

# Enabling entrepreneurial behaviour in a land-based university

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## Abstract

**Purpose:** The aim of this paper is to develop a conceptual framework along with a set of hypotheses that reflects the dynamic relationships that operate within an entrepreneurial land-based university in order to then undertake empirical research.

**Design/Methodology:** This paper, through reflection on existing literature, critiques the interactions between student, academic, educational institution and industry in order to conceptualise the entrepreneurial modus operandi of a land-based university.

**Findings:** Specialist universities, such as those that serve the land-based sector, need to demonstrate multiple excellences not only in terms of the education they provide for students, but also in terms of consistently meeting or exceeding government, research community, employers, and societies expectations. An institutional framework must be in place to facilitate and enhance the quadruple interface of academic, institutional, industry and student entrepreneurial behaviour. The social and economic factors that mediate the dynamics within this framework firstly underpins student development and supporting them to reach their potential, secondly informs teaching excellence and research practice, and finally leads to outcomes that contribute to the global, national and regional economy.

**Originality/value:** This paper is of value for those working in the educational sector as the model outlined can be used to critically reflect on current principles and practice and derive options for action to embed entrepreneurship more deeply within the organisational culture of a university.

**Key words:** entrepreneurial intention, entrepreneurial behaviour, student, academic, entrepreneurial competence

## Conceptual Paper

### 1. Background

Entrepreneurial education has evolved as a prominent educational field that includes the disciplines of economics, management, education and technical topics (Maresch *et al.*, 2016; Davidsson, 2008). Entrepreneurial education should focus on individuals experiencing

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3 entrepreneurship rather than just academics teaching knowledge (Haase and Lautenschläger,  
4 2010); requiring the integration of entrepreneurial education across all disciplines and all  
5 activities (Bikse and Riemere, 2013). Based on the assumption that entrepreneurial attributes  
6 are not necessarily innate, entrepreneurial skills based education is being introduced in  
7 universities and in some study disciplines sees a small rise (1-4%) in the rates of self-  
8 employment amongst university graduates (Maresch *et al.*, 2016; Premand *et al.*, 2016).  
9 Entrepreneurial university is not a new concept, the Massachusetts Institute of Technology  
10 (MIT) developed entrepreneurial activity and industry spin offs from the 1930s (Etzkowitz  
11 and Zhou, 2008). The entrepreneurial university results from a change in focus from being on  
12 teaching to instead one of research with competitive tendering for research funding  
13 (Etzkowitz, 2003), and seeking to access a greater range of funding sources including private  
14 finance (Clark, 2001). Jacob *et al.*, (2003:1555) describe university based entrepreneurship as  
15 firstly *commercialisation*, for example consultancy services and extension activities, and  
16 secondly *commodification*, including patents, licensing, and faculty or student owned start-  
17 ups. Bramwell and Wolfe (2008) consider that the suggestion that research can be  
18 commercialised is mechanistic and demonstrates a misunderstanding of the process involved  
19 and the role that the university needs to play. Instead they argue universities form a focal  
20 point for talent generation, provision of technical support, expertise and facilities and enable  
21 access to knowledge in a broader context rather than just consideration of simple, linear  
22 knowledge transfer.  
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36 Etzkowitz (2004) proposes the “triple helix” interaction between university-industry-  
37 government driving innovation in an increasingly knowledge based society. Governments  
38 promote this academic transition as an economic development strategy that also reflects  
39 changes in the relationship between knowledge producers and users (Etzkowitz *et al.*, 2000:  
40 313). Clark (2001) sees entrepreneurial university as an opportunity to develop new forms of  
41 knowledge, new problem solving skills and new types of students. Graduates may, as a result,  
42 display personal and organisational entrepreneurial capacities that underpin effective business  
43 development and also social entrepreneurial capacities that relate to cultural sensitivity, and  
44 social engagement with work, family and community (Gibb and Hannon, 2006). However, in  
45 order to commercialise and commodify knowledge, entrepreneurial universities require the  
46 infrastructural support mechanisms necessary for enabling organisational entrepreneurship at  
47 the same time as they promote entrepreneurship as a product (Jacob *et al.*, 2003).  
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56 Entrepreneurship is widely believed to be the main catalyst for growth of an economy  
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3 and has become a key subject in secondary and tertiary education, offering promise for  
4 multiple stakeholders (Ishmail *et al.*, 2015; Mat *et al.*, 2015; Dahalan *et al.*, 2013).  
5 Entrepreneurship pertains to the actions of a risk taker, undertaking a creative venture, with  
6 notions of individuals being seen as having characteristics of individualism, drive, intuition,  
7 being highly motivated, creative, and energetic (Obembe *et al.*, 2014; Hébert and Link 1988;  
8 Hisrich, 1986; Ehrlich, 1986). Schumpeter (2000) describes the entrepreneur as being  
9 creative, operating both as the *inventor* i.e. the originator of new knowledge and also the  
10 *innovator* that is the introducer of that knowledge in practice or to the market. In much of the  
11 literature, the term “entrepreneurship” is interposed with the term “self-employed” (Escribano  
12 and Casado, 2016; Bagheri and Pihie, 2010), which includes both profit orientated and non-  
13 profit based concepts of activity. Socially based concepts of self-employment include notions  
14 of working for oneself, intellectual and business freedom, as well as choice as to how a  
15 person’s time is spent and an autonomy over the management of the work: life balance. Social  
16 entrepreneurship encapsulates the activity of individuals who seek to be change agents and,  
17 through the social networks they generate, introduce entrepreneurial, creative thinking to  
18 address existing challenges and problems and deliver stakeholder and societal value (Lans *et*  
19 *al.*, 2014).  
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31 Rural entrepreneurship is defined as "the creation of a new organisation that  
32 introduces a new product, serves or creates a new market, or utilises a new technology in a  
33 rural environment" (Wortman, 1990). Thus rural entrepreneurship can be described as the  
34 innovative activities undertaken to address socio-economic issues such as food security,  
35 population growth, urbanisation, freshwater use, and effective soil management as well as  
36 those social issues affecting rural communities and rural places (Shields, 2005). Historically,  
37 agriculture has been considered as an inflexible, low-tech industry dominated by family  
38 businesses that are mostly focused on doing things better rather than doing new things,  
39 although market influences mean that entrepreneurial behaviour is often seen as an asset  
40 within the sector (Lans *et al.*, 2015). Indeed, entrepreneurship is vital for economic  
41 transformation, stimulation of global development and is a wealth generator at individual,  
42 regional, national and international levels (Obembe *et al.*, 2014; Manning and Parrott, 2018).  
43 In the case of land-based universities, consideration of what rural entrepreneurship  
44 encompasses is of interest. Land-based educational institutions provide education and training  
45 for rural economies from entry level to postgraduate studies and specialise in subject areas  
46 such as agriculture, agri-food, animal studies, land management, veterinary services, and  
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3 wildlife management (AOC, nd; Ofsted, 2014). The focus of a land-based university  
4 specifically, is not only market-centred entrepreneurship, but also wider concepts of social  
5 entrepreneurship, whether that is entrepreneurial and creative activity with regard to  
6 delivering public good through land use, or the role of land and rural communities in  
7 producing food and amenities that underpin wider public benefit in terms of responsible soil  
8 and water management (Jolly, 2012). This paper differentiates between two types of  
9 entrepreneurship namely: *market-centred entrepreneurship*, alternatively described as profit-  
10 orientated entrepreneurship, and secondly *social entrepreneurship* where the former is about  
11 profit generation and the latter considers people, their problems and the determining of long  
12 term solutions (Kummitha and Majumdar, 2015; Austin *et al.*, 2003). Social entrepreneurs  
13 generate community associations and networking activities that generate social outcomes  
14 (Farmer and Kilpatrick, 2009) and associated social benefit.

22 Each entrepreneurial university will have its particular “region of influence”, and also  
23 associated challenges that its stakeholders need to address (Mirani and Yousef, 2016). Whilst  
24 the historic model for universities has been one of conventional teaching and research  
25 activities (aimed at producing formal academic knowledge that is published in academic  
26 journals), an entrepreneurial university needs to be bureaucratically flexible enough to engage  
27 with industry in terms of intellectual property, products, services, joint ventures and so forth  
28 (Styhre and Lind, 2010). In order to take advantage of entrepreneurial opportunities, the  
29 conventional, bureaucratic university structure has to soften into fluid or hybrid forms and  
30 become less compartmentalised (Styhre and Lind, 2010); and meet three excellence criteria in  
31 teaching, research and institutionally embedding entrepreneurship simultaneously (Guerrero  
32 *et al.*, 2015). The institutional element of the entrepreneurial university provides the  
33 frameworks and structures for creating spin-off businesses, mediating the academic-industry,  
34 academic-student, student-academic, and student-industry interfaces, commercialising ideas  
35 and using this process to deliver research informed and industry focused teaching and  
36 experiential learning opportunities (Mason and Arshed, 2013). This discourse has been  
37 summarised (see Figure 1).

### 48 **Take in Figure 1**

51 Styhre and Lind (2010:107) state that “*rather than solely being a provider of*  
52 *teaching and research, that is, research within formal or theoretical domains of interest, the*  
53 *university is being portrayed as a repository of know-how which should preferably be tapped*  
54 *more effectively.*” Thus the university as a business model is seen as delivering more than

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3 simply knowledge and novel research. Instead, universities are increasingly considered to be  
4 centres of economic development and growth. The aim of this paper is to contextually explore  
5 the notion of rural entrepreneurship and also entrepreneurial behaviour in agricultural and  
6 food supply chains and wider landscape management and more especially the role of the  
7 specialist university as a catalyst within this process. A further objective of this paper is to  
8 provide a conceptual underpinning to ongoing empirical research in the area of  
9 entrepreneurial activity in the university setting and the nuances of the quadruple interaction  
10 of student, academic, industry and finally the institutional character of the university itself.  
11 The paper is structured into five segments which include: the background, and review of  
12 related literature, conceptualization of a model and then a discussion and conclusion that  
13 highlights the potential for future primary research in this area.  
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## 23 **2. Entrepreneurial intention and the role of the student**

24 Behavioural models such as the theory of planned behaviour or TPB (Fishbein and Azjen,  
25 1975) have been used in a wealth of published literature to seek to explain farmer intentions,  
26 attitudes and market-orientated behaviours (Beedell and Rehman, 2000), as well as their  
27 willingness to engage in social entrepreneurship activities. One factor that is context specific  
28 to a land-based university is social learning for students through their family situation i.e.  
29 their interaction with self-employment, and entrepreneurship within the family social context,  
30 for example, family farming or other self employed status. Shirokova *et al.*, (2015) state there  
31 is a significant positive association between entrepreneurial intention (EI) and the scope of  
32 start-up activities that student entrepreneurs are engaged in. Factors that reinforce that  
33 association were family entrepreneurial background (Küttim *et al.*, 2014), age, being male  
34 rather than female, and the university entrepreneurial environment. Jaskiewicz *et al.*, (2015:  
35 30) introduce the notion of entrepreneurial legacy arguing that entrepreneurial legacy is  
36 derived from being involved with a farming business from birth and then active involvement  
37 in a family context. This notion of entrepreneurial legacy is relevant to farming businesses  
38 that form the majority of businesses in the land-based sector with entrepreneurial bridging  
39 playing a part in nurturing entrepreneurship in younger generations as multiple generations  
40 work side by side in the family business; and families with an entrepreneurial legacy nudging  
41 their children toward educational and work experiences that are both high quality and related  
42 to the family business and potential future opportunities (Jaskiewicz *et al.*, 2015; Manning  
43 and Parrott, 2018). Ambad and Damit (2016) suggested perceived relational support and Mat  
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3 *et al.*, (2015) access to capital, information and social networks all influence EI. Thus when  
4 considering the student body, some students may start at a land-based university with the  
5 influence of entrepreneurial legacy and be within the learning environment, with those who  
6 conversely have not. This will influence, but not exclusively, their EI as individuals and as a  
7 collective group within the classroom setting. Therefore the academic is engaging with a  
8 range of experience, and attitudes, when seeking to explore entrepreneurial topics with  
9 students. Ambad and Damit (2016) conclude that three factors influence EI: **perceived**  
10 **relational support (PRS)** that is the greater the support from people around them e.g.  
11 parents, family, friends, network, the greater the student's EI suggesting both entrepreneurial  
12 legacy and social learning; **perceived behavioural control (PBC)** the easier the student  
13 believes it would be to become an entrepreneur the more motivated they are to be  
14 entrepreneurial themselves again posing the question about the influence of social learning;  
15 and **entrepreneurial attitude (EA)** the greater the attractiveness of entrepreneurship to the  
16 student, the greater the EI.  
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Camelo-Ordaz *et al.*, (2016) considers entrepreneurial self-efficacy, a concept derived  
from Social Learning Theory (SLT), whilst others have described this characteristic as  
entrepreneurial orientation (EO), see Ishmail *et al.*, (2015). Self-efficacy reflects an  
individual's perception of, and their degree of personal confidence in, their own skills,  
abilities and competence, the ability in individuals to recognise opportunities, and fear of  
failure, proactiveness, innovativeness, risk tolerance and risk aversion in terms of willingness  
to be self-employed are all important considerations (Camelo-Ordaz *et al.*, 2016; Kickul *et al.*,  
2008; Bandura, 1989). The ability to recognise opportunities to start a business, or make  
the most of a commercial situation, is positively related to EI, with a gender influence as  
previously highlighted in this paper, the effect being stronger in the case of males but whether  
this is due to EA, PBC or PRS is unclear (Camelo-Ordaz *et al.*, 2016; Langowitz and Minniti,  
2007).

Obembe *et al.*, (2014) found in their work there was no difference by gender in terms  
of perceptions of entrepreneurship. Karimi *et al.*, (2013) considered the relationship was more  
complex and that whilst gender did not influence PBC and EI, gender did affect firstly EA,  
which was weaker for females, and that subjective norm (SN) was a stronger predictor of EI  
for female students than for male (Manning and Parrott, 2018). Dahalan *et al.*, (2013) assert  
that males and females just have a different way of thinking associated around how they value  
life and this will influence gender specific perceptions of entrepreneurship and its value.  
Camelo-Ordaz *et al.*'s (2016) work found that it was social learning that may influence



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3 female self-perceptions and, as a result, restrict their EI and thus that there is a relationship  
4 between EO and EI.  
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6 The rationale, often used in education when disseminating entrepreneurial principles,  
7 is that in order to drive entrepreneurial behaviour and outcomes, students must study and  
8 acquire appropriate entrepreneurial knowledge and information (EKI), and that this will then  
9 influence their EA then EI i.e. the willingness to start a new business when they leave  
10 university (Mat *et al.*, 2015). These learning informed steps will then in turn through  
11 exhibiting entrepreneurial behaviour drive increasing entrepreneurial competence.  
12 Entrepreneurial competence is “*the totality of an individual's personal abilities, qualities and*  
13 *skills that ensures successful entrepreneurship*” (Bikse and Riemere, 2013: 511).  
14 Entrepreneurial competence as a characteristic involves the capability of introducing  
15 creativity and innovation, abilities and skills such as effective communication, organisation,  
16 project management, action planning and risk-taking as well as the knowledge and skills  
17 needed for establishing and developing a new enterprise (Bikse, 2011). By contrast, the  
18 student can be seen as a passive recipient of EKI or conversely, the student can be determined  
19 as a co-creator of EKI, by actively constructing their own knowledge and meaning (Mueller  
20 and Anderson, 2014). This suggests there is a role within the learning process to embed EKI  
21 through specific learning opportunities, thus promoting EI, entrepreneurial competence and  
22 subsequently entrepreneurial behaviour either during their studies and/or when they exit  
23 university into the wider economy. Indeed, in a multiple co-creation process the capital value  
24 of EKI is increasing not only just within the student body, but also within the academic body.  
25 The themes outlined here have been drawn together (Figure 2) into an entrepreneurial  
26 behaviour model (EBM).  
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#### 40 **Take in Figure 2**

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43 However, as various behavioural models including the TPB highlight, knowledge  
44 generation and EI in themselves will not necessarily lead to entrepreneurial behaviour. This  
45 suggests that a framework needs to be built within the wider construct of land-based  
46 entrepreneurial education to facilitate the transformation process. It is important, when  
47 developing such frameworks to consider the contextual landscape in which an entrepreneurial  
48 university operates and the interaction between the institution itself and the academic, student  
49 and industry (Figure 2). At its best this interaction supports both industry focused and  
50 research informed teaching and the benefits to the students of industry-related opportunities  
51 such as work placement and business sponsorship. Whilst public funding for novel research is  
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3 an inherent element of entrepreneurial universities, also undertaking more applied and near-  
4 market research activity affords the opportunity for private research funding, consultancy and  
5 commercialisation activities such as business spin-offs. There is an underpinning value in this  
6 near-market research activity in terms of building EI across the university itself and within the  
7 academic and student bodies.  
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### 10 **Take in Figure 2**

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14 Therefore it could be proposed that within the entrepreneurial university setting EI  
15 does not just rest with the student body, but also with academics, the institution itself and the  
16 industry partners with whom the university interacts and these interactions are now explored  
17 in the wider context of entrepreneurial education.  
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### 22 **3. The role of the academic and the university institution in promoting entrepreneurship**

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24 Academic entrepreneurship describes the involvement of academics in commercial  
25 activities in addition to teaching and research (Mirani and Yusof, 2016). The academic-  
26 industry interface promotes the capitalisation of knowledge and this has the potential to  
27 increase university revenue (Ishmail *et al.*, 2015). However, the role of the academic migrates  
28 to being knowledge provider, coach or knowledge developer (Mueller and Anderson, 2014),  
29 catalyst, change agent, and/or thought leader. Barriers associated with university culture that  
30 impinge on academic entrepreneurial activity, and subsequent commercialisation of research  
31 are characterised by inertia, non-cooperative attitude, weak or few incentives, conflict  
32 between contemporary and traditional needs of academia and un-supported infrastructure  
33 (Ishmail *et al.*, 2015; Usaci, 2015). Further, Chang *et al.*, (2016) suggests the situation is  
34 more complex and that “*trade-offs occur at the different levels of the organisation*” in respect  
35 of a research duality that they term “research ambidexterity” and whilst there is a goal to  
36 achieve high-ranking, world leading, research publications, also there is increasing pressure  
37 for the academics to deliver in the area of research commercialisation with the resultant  
38 negotiation around intellectual property rights, timescales and funding. Others propose  
39 ambidexterity in terms of scientific knowledge and technology outputs (D’Este and  
40 Perkmann, 2011; Ambos *et al.*, 2008). Entrepreneurial universities transfer technology in  
41 order to create entrepreneurial thinking, developing actions, institutions and entrepreneurial  
42 capital in an entrepreneurial society (Mirani and Yousof, 2016; Audretsch, 2014). Thus,  
43 university orientated technology transfer includes the commercialisation of scientific or  
44 academic knowledge, academics participating in consultancy, transformation of that  
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3 knowledge into products and services, increasing economic growth and development at a  
4 regional or wider scale, (Mirani and Yousef, 2016). For commercialisation of academic  
5 research to succeed, processes must be in place to ensure the EO-EI linkage (Ishmail *et al.*,  
6 2015), so there needs to be a clearly defined institutional entrepreneurial intention (IEI) at  
7 governance level, that provides a fertile environment for both academic entrepreneurial  
8 intention (AEI) and student entrepreneurial intention (SEI). By inference this narrative  
9 promotes that increasing human capital is crucial.  
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14 D'Este and Perkmann (2011) argue that academics, rather than simply focusing on  
15 'blue-skies' research, engage with industry partners primarily to support their research  
16 activities. However this interaction is influenced by the nature of the academic-industry  
17 affiliation in terms of the degree of commercialisation, the potential for increased knowledge,  
18 access to funding and access to in-kind resources. Mechanisms to increase both students' and  
19 academics' confidence in their own skills, abilities and competence (student entrepreneurial  
20 competence (SEC) and academic entrepreneurial competence (AEC)), as well as their  
21 collective ability to consider risk, fear of failure and to recognise opportunity must be  
22 embedded within the institutional entrepreneurial framework fusing the "EI quadrant" of  
23 SEI, AEI, IEI and externally industry's entrepreneurial intention too. This approach will  
24 ensure teaching and research is both independently and collectively entrepreneurially aligned.  
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32 Within the institutional setting, discrete social constructs will affect the "EI quadrant".  
33 It can be theorised that science and engineering students through post university market-  
34 centred entrepreneurial activities create organisations that provide the best financial return  
35 and job growth. However there is little literature to support this (Maresch *et al.*, 2016). In their  
36 work on EI, Maresch *et al.*, note that EI is influenced by age, and gender and that business  
37 students have a higher degree of EI than engineering and science students although in part this  
38 could be attributed to the lower level of entrepreneurial education in the curriculum for  
39 engineering and science students. As well as gender, wider influencers of social construct in  
40 terms of culture and SN will also have a role in influencing individuals (both students and  
41 academics) to engage in entrepreneurial behaviour. Indeed factors such as faculty members  
42 being involved in entrepreneurial activity, innovative programmes and research orientated  
43 culture all having a mediating role (Ismail *et al.*, 2015). This review of literature has led to  
44 consideration of the multiple interactions that occur within the entrepreneurial university that  
45 influence and catalyse entrepreneurial behaviour in students, academics and also in terms of  
46 the institution and its own structures and dynamics that influence its entrepreneurial  
47 competence and resultant entrepreneurial behaviour. As a result a conceptual model has been  
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3 developed (Figure 3). The outer influence of industry and other stakeholders is not included  
4 within this internal interaction model.  
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### 6 **Take in Figure 3**

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9 The elements of the model proposed in this paper are now reviewed in terms of the role of the  
10 academic, the role of the curricula and the role of the social constructs in promoting  
11 entrepreneurship. Whilst the Ambit and Damit (2016) study considers SEI, this literature  
12 translates to consideration of AEI as well. Ishmail *et al.*, (2015) highlight that academic  
13 associated characteristics such as AEI, prior academic entrepreneurial experience, industrial  
14 experience and research focus directly influence SEI and by interference also AEI in the  
15 academics themselves. Usaci (2015) terms AEI as professional entrepreneurial intentions  
16 (PEI) and this links too within the entrepreneurial education and entrepreneurial university  
17 construct and wider IEI (see Figure 3). Camelo-Ordaz *et al.*, (2016: 13) assert that the role of  
18 entrepreneurial education “*only seems to be relevant when it comes to enhance the likelihood*  
19 *of non- entrepreneurs exhibiting EF*”. However, research has shown that entrepreneurial  
20 education increases EI, however different student groups may require different academic  
21 action (Maresch *et al.*, 2016). Gonzalez-Alvarez and Solis-Rodriguez (2011) assert that  
22 knowledge acquired through experience and practical learning gives individuals greater  
23 cognitive capacity leading to them being able to identify EO i.e. that EO has a positive  
24 relationship with human capital attributed to such constructs as social networks, learning and  
25 work experience. Thus it could be argued entrepreneurial education needs to provide within  
26 the curricula both experiential and practical learning opportunities, such as work-placements,  
27 in order to drive EO. This is as true for the students as with academics and their professional  
28 development programmes that are adopted within the entrepreneurial education setting.  
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42 Inclusion of entrepreneurial elements within the curricula could translate into highly  
43 employable graduates as well as boosting the economy (Mat *et al.*, 2015). EC is developed  
44 during the entrepreneurial education process (Bikse and Riemere, 2013), but they contest that  
45 the term entrepreneurial education is often understood in what is a narrow context, namely  
46 business activity and economics, whereas it could be argued entrepreneurial education is a  
47 much wider construct that influences not only SEC but also AEC too. Entrepreneurial  
48 education must have a distinct pedagogy that links with syllabus and co-curricular activities to  
49 embed work-related learning, active and experiential learning, social interaction learning,  
50 action learning and entrepreneurial training (Kadir *et al.*, 2012; Bagheri and Pihie, 2010).  
51 Mueller and Anderson (2014) construct from their research what they consider to be the major  
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3 stages of the entrepreneurial learning process: engaging through **responsibility** for personal  
4 learning; learning through **social exchange**, a socialised process in a low-risk environment  
5 that allows connecting to self, others and the world; **independent thinking** as a result of  
6 individual need and social change; and **entrepreneurial learning** and **personal development**  
7 in a dynamic process. This introduces aspects of criticality into the learning experience.  
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12 Bagheri and Pihie (2010) note in their research on entrepreneurial education that  
13 whilst the majority of students highlighted real and active tasks as the most influential factors  
14 for enhancing entrepreneurial leadership, for other students capabilities were learned through  
15 social interaction, observation and reflection as a result of meeting entrepreneurial role  
16 models. This suggests a need for a diverse learning environment. Workplace placement  
17 opportunities, and internships in organisations that demonstrate excellent entrepreneurial  
18 characteristics are also a fertile learning environment (Manning and Parrott, 2018). Individual  
19 and collective reflection was also seen to be of value, by students in the Bagheri and Pihie  
20 study, promoting the use of reflective learning with peers in a facilitated environment within  
21 the entrepreneurial education framework. Therefore entrepreneurial learning and  
22 experimentation is a developmental process which is designed to develop the entrepreneurial  
23 maturity of individuals, with the learning environment accommodating uncertainty, change  
24 and individual development albeit that this is challenging within current the administrative,  
25 organisational and political boundaries of most educational institutions (Mueller and  
26 Anderson, 2014). Karimi *et al.*, (2013) propose that entrepreneurial universities must be  
27 sensitive to diversity, including by gender and career choice as this influences the benefits  
28 derived by individual student that coalesce around entrepreneurial education. Further, they  
29 argue to maximise the effectiveness of entrepreneurial education and to drive EI, curricula  
30 must be focused so that students that are motivated by instrumental factors (normally male)  
31 and those that are engaged through social factors (normally female) have their individual  
32 learning needs met. The critique of literature here demonstrates the value of considering  
33 curricula design in providing opportunity for learning experiences both in the wider construct  
34 as shown in Figure 1, and the individual level Figure 2.  
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#### 50 **4. Discussion**

