / society		
	CB3	Difference between person / students		
Contextual issues taken into account (3 items)	CI1	Generally	5-point (ordinal)	
	CI2	In person's institute	4-point (ordinal)	
	CI3	Personally	4-point (ordinal)	
Contextual elements generally taken into account	CEG1	Political context	4-point (ordinal)	Cronbach alpha = .655
	CEG2	Economical context		
	CEG3	Sociological context		

Part	Name	Items	Scale	Reliability
(6 items)	CEG4 CEG5 CEG6	Technological context Environmental/ecological context Legal context		
Contextual elements taken into account into own EE (6 items)	CEO1 CEO2 CEO3 CEO4 CEO5 CEO6	Political context Economical context Sociological context Technological context Environmental/ecological context Legal context	4-point (ordinal)	Cronbach alpha = .696
Contextual elements' importance for EE (6 items)	CEI1 CEI2 CEI3 CEI4 CEI5 CEI6	Political context Economical context Sociological context Technological context Environmental/ecological context Legal context	4-point (ordinal)	Cronbach alpha = .849
Entrepreneurial tasks' susceptibility to contexts (11 items)	T1 T2 T3 T4 T5 T6 T7 T8 T9 T10 T11	Idea Generation Innovation Feasibility analysis Strategy formulation Business Model formulation Financial literacy/statements Raising capital Social Entrepreneurship/Responsibility Economic Responsibility Ecological Responsibility Building Entrepreneurial Team	5-point (Likert)	Cronbach alpha = .867
Adaptation to contexts (1 item)	FAD	In future personal teaching	5-point (Likert)	

3.2 The sample

Data collection took place during February and March of 2022 and the final sample embraced N = 60 exploitable responses. 43.3% of the respondents were females (one preferred not to answer and another one did not answer) with age distribution 5% (20-30 years), 21.7% (31-40 years), 40% (41-50 years), 20% (51-60 years) and 13.3% (over 60 years). Educational institutes reside in North America by 20%, Mid- and South America by 1.7%, Europe by 60%, Africa by 1.7% and Oceania by 16.7% with very close percentages for the locations where respondents' EE is implemented and for the regions where students come from. This implies a limitation for the present pilot study suggesting Mid- South America and Africa regions are underrepresented in the sample. Furthermore, the sample exhibits an overall work experience average of 18 - 20 years and an overall average of 12 years as entrepreneurship educators. Around half of the sample has been an entrepreneur with an average entrepreneurial work period of around 10 years. 36.7% responded that they never or rarely educate people from minority groups, 55% answered sometimes and 8.3% answered often or most of the time. The question (MULT) for classroom multiculturalism was answered by 28.3% as monocultural, by 46.7% as somewhat multicultural, by 16.7% as quite multicultural and by 8.3% as very multicultural. Thus, the sample for the pilot study offers the possibility to analyse the results despite the lack of representative answers from Mid- South America and Africa territories.

4. Results

Focusing on the research questions articulated in the theoretical framework, the variables of Table 1 CB1, CB2, CB3 for the contextual background difference, EEWE for the work years as entrepreneurship educators, CI3 for the overall contextual adaptation in personal teaching, T1 ... T11 for specific entrepreneurial tasks and FAD for future adaptation to contexts are included in the analysis. In Table 2 the descriptive statistics and Spearman correlations are shown.

Table 2: Descriptives and Spearman correlations for questionnaire variables.

		MEAN	STD	CI3	FAD	CB1	CB2	CB3
CI3	Own Adaptation	2.8772	.56915					
FAD	Future Adaptation	3.9833	.79173	.339**				

		MEAN	STD	CI3	FAD	CB1	CB2	CB3
CB1	Diff. Person / Institute	3.1930	1.15633	.292*				
CB2	Diff. Person / Society	3.4138	.91832			.470***		
CB3	Diff Person / Students	3.2414	1.06475			.443***	.439***	
T1	Idea Generation	3.8983	1.22749		.319*	.291*		
T2	Innovation	4.0339	.96430					
T3	Feasibility analysis	3.9310	.91502			.317*	.312*	.315*
T4	Strategy formulation	3.9107	.93957	.364**				.346*
T5	Business Model formulation	3.9483	.98091	.343*				
T6	Financial literacy/statements	3.6034	1.10723	.360**		.317*		.398**
T7	Raising capital	4.1034	.91171	.339*	.328*			
T8	Soc. Entrep. / Responsibility	3.8276	.93917				.429**	.371**
T9	Economic Responsibility	3.7586	.92358	.368**			.365**	.307*
T10	Ecological Responsibility	3.6379	1.10340	.364**	.298*			.289*
T11	Building Entrep. Team	4.0862	.92309					
* p < .05, ** p < .01, *** p < .001								

The Kruskal-Wallis test for the variable CI3 on variable EWE shows no statistically significant dependence ($\chi^2(5) = 4.8$, $p = .441$) at the $\alpha = 0.05$ level thus H2 is rejected. The rest hypotheses can be checked through the correlation analysis of Table 2. Contextual background difference between person and institute (CB1) positively correlates with adaptation to contexts in own teaching (CI3) ($r_s(52) = .292$, $p = .032$) therefore hypothesis H1 is supported. Also, CI3 positively correlates with future adaptation to contexts (FAD) ($r_s(55) = .339$, $p = .01$) thus hypothesis H4 is supported. Concerning H3 for the different entrepreneurial tasks, their perceived difference to adaptation to contexts can be seen through the variation of their average scores (Table 2) with innovation, raising capital and building the entrepreneurial team at the top of the list. Besides, those who are more context-aware in their own teaching (CI3) score higher for susceptibility to contexts for strategy formulation, business model formulation, financial literacy/statements, raising capital, economic and ecological responsibility. Thus hypothesis H3 is also supported. It is remarkable that those with a contextual difference with the students (CB3) score higher for different tasks such as: feasibility analysis, strategy formulation and social entrepreneurship.

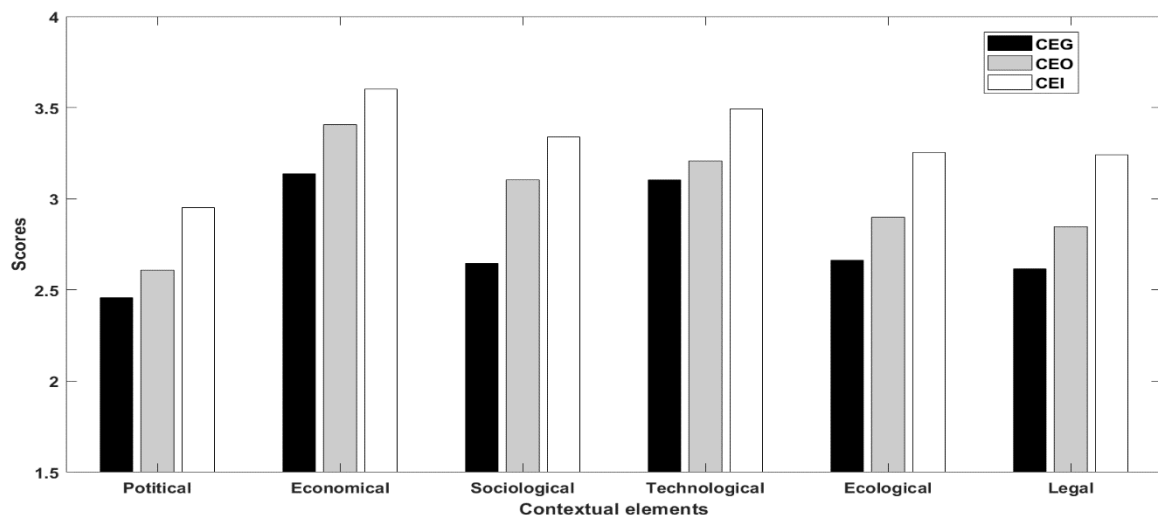


Figure 1: Comparison between six contextual elements. Black bars denote elements generally taken into account (CEG), grey bars denote contextual elements taken into account in own teaching (CEO) and white bars show the perceived importance of each contextual element (CEI)

Furthermore, six contextual elements are compared (Figure 1). These pertain to political, economical, sociological, technological, ecological and legal context. Bars in Figure 1 show how these contextual elements are perceived by the respondents regarding their consideration in general (black bars), their consideration in the respondents' own teaching (grey bars) and the perceived importance of them in teaching (white bars). The result shows that all contextual elements should be taken more into account whilst educators tend to incorporate

them into their teaching more than the average in their environment and less than the levels that are intrinsically (or ideally) required in modern entrepreneurial teaching. From the contextual elements, the economic one prevails followed by the technological which exhibits the lowest discrepancy between common consideration and ideal.

5. Discussion

Summarizing the confirmation vs. refuting of the tested hypothesis, it can firstly be concluded that educators alteration to multiple contexts and tensions between them is likely to lead to an increased context-awareness in the way an educator act in the learning spaces of entrepreneurial education. Secondly, contrary to the expectation expressed in a hypothesis, longevity of practice as an entrepreneurship educator does not predict heightened context-awareness amongst educators. This finding may derive from an educator clinging to his/her methods that have worked earlier in less context-rich environment or from the pure fact that current younger generations (also of entrepreneurship educators) have lived a life distinctively more multi-contextual and are thus able to adapt their actions to new settings more flexibly than earlier generations.

