# Innovations in Entrepreneurship Teaching: The Use of Repertory Grids Within the French Grande Ecole Context

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STANDARD TOOLS FOR TEACHING entrepreneurship generally include case studies, business plans and computer simulations. The article presented here reports on classroom experimentations conducted in different European contexts using repertory grids, the methodological tool of Personal Construct Theory (PCT) in entrepreneurship teaching. The innovative entrepreneurship pedagogy is set against the background of enterprise creation within the French Higher Education (HE).

## INTRODUCTION

Some of the earliest research on entrepreneurship education appeared in the proceedings of Entrepreneurship Education, a conference at Baylor University in 1981, and Entrepreneurship: What It Is and How to Teach It, a conference held at Harvard University in 1985. These initiatives were followed up by a special issue published in AJSB in 1988 comprising a number of articles such as that by Sexton and Bowman-Upton (1988) exploring *what* to teach students and particularly *how* to teach it.

In comparison to these early initiatives in the Anglo-Saxon context, the recognition that entrepreneurship education is vital to the well-being of our economies and societies is a more recent phenomenon in the European context. A survey conducted by the European Foundation of Management Development (EFMD) and the European Foundation for Entrepreneurship Research (EFER) in 2004 found that entrepreneurship education in Europe had started developing significantly since the late 1990s and was expected to continue to grow in

the 21st century. The majority of the courses on a European level were electives, i. e. stand alone courses with little integration into the overall curriculum. The report concluded pointing out the need for more entrepreneurship faculty, more research and more pedagogical material (http://www.efmd.org/attachments/tmpl_1_art_050201rpku_att_050201igbl.pdf).



Already in 1968 the OECD created a Centre for Research and Innovation in teaching (CERI) to help the different stakeholders in education such as professionals and decision makers at various levels to deal with the different challenges affecting the educational domain and prepare for the future. One of the key issues of concern was how different teaching methods and the acquisition of knowledge could be developed in line with scientific progress, new technologies and the diversification of the student audience. Other issues related to the role of innovation in the classroom and the question of which educational systems and schools would be appropriate in the future (Istance and Shadoian 2008/9). These issues are still important today, maybe even more so than in the 1960s, given the climate of uncertainty created by the economic crisis, which has touched the majority of European countries and has impacted on a world-wide level.

Innovating in Entrepreneurship Education requires different approaches, different from traditional teaching. As the European Commission (2008) pointed out there is a need for more interactive learning approaches where the teacher acts rather as a moderator than a traditional lecturer, where multi-disciplinary approaches to entrepreneurship teaching are adopted and where, among others, specific business skills and knowledge of how to start a company and run it are successfully transmitted. However, as already Verzat, Byrne, and Fayolle (2009) and Wankat et al. (2002) highlight, there is little research into the use and outcomes of innovative teaching and as Béchard and Grégoire (2007) emphasise, there is a lack of studies that investigate what makes pedagogical innovations work, one of the few exemptions being an experimentation reported on by Verzat, Byrne, and Fayolle (2009) in the French engineering context.

The domain in which I am applying innovative pedagogy is entrepreneurship teaching and in particular entrepreneurial network

analysis, which I consider to be essential for the pre-and post start-up phase. The importance of networks has been documented in a vast literature (see for instance Brass et al. 2004; Elfring and Hulsink 2003; Johannisson 1988; Larson 1991; Nahapiet and Ghoshal 1998; Nicolaou and Birley 2003; Sorenson 2003), and Johannisson (1996) concluded [115] that the 'personal network is a necessary but not sufficient vehicle for success' (p. 264). Hence the entrepreneur has to be aware of the usefulness and possible contribution people and organisations in his network can make to his entrepreneurial project. Despite the wealth of literature available documenting the importance of entrepreneurial networks, very little attention has been given to the importance of and the need for analysis of the entrepreneurial network as part of entrepreneurial teaching, a gap that the tool suggested here is supposed to fill.

## RESEARCH DESIGN

Given the thirst for research into innovative pedagogical methods as highlighted by Verzat, Bryrne, and Fayolle (2009), this study took an exploratory approach consisting of quantitative and qualitative elements. There were three strands to the methodology investigating this innovative pedagogical tool in the classroom context: First, a pre-course questionnaire was distributed among course participants aiming to establish the latter's attitude to entrepreneurship and enterprise creation. At the end of the entrepreneurial course which would comprise between 12h and 36h depending on programme and level, a post-course questionnaire was distributed asking the participants again for their attitude to entrepreneurship and enterprise creation, but also for their evaluation of the innovative teaching tools employed in the course. The second strand was written qualitative feedback by the course participants (MA and MBA students) investigating their learning through repertory grids and their perception of both advantages/disadvantages of the tool in classroom situations and in network analysis. The investigation was rounded off by asking whether the course participants would recommend the tool for next year's teaching. The third strand of the research was a number of semi-structured interviews with course participants, seeking their views about repertory grids

in entrepreneurial teaching. The qualitative data were contents analysed using Grounded theory methods in line with Glaser and Strauss (1967), who saw the task for the researcher as having to develop theory through 'comparative method,' i. e. investigating the same event or
[116] process in different settings or situations. This article presents findings from the second and third strand of the research project. I begin by outlining the state of entrepreneurship education in France, followed by a short introduction to the innovative pedagogical tool, i. e. repertory grids from George Kelly's Personal Construct Theory (PCT) and a practical illustration of these grids in entrepreneurial network analysis at pre-organisation stage. This is followed by a discussion of the results of this study, which concludes with some suggestions for future research.

## ENTREPRENEURSHIP PEDAGOGY IