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Entrepreneurship Business Research Skills

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Abstract. *In recent years area of entrepreneurship has gained significant attention nationally and internationally. It is one of the main skills priorities of national governments and EU council. Traditionally associated with commercial activity, entrepreneurship has gained traction as a key competence necessary to allow society as a whole to adapt to the changing economic climate. Small and medium sized companies (SMEs) greatly contribute to employment and wealth in Europe but there are limited studies into the specific skills needs required for SMEs into the future. Skills such as problem solving, critical thinking and entrepreneurship allow learners to adapt to changes, communication, digital skills and teamwork allow learners to collaborate and exploit technology in the changing workplace. Research is a key element of entrepreneurial success, but how these skills particularly workplace-oriented ones improve entrepreneurial culture has not been widely explored in the literature. This paper explores the importance of entrepreneurship today, the skills required to allow our society to become more entrepreneurial and identifies the potential of workplace research skills to develop entrepreneurial capacity in all facets of work, particularly within SMEs. The authors collaborated on many European projects aimed at improving work and education/training of entrepreneurs. The work presented int this paper resulted from surveys conducted within these projects regarding the problems SME staff have in connection with workplace transformation and entrepreneurship education and training. From this the paper proposes a conceptual model to facilitate the development of workplace research skills which will enhance entrepreneurial capacity in SMEs. The problems discussed in this chapter will also be used within the German initiative Mittelstand 4.0-Kompetenzzentrum with the participation of one author. Companies within this program are eager to improve their workplace research skills and change the learning culture and staff behavior in connection with digital workplaces.*

Keywords: Entrepreneurship, Business Research Skills, Eentrepreneurial capacity, Growth oriented SME business.

Introduction
Small and medium-sized enterprises SMEs are the dominant form of business organizations in the EU; more than 99 % of enterprises in the European Union are SMEs. SMEs greatly contribute to employment and wealth in Europe: accounting for nearly 70 % of European private service jobs. In Europe, the number of those employed by SMEs is high, particularly in sectors such as construction, metal products and the wood and

furniture related industries. SMEs generate large portions of wealth in the EU (EC, 2013).

The new economy brings with it many challenges for SMEs. There is an EU average birth rate of 10% for small companies, however their growth rate remains quite low, at 2% (Muller et al, 2017). Despite SMEs being more productive than larger organizations, they often remain stagnant (Eurostat, 2015). In many cases SME owner/managers are concerned about the survival of the firm and find it difficult to plan forward (Garland et al, 1984). Furthermore, in a recent project Archimedes, SMEs identified the burden of workload trying to sustain a business. They emphasized the need for staff to take initiative and seek new ideas. (O'Brien and Carroll, 2015). Therefore, it is important for SMEs to develop an internal entrepreneurial culture (intrapreneurship) to support SME owners in growing the company.

To grow, SMEs need new customers, this is often a challenge (Muller et al, 2017) In the EUs 2016 annual SME report they identified difficulties in 'marketing and establishing a business presence', which are key to growth. Digital technology can provide the capacity to assist SMEs to grow. If adopted correctly it can introduce process efficiencies and reduce costs, it can allow SME to access international customers without having to set up a physical presence. However, many SMEs struggle in the adoption of technology. The EU highlight that many companies do not fully exploit technology (European Commission (2015). Morgan Thomas (2016) attributes such low success rates to the generic adoption of ICT rather than applying it in the relevant context of the business environment in which the company operates. To facilitate successful adoption of technology it is important that SMEs look for business opportunities and identify how technology can support them to afford these opportunities rather than employing technology for generic purposes.

In addition to this, finding skilled staff is a major barrier for SMEs (Muller et al, 2017). This is fueled by the high staff turnover they experience (Long et al, 2014). The lack of skilled staff limits SMEs and increases their vulnerability to external changes. (Field and Franklin, 2013; Sheehan, 2013). To overcome this issue, '*it is important that SMEs do not focus all of their resources in one area*', (Kim and Kwon, 2017) as a result, transversal skills may be more relevant to their needs.

There are limited studies into the specific skills needs required for SMEs. In a recent study conducted by the EU Skills, panorama transversal skills were highlighted as becoming increasingly important. Skills such as problem solving, critical thinking and entrepreneurship allow learners to adapt to changes (Bratianu & Vatamanescu, 2017; EU, 2006). In addition, communication, digital skills and teamwork allow learners to collaborate and exploit technology in the changing workplace. Broad skills that allow SMEs to adapt to a wide variety of situations may be key. For example, skills that allow their employees to proactively look for business opportunities both internally and externally and identify how they can exploit these opportunities with their existing resources. This paper will explore the potential of workplace research skills to stimulate the employees' ability to systematically identify new opportunities and manage the implementation of these to improve the performance of the company.

Research is often cited as a key element of entrepreneurial success, but the capacity of research skills to improve entrepreneurial culture has not been widely explored in the literature.

According to Gibb and Hannon (2006), the way entrepreneurship is taught

needs to be significantly changed; traditionally seen as a way of creating a business, the concept of entrepreneurship has developed significantly over the past five years to encompass value creation in all aspects of society (Bacigalupo et al, 2016). Entrepreneurship has been redefined as a competence comprising of skills, behaviors and traits.

The paper identifies the skills that contribute to the modernized competence of entrepreneurship and explores why these are required for SMEs to grow. It examines the potential role of research skills in developing entrepreneurship and their impact on SMEs. The paper then considers the training approaches, which can facilitate the development of such skills. Finally, we present a case study of a project exploring the impact of workplace research skills on the entrepreneurial capacity of SMEs.

Entrepreneurial skills for growth oriented SME business

Entrepreneurship is an area, which has long lacked consensus. However, in recent years it has become a key priority area. In 2015, the EU commissioned a study into the area resulting in a universal definition of entrepreneurship. The definition has modernized the view of entrepreneurship as a responsibility of society as a whole rather than the traditional businessperson.

'EntreComp defines entrepreneurship as a transversal competence, which applies *to all spheres of life: from nurturing personal development, to actively participating in society, to (re)entering the job market as an employee or as a self-employed person, and also to starting up ventures (cultural, social or commercial). It builds upon a broad definition of entrepreneurship that hinges on the creation of cultural, social or economic value. It thus embraces different types of entrepreneurship, including intrapreneurship, social entrepreneurship, green entrepreneurship and digital entrepreneurship. It applies to individuals and groups (teams or organizations) and it refers to value creation in the private, public and third sectors and in any hybrid combination of the three.* '(Bacigalupo et al, 2016).

Consequently there is a drive to incorporate entrepreneurship into all forms and levels of education so it is widely developed and disseminated, allowing all individuals to become active citizens. This modern view requires modern approaches to entrepreneurship education.

There are conflicting views of entrepreneurship ranging from leadership, innovation, risk taking and management as well as behaviorist and trait approaches (Emmanuel, 2010; Hamburg and O'Brien, 2014) To overcome ambiguity concerning the competence of entrepreneurship, the ENTRECOMP framework was developed by the EU commission in 2016 (Bacigalupo et al, 2016). It classifies entrepreneurship as having three competence categories and 15 different elements, which are interrelated. The three competencies are Ideas and opportunities', 'Resources' and 'Into Action'.

The 'Ideas and opportunities' category is concerned with identifying opportunities, developing initiatives to exploit these opportunities and determining the value that can be obtained from these. The 'Resources' category is concerned with planning and leveraging the personal, internal and external resources to develop initiatives to exploit such opportunities. 'Into action' is concerned with implementing initiatives, creating value from them and evaluating success. Many of these skills could be applied to the needs of stagnant SMEs wishing to grow. Skills such as financial

literacy and digital skills are key for SMEs during the scale up phase (Muller et al, 2017). The ENTRECOMP addresses such skills gaps, for example, financial literacy and digital entrepreneurship are identified as a competency in the resources classification of the framework whereby the learner identifies the financial and technological resources required to exploit new business opportunities.

The framework also integrates some of the key competencies identified by the EU in the LLL policy, for example, 'taking the initiative' in 'ideas and opportunities' are concerned with solving longstanding problems.

In general, entrepreneurship skills can be categorized into four main dimensions (Cooney and Bygrave, 1997; Kutzhanova et al, 2009; Bacigalupo et al, 201, Hamburg, 2015)

- Technical Skills – Skills specific to the design and development of products or services that the entrepreneur would like to create for a particular industry e.g. engineering, business, science
- Entrepreneurship – creation or the availing of innovative opportunities
- Managerial – business and organizational skills such as people management, leveraging from resources, decision making and financial literacy
- Personal – emotional intelligence, self-awareness, risk taking.

How to develop these skills and values, particularly with relevance to growth-orientated business activities, remains a question to which many researchers are still seeking an answer.

According to Gibb, this model embraces several key characteristics:

- Encouraging entrepreneurial values embedded in everyday life.
- Encouraging holistic long term thinking
- Encouraging individuals to seek and avail of opportunities and take initiative.
- Maximizing the opportunity for experiential learning and collaborative learning through communities of practice
- Being aware of the stages of organizational development and growth
- Widening entrepreneurship beyond commerciality through creating opportunities for individuals to explore what the above means for their own personal and career development.

Gibb's alternative model recognizes the need for a holistic approach to entrepreneurship education, which interfaces between industry, community and educational institutes and recognizes the need for collaboration and interactivity. The educational methodology needed in today's world is one, which helps to develop an individual's mindset, behavior, skills and capabilities and can be applied to create value in a range of contexts and environments from the public sector, charities, universities and social enterprises to corporate organizations and new venture start-ups.

The next section explores how workplace research skills can potentially map to the skills associated with entrepreneurial competence outlined earlier.

Research skills and their impact

Research is required for innovation and innovation is needed to generate ideas for entrepreneurship. Traditionally entrepreneurship programmes are focused on venture creation.

Research is a process of scientific inquiry, it is traditionally limited to academia however there is an increasing need for research to be applied to practical situations and societal needs (Plowright, 2016).

Research skills empower the employee to identify and gather the most appropriate material to their learning needs; as a result, it encourages a 'learning to learn approach'. The approach will allow employees to learn the skills to gather data in a systematic manner to fill knowledge gaps in their organization. These skills can be applied to a wide variety of contexts, disciplines and professions.

In the workplace, research skills are focused on the business tasks and the application of evidence based knowledge orientated towards practical outcomes. In addition to enhancing the company, the collaboration between academic and workplace learning provides individual skills by allowing the development of personal expertise in terms of proven high-level intellectual skills, ving skills of better judgement of success and ability to act as self-motivated learners.

However, pedagogical approaches to developing research skills are limited to doing so in an academic environment. Head, (2012) highlighted the importance of information skills in the workplace. In addition, there have been some studies into the development workplace information literacy in recent years (Head, 2012; Willison, 2012; Bird, 2016). However little research has been done on how to exploit workplace research skills to enhance entrepreneurial culture.

Research skills can be mapped to one of the four dimensions outlined earlier

Table 1: Map of research skills to Entrepreneurial Dimensions

Research skill	Entrepreneurial skill dimension
Identify a focus of a study based on an opportunity, hypothesis, question, problem or gap in existing knowledge	Entrepreneurship
Systematic approach to gathering evidence and interpreting this evidence to identify potential approaches to address the problem, opportunity or gap.	Entrepreneurship
The leveraging of resources and technical skills to provide a solution for the proposed solution or approaches	Technical
Management of resources and process to implement and evaluate this solution.	Management

Source: Authors' own research.

In an academic environment, a phased approach is preferred with tutors presenting increasingly complex scenarios for students to research, with the final stages extending student autonomy to choose their own research; this is usually the case for a final year student research project. (Symons et al 2017; Torres and Jansen,

2016) In addition, Inquiry Based Learning (IBL) approaches are favored due to the similarity between the phases of research and inquiry based teach (Davis et al, 2006)

Plowright, 2016 suggests a new model of research is needed that incorporates the rigor of traditional research but explores the application of research at a contextual level. He uses a FRaIM model that contextualizes research questions from professional, organizational, policy, national and theoretical contexts to ensure research is directed at relevant emerging needs.

The Research skill development (RSD) framework is a model that aims to formalize an approach for developing research skills in academia. It specifies six key phases which are conceptualizing/clarifying and posing questions/finding and generating data/evaluating/reflecting upon and critiquing research methods/source credibility and arguments/organizing and managing info/analyzing data/synthesizing data/communicating with awareness of ethical and social issues throughout the process. (Willson, 2012)

To allow us to exploit research skills as a method of developing entrepreneurial capacity in SMEs, we require a learning method which aligns to both the pedagogy of developing research skills and entrepreneurship education. Inquiry based learning is a methodology which is adopted in both contexts. For example, Kakouris, 2015, highlights the use of problem-based learning and the importance of reflection at both the individual level (metacognition) and organizational level (reflective practice) as being key in developing entrepreneurial skills. The next section will explore the conceptual learning methodology for our project in more detail.

As this paper is focused on the exploitation of research skills to develop entrepreneurial capacity, it aligns the phases of inquiry-based learning with the research phases. As a result, an adapted version of the inquiry-based learning model will be used as a conceptual framework.

An extensive comparative literature review into the phases of inquiry in I/EPBL was reported by various researchers. They categorized five phases of inquiry, these phases are detailed and all encompassing. It consists of five phases

- Orientation – identifying an area of inquiry, this can include examining theories, conducting an initial inquiry through exploration or a needs assessment. This can be done by considering social, political, professional, organizational and cultural perspectives as in the FRAIM model.
- Conceptualization – based on the initial orientation, identifying questions or hypothesis
- Investigation – this involves planning the research, identifying resources, designing data collection methods and analyzing and interpreting data.
- Conclusion – this involves drawing conclusions from the data and identifying how they address the hypothesis or questions identified in phase 2.
- Discussion – this involves communicating results and reflecting on success and identifying future research opportunities'.

However, from a workplace research perspective, these stages appear linear and learners do not communicate or reflect on their progress, until last phase. Both elements are critical in a workplace environment. There is also no mention of ethical considerations, which are necessary when examining opportunities from an interorganizational perspective. The model is also focused on individual research but

as we can see from the literature, collaboration is a necessary part of workplace research. In addition, it is based on traditional research approaches, but the current model does not account for action research and if a researcher wants to implement and evaluate a model or framework. The RSD phases of research cycle account for 'design/planning' as a separate stage and communicating throughout (Willson, 2012) it is suggested to add a phase dedicated to planning the research. In addition, some of the phases have been extended:

Methodology and Results: a conceptual model for developing research skills to enhance entrepreneurship

In 2018 the authors started the Erasmus + project REINNOVATE, aimed to translate such policies within entrepreneurship into practice by focusing on cultivating an entrepreneurial culture in small companies (Hamburg et al., 2018).

Prior to the starting the project, the REINNOVATE consortium conducted a survey to determine the challenges and needs of 142 SMEs in Europe in order to be innovative, to grow and to cope with digital changes. The survey focused on the barriers to innovation or other common problems SME have when trying to be innovative. The main challenges were concerning the availability of resources, lack of time, of internal skills, lack of ideas, organizational barriers, company culture, and staff behavior in connection with digital changes.

It was found that 97% of asked companies want to become more innovative. The main barriers to innovation are resources (60%) i.e. specialized equipment, staff.

About 38% of SMEs answered that skills to use digital technologies to deliver new products and services or new digital business models are missing.

The survey explored the potential of SME collaboration of with Higher Education institutes in order to help them to be more innovative. The hypothesis was that leveraging from public research organizations would address the resourcing issues SMEs faced regarding innovation. One of the main concerns SMEs had was that higher education does not understand SMEs business needs or take too long to design and implement solution SMEs can use.

Research skills were seen as significantly important with, 87% of SME identifying research skills as important or very important to their organization, however there is a significant skills gap with 62% of SMEs having no research skills.

To address such skills gaps the Reinnovate consortium with higher education institutes and research organizations, chamber of commerce and SME representative bodies will develop research skills to stimulate the employees' ability to systematically identify new opportunities and manage the implementation of these to improve the performance of the company. Simultaneously skills in problem solving, creativity, communication and critical thinking will be developed.

The proposed REINNOVATE model involves an interplay between inter organizational, organizational and individual learning at each stage of the inquiry based learning model. It involves employees working with their peers and external business partners to actively seek business opportunities, actively plan and implement solutions, actively investigate these and actively reflect on the impact of these in professional, social, cultural and economic contexts. It involves a systematic approach were each

phase is concerned with developing ideas and making decisions on robust data. Figure 1 below illustrates the proposed model
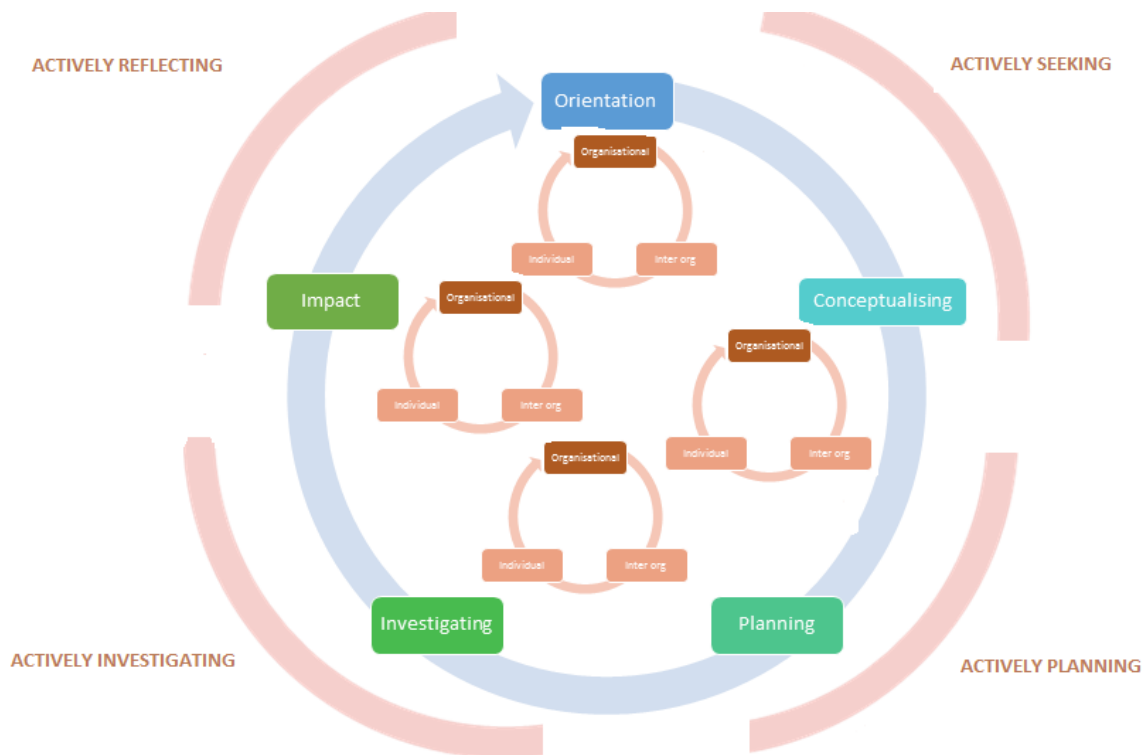
Figure 1: Model for integrating workplace research skills

Source: Authors' own research .