As was hypothesized, entrepreneurship (education) should not be treated as one indivisible entity when assessed its context-dependency. Different processes, knowledge and skill areas of entrepreneurial process are more prone to context-dependency than others.

Lastly, the individuals who self-perceive their approach to entrepreneurial education to be a context-aware one, are likely to take context even more into account in their professional practice in the future. This finding suggests that there is not an optimal mid-term value for context-awareness in the minds of the context-awareness educators. The ones dedicated to it state they still have room to improve in the skill.

6. Conclusions

When interpreting and generalizing the findings, some limitations due to the sampling must be taken in account. The cohorts of African and Mid/South American respondents were small, and the low number of those areas makes limits the statements of context-awareness in those areas. Despite the sufficient total number of respondents, repeated or extended study on the subject should pay extra effort on more representative sampling.

As stated in the literature review, the key construct of the study – context – is wide and prone to many differing interpretations. The wide concept used in this study was not aiming to screen for the most impactful elements of context to the presence or absence of context-awareness. The subjective interpretation on what is included in context could be avoided in further studies by studying the contexts and perceptions on it on a more granular level.

Other potential directions to further research would be to study the views on context by other stakeholders in the entrepreneurial education – learners as well as the designers and managers of educational programs and curricula. This would offer a mirror to the perceptions on the subject offered in this study by education practitioners.

Acknowledgements

The authors express their gratitude to the EE research and practitioner community that found a common interest and presented the first ideas of this direction for research and development at the VentureWell conference in the US in the Spring of 2021. The collaboration between the authors of this paper and scholars Olaf Kuhlke, Emma Fleck, Noé Vargas Hernández, Wendy Westbrook, and Dan Suhr is set to continue.

References

- Akkerman, S. F., & Bakker, A. (2019). Persons pursuing multiple objects of interest in multiple contexts. *European Journal of Psychology of Education*, 34(1), 1-24.
- Aldrich, H.E. & Martinez, M.E. (2001). Many are called but few are chosen: An evolutionary perspective for the study of entrepreneurship. *Entrepreneurship Theory and Practice*, 25(4, Summer), 41–56.
- Bernard, R. M., Borokhovski, E., Schmid, R. F., Waddington, D. I., & Pickup, D. I. (2019). Twenty-First Century Adaptive Teaching and Individualized Learning Operationalized as Specific Blends of Student-Centered Instructional Events: A Systematic Review and Meta-Analysis. *Campbell Systematic Reviews*, 15.