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52 Entrepreneurship is vital for both personal and economic development. An  
53 entrepreneurial university is required to embed entrepreneurship in all they do and to combine  
54 this in both their teaching and their research and underpin IEI and IEC as these inform both  
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3 SEI and AEI. Chang *et al.*, (2016) raise the concern that there are always trade-offs occurring  
4 at different levels of the organisation between teaching, pure and applied research. This can  
5 create tension as resources are allocated according to market demand and policy drivers. The  
6 paper has considered the mechanisms that universities can employ to use entrepreneurship to  
7 inform teaching practice undertake pure and applied research and contribute to the global and  
8 national and regional economy. The research on the barriers to academic entrepreneurial  
9 activity highlight that if IEI and IEC is not strong and if there is weak infrastructure there can  
10 be few incentives to engage with industry, thus limiting entrepreneurship within the  
11 institution. This means that where conventional, often bureaucratic institutional structures  
12 occur they have to become more fluid in order to take advantage of entrepreneurial  
13 opportunity.

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21 As engagement with industry increases, the associated academic skillset required as a  
22 result changes and evolves. Whilst negative constraints both in terms of institutional structure,  
23 personal engagement and others have been suggested by the literature there are positive steps  
24 that can be taken in order to embed entrepreneurial education and enhance the EI of students,  
25 academics and the institution itself. The complex interaction of factors of influence within an  
26 entrepreneurial university has been drawn together in Figure 3 and the overall ambition for an  
27 entrepreneurial university is for students to demonstrate entrepreneurial behaviour. Within the  
28 overall internal framework there are three sub-frameworks that interact, those of the student,  
29 the academic and the institution and also the interface with industry what has been described  
30 in this paper as the EI quadrant.

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37 The aim of the paper was to develop a conceptual framework along with a set of  
38 hypotheses that reflect the dynamic relationships that operate within an entrepreneurial land-  
39 based university in order to inform future empirical research. One element of primary  
40 research will be analysis of what students perceive to be entrepreneurship in the land-based  
41 sector and the degree of integration of economic and social elements. The hypotheses that will  
42 now be tested using primary qualitative and quantitative research within a land-based  
43 institution that seeks to promote entrepreneurial behaviour are:

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48 • H1 - Entrepreneurial legacy and entrepreneurial bridging influences EA in students  
49 who come from a background of family business/self-employment.
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52 • H2 – EA is greater in those students who come from a background of family  
53 business/self-employment.
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55 • H3 – Industry placement for students increases EA when the students return for their  
56 final year of study.
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3 Further research would also be of value in testing the factors of influence in the  
4 entrepreneurial behaviour model (Figure 2) institutionally, and with regard to academics, and  
5 students both independently and collectively as represented in Figure 3.  
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## 7 **6. Conclusion**

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10 The sense of being an entrepreneurial university is sector specific, and a dynamic and  
11 evolving process that leads to continually re-emergent definitions. Indeed, what it is to be  
12 perceived as truly entrepreneurial in say the digital economy, or engineering, will be different  
13 to perceptions of entrepreneurship in the food and land-based sector. Therefore stakeholders'  
14 perceptions of entrepreneurship is dynamic and the community in which the university is  
15 operating will have its own distinct sense of entrepreneurship in terms of meaning, framing  
16 and associated dilemmas. In order to embed entrepreneurship at the heart of university  
17 mission, the institutional resources and formal structure must provide a framework for the  
18 interaction between academic, student, the institution and industry too. Resource allocation  
19 between teaching and research, and running the organisation itself, is a constant and multi-  
20 layered dilemma that sits at the triad of individual academic, university department and at the  
21 institutional level as the entrepreneurial university seeks to meet multiple stakeholder  
22 demands and be seen by all, to consistently add value. In the changing climate of tertiary  
23 education, the challenge for any university is how to deliver simultaneously to multiple  
24 constructs, and perhaps counter-constructs, of what is perceived as "value" by a range of  
25 stakeholders.  
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37 This position paper considers the land-based university specifically and underpins  
38 future deductive and exploratory research work to determine the interrelationship between the  
39 factors outlined here in this specific educational discipline. There is currently a knowledge  
40 gap that needs to be addressed. Why is this knowledge gap of concern? As global population  
41 rises there is a need to provide more from food from at best existing resources, or in many  
42 regions of the world from depleting resources of available land, soil, water and nutrients. As  
43 global populations urbanise and cede to others the responsibility to produce their food the  
44 challenge becomes more brittle and required innovative, entrepreneurial solutions. Those  
45 students going into the land-based and food production sector whether in farming businesses,  
46 land management, wider agribusiness, food processing, retail or food service need to have the  
47 ability to think critically and be able to identify their role in both the dilemma of global  
48 population rise and in delivering solutions.  
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3 The physical and market environment in which land-based businesses operate is fluid  
4 and dynamic and an entrepreneurial mindset will afford business operators the ability to take  
5 advantage of opportunities and ensure their businesses remain viable and resilient to market  
6 or environmental shocks. In the United Kingdom, the influence of current policy issues such  
7 as the BREXIT vote and its impact on future farm subsidy payments and rural support, as  
8 well as market and policy initiatives to drive innovation and add value at farm level means  
9 that entrepreneurial behaviour within the agricultural and wider land based sector, as a  
10 subject, is gaining wider interest. Indeed with the post-BREXIT vote discussions, the  
11 narrative of what it is to be a farmer in the UK is becoming more nuanced especially the  
12 interplay between farmers being market-orientated or social entrepreneurs.  
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## 20 **5. Conclusion**

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22 This paper has drawn together elements from the literature in order to consider land-based  
23 entrepreneurial universities, the multiple stakeholders that they interact with, but more  
24 especially specifically students, academics, and the institution itself. In this respect this  
25 review paper has been developed to support empirical work rather than be a case study in  
26 itself. Further research would be of value in determining whether self-employment and being  
27 entrepreneurial are equivalent as has been characterised in some literature or whether it can be  
28 asserted that they are different i.e. it is possible to be self-employed without being  
29 entrepreneurial? This question reflects the need to undertake qualitative work to explore this  
30 question in more detail and to consider the meaning of self-employment and entrepreneurship  
31 to individuals themselves. The role of entrepreneurial legacy and its impact on students at a  
32 land-based university is also worthy of more exploratory research.  
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41 It is also important to note that whilst some students may see entrepreneurial activity  
42 as a future career option other students may not perceive their future careers through the lens  
43 of entrepreneurship. However, further research work is required to identify whether the land-  
44 based university specifically has a student body that has a different profile of career  
45 aspirations when compared to the wider university sector. Entrepreneurial university is not a  
46 new term, but what it is to be entrepreneurial, and to add value both internally and externally  
47 to a diverse set of stakeholders is context-specific and constantly evolving. As a result,  
48 entrepreneurial activity that is generated by a university can be characterised in both  
49 economic and social terms. What it is to show entrepreneurship in the land based sector will  
50 clearly be determined in a different way to another area of commerce. Thus, entrepreneurial  
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3 curricula needs to be grounded in line with the business sectors served, whilst being dynamic  
4 and reflect the needs of the academic subjects. Further, in universities that have a specific  
5 applied focus, specific learning opportunities that increase EA may improve overall learning  
6 experience and the individual personal development of the student. As has been highlighted in  
7 the paper some students in a university may arrive with entrepreneurial legacy whilst others  
8 may not. Further research into this area will improve the entrepreneurial learning experience  
9 for students and ultimately drive greater economic growth and development when those  
10 students embark on their careers. The models developed as part of this research are of value to  
11 universities as they consider the mechanisms that they need to put in place to support  
12 entrepreneurial activity.  
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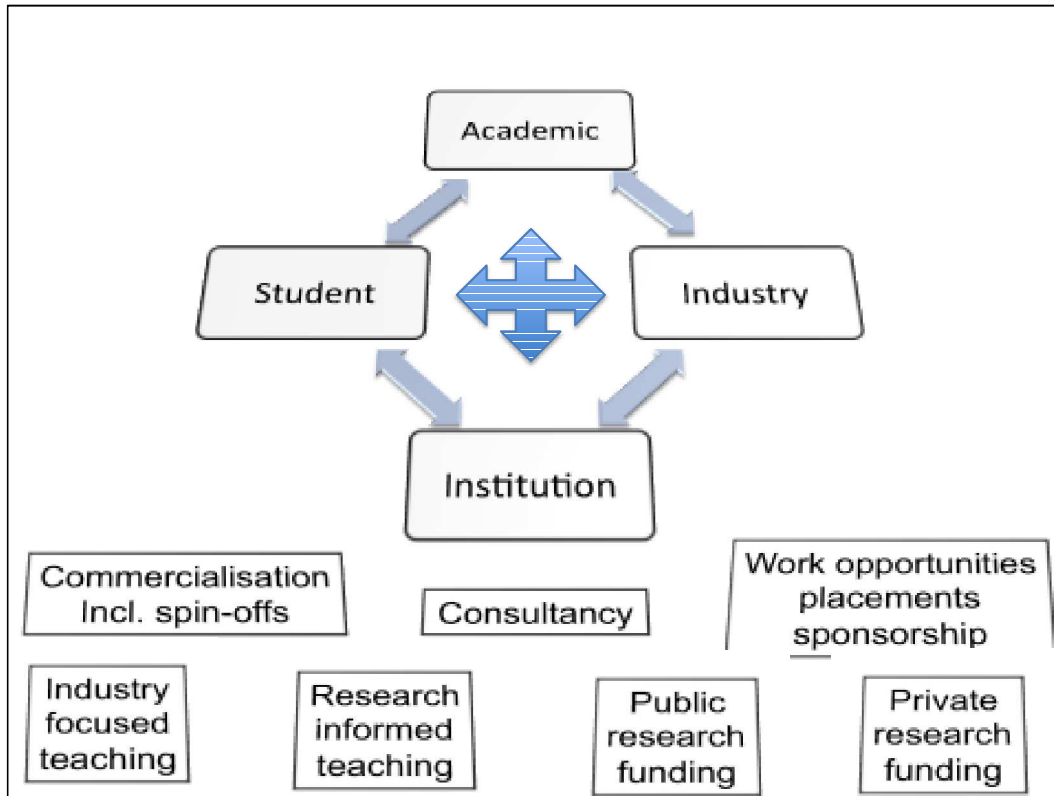


Figure 1. The contextual landscape of an entrepreneurial university

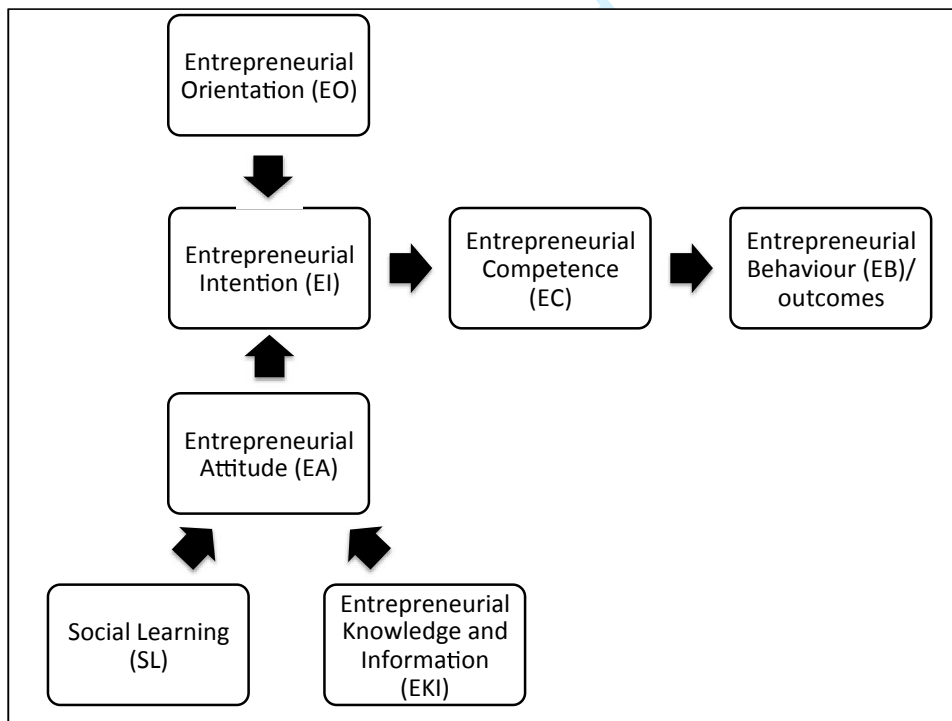


Figure 2. Entrepreneurial Behaviour Model (Manning and Parrott, 2018)

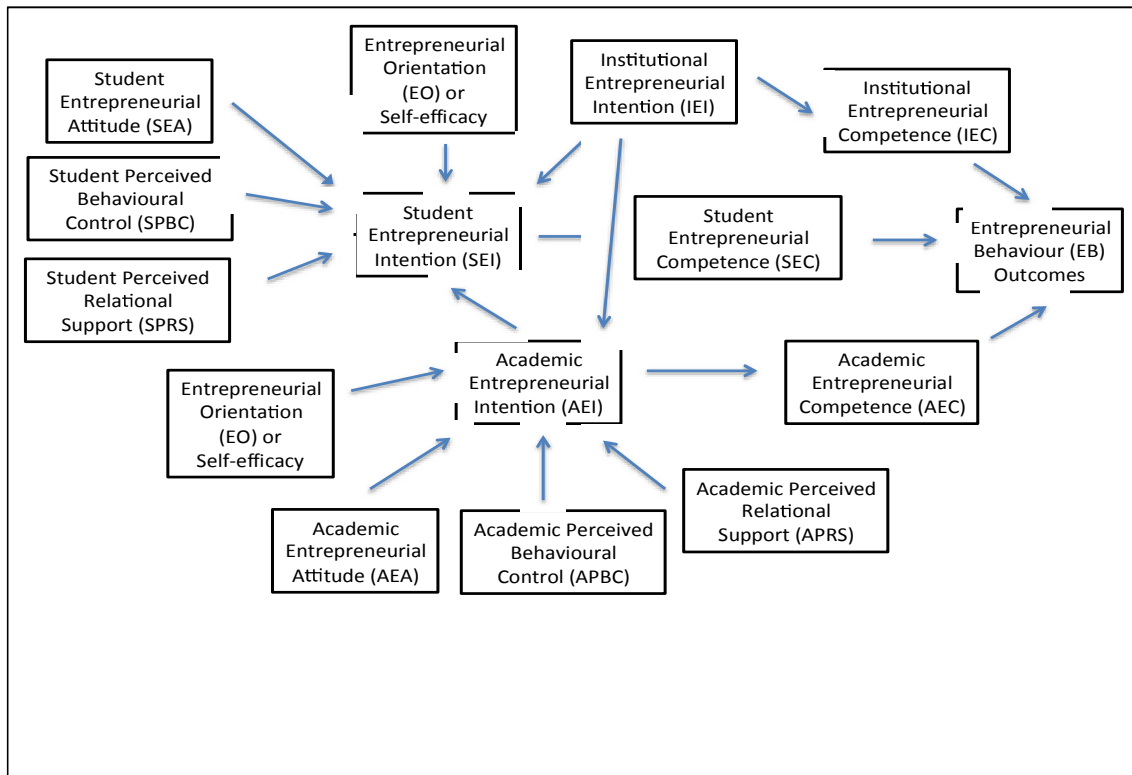


Figure 3. Framework of interaction within an Entrepreneurial University