Phase one and 2: Orientation and Conceptualization- This involves systematically identifying ideas by **actively seeking opportunities and questioning**. The learner will conduct an initial inquiry through exploration or a needs assessment (exploring opportunities). This will involve working with the public, customers, suppliers, employees and other stakeholders to identify business opportunities, supporting interorganizational learning. Learners will contextualize the research in the context of professional, social, organizational national and theoretical contexts in line with the FraIM model (Plowright, 2016). They will then identify questions or hypothesis in a collaborative manner (identifying an opportunity). Learners will have to brainstorm initiatives with employees within their organization; this will support collaborative learning and team learning. There are three different elements of the phase

- Interorganizational level – Systematically gathering ideas from customers, suppliers, employees and other potential stakeholders.
- Individual level – Explore the theoretical contexts of the ideas.
- Organizational level – developing hypothesis and questions to determine how to apply these opportunities to the organization. These need to be contextualized from professional, organizational, social and theoretical contexts.

Phase 3: Planning – This involves **actively planning** in a systematic manner to determine how to exploit specific business opportunities, template and/or checklists can facilitate with this. Currently Pedaste et al, 2015 list planning as sub phase of investigation. However, it is suggested that extensive planning is required in a workplace context, as the learner will have to collaborate with others, and leverage from internal resources. This phase will involve developing an action plan, identifying resources, managing resources and will be extended to include communicating results, ethical considerations. Learners will need to manage resources such as other employees, equipment.

This is also done at three levels

- Interorganizational level – examining the ethical implications of the opportunity and how to address these.
- Organizational level –identifying the internal resources required to address these opportunities and managing these resources and communicating results to them.
- Individual level – which involves developing an action plan on how to implement or test the business opportunities.

Phase 4: Investigating – This involves **actively investigating** the business opportunity by systematically gathering data to allow them to test hypothesis and answer research questions. Again, this is completed at three levels

- At interorganizational level – identifying and collecting external data required to implement action plan
- Organizational level - identifying and collecting internal data required to implement action plan
- Individual level - Analyzing, interpreting data, and making data driven decisions.

Phase 5: Impact – **Actively reflecting** on the impact of the project from a social, cultural, professional, organizational and economic impact. Also reflecting on the impact of the project from a personal perspective in terms of what has been learned and determining how what was learned can be applied to other areas of the organization or business

- **Interorganizational impact** – using the FRAIM model identifying the impact of the project from a social, cultural, professional, organizational and economic perspective
- **Organizational impact** - using double loop learning examining what can be applied to different aspects of the organization
- **Individual impact** – using metacognition to reflect on personal learning and how this can be reapplied or improved.

This methodology will be implemented in Reinnovate through teaching resources including interviews with guest entrepreneurs, recording videos, counselling, group discussions, active learning, learning from mistakes, process-oriented teaching, practical-operational teaching methods like starting a business.

Four training modules will be developed and offered to SME staff to help them

- to use workplace-oriented research to identify opportunities from national & international perspectives incorporating digital transformation, social and cultural problems.
- to gather and analyze the relevant data to allow them to implement a business opportunity or an innovative idea in connection with digital transformation.
- to manage an own research project and to evaluate Success & Feature Opportunities.

Conclusions

To develop entrepreneurial research skills, learning needs to be situated in a work environment. If students are professional working students this is relatively easily addressed. However, if students are full time a period of work placement or allocated industry projects will be required. Alternatively, if the student is involved in community-based education or volunteering work they can use their organizations to apply the model by proactively seeking opportunities for such organizations.

The proposed model allows learners to actively identify and pursue business opportunities in a systematic manner. It explores pedagogical approaches to implementing the ENTRECOMP framework. This pedagogical approach incorporates the inquiry-based leaning with workplace learning approaches to workplace research skills, assisting SMEs to grow. It is recommended that VET systems integrate this into work placement, community based education and industry project modules as a method of allowing students to apply their learning in a practical context and for professional learners to enable them to integrate formal and informal workplace learning

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