- Boyd, D. (2008). None of this is real: Identity and participation in Friendster. In Karaganis (Ed.), *Structures of participation in digital culture* (pp. 132–157). Social Science Research Council.
- Bowen, H. P., & De Clercq, D. (2008). Institutional context and the allocation of entrepreneurial effort. *Journal of International Business Studies*, 39(4), 747-767.
- Clark, B. (2001). The entrepreneurial university: New foundations for collegiality, autonomy, and achievement. *Higher education management*, 13(2).
- Collins, A. (1992). Toward a design science of education. In E. Scanlon & T. O'Shea (Eds.) *New Directions in Educational Technology*. Berlin: Springer-Verlag
- Giunchiglia, F., Zeni, M., & Big, E. (2018, March). Personal context recognition via reliable human-machine collaboration. In *2018 IEEE International Conference on Pervasive Computing and Communications Workshops (PerCom Workshops)* (pp. 379-384). IEEE.
- Cutrer, W. B., Atkinson, H. G., Friedman, E., Deiorio, N., Gruppen, L. D., Dekhtyar, M., & Pusic, M. (2018). Exploring the characteristics and context that allow master adaptive learners to thrive. *Medical Teacher*, 40(8), 791-796.
- Dollinger, M., Lodge, J., & Coates, H. (2018). Co-creation in higher education: Towards a conceptual model. *Journal of Marketing for Higher Education*, 28(2), 210-231.
- Fischer, C., Fishman, B., Dede, C., Eisenkraft, A., Frumin, K., Foster, B., . . . McCoy, A. (2018). Investigating relationships between school context, teacher professional development, teaching practices, and student achievement in response to a nationwide science reform. *Teaching and Teacher Education*, 72, 107-121.
- Fleck, E., Kakouris, A., Winkel D. (2019). Cultural influences on entrepreneurial motivation and identity: insights for entrepreneurship education, Paper read in 14th *European Conference on Innovation and Entrepreneurship*, edited by P. Liargovas and A. Kakouris, Academic Conferences Limited, Reading, UK, pp 1250-1254.
- Fleck, E., Kakouris, A., & Winkel, D. (2021). Cultural traits of entrepreneurship education: a cross-national study. *Journal of Entrepreneurship in Emerging Economies*, Vol 13 No 5, pp 838-863. <https://doi.org/10.1108/JEEE-02-2020-0030>
- Hampden-Turner, C., & Trompenaars, A. (1993). *The seven cultures of capitalism: Value systems for creating wealth in the United States, Japan, Germany, France, Britain, Sweden, and the Netherlands*. Broadway Business.
- Hasanov, A., Laine, T. H., & Chung, T. S. (2019). A survey of adaptive context-aware learning environments. *Journal of Ambient Intelligence and Smart Environments*, 11(5), 403-428.
- Hood, N., Littlejohn, A., & Milligan, C. (2015). Context counts: How learners' contexts influence learning in a MOOC. *Computers & Education*, 91, 83-91.
- Johannisson, B. (2018). Limits to and prospects of entrepreneurship education in the academic context. In *A research agenda for entrepreneurship education*. Edward Elgar Publishing.
- Johnson, D., Craig, J. B., & Hildebrand, R. (2006). Entrepreneurship education: towards a discipline-based framework. *Journal of Management development*.
- Jones, C. and Matlay, H. (2011), "Understanding the heterogeneity of entrepreneurship education: going beyond Gartner", *Education + Training*, Vol. 53 Nos 8/9, pp. 692-703.
- Kakouris, A. (2016). Multidimensional learning environments for entrepreneurship education. Paper read in 11th *European Conference on Innovation and Entrepreneurship*, edited by I. Aaltio and M. Tunkkari Eskelinen, Academic Conferences Limited, Reading, UK, pp 344-349.
- Kakouris, A., & Georgiadis, P. (2016). Analysing entrepreneurship education: a bibliometric survey pattern. *Journal of global entrepreneurship research*, 6(1), 1-18. <https://doi.org/10.1186/s40497-016-0046-y>
- Kickul, J. R., Griffiths, M. D., Jayaram, J., & Wagner, S. M. (2011). Operations management, entrepreneurship, and value creation: Emerging opportunities in a cross-disciplinary context. *Journal of Operations Management*, 29(1-2), 78-85.
- Kotler P., 1998, *Marketing Management: Analysis, Planning, Implementation, and Control*, Prentice-Hall, Englewood Cliffs.
- Kyrö, P. (2018). The conceptual contribution of education to research on entrepreneurship education. In *A research agenda for entrepreneurship education*. Edward Elgar Publishing.
- Menet, G. (2016). The importance of strategic management in international business: Expansion of the PESTEL method. *International Business and Global Economy*, 35(2), 261-270.
- Psyché, V., Daniel, B., & Bourdeau, J. (2019). Adaptive learning spaces with context-awareness. In *International Conference on Intelligent Tutoring Systems* (pp. 7-13). Springer, Cham.
- Seikkula-Leino, J., Ruskovaara, E., Ikavalko, M., Mattila, J., & Rytikola, T. (2010). Promoting entrepreneurship education: the role of the teacher?. *Education+ training*.
- Sheth, N. R. (2010). The social context of entrepreneurship. *The Journal of Entrepreneurship*, 19(2), 99-108.
- Thibaut, L., Knipprath, H., Dehaene, W., & Depaepe, F. (2019). Teachers' attitudes toward teaching integrated STEM: the impact of personal background characteristics and school context. *International Journal of Science and Mathematics Education*, 17(5), 987-1007.
- Turner, J. C., Oakes, P. J., Haslam, S. A., & McGarty, C. (1994). Self and collective: Cognition and social context. *Personality and social psychology bulletin*, 20(5), 454-463.
- Walter, S. G., & Dohse, D. (2012). Why mode and regional context matter for entrepreneurship education. *Entrepreneurship & Regional Development*, 24(9-10), 807-835.
- Wang, Y. K. (2004). Context awareness and adaptation in mobile learning. In *The 2nd IEEE International Workshop on Wireless and Mobile Technologies in Education, 2004. Proceedings.* (pp. 154-158). IEEE.
- Wasserman, N. H., Quint, C., Norris, S. A., & Carr, T. (2017). Exploring flipped classroom instruction in Calculus III. *International Journal of Science and Mathematics Education*, 15(3), 545-568.

- Watson, D. P., Adams, E. L., Shue, S., Coates, H., McGuire, A., Chesher, J., ... & Omenka, O. I. (2018). Defining the external implementation context: an integrative systematic literature review. *BMC Health Services Research*, 18(1), 1-14.
- Welter, F. (2011). Contextualizing entrepreneurship—conceptual challenges and ways forward. *Entrepreneurship theory and Practice*, 35(1), 165-184.
- Wraae, B., & Walmsley, A. (2020). Behind the scenes: spotlight on the entrepreneurship educator. *Education+ Training*.
- Yang, S. (2006). Context aware ubiquitous learning environments for peer-to-peer collaborative learning. *Educational Technology and Society*, 9(1), 188–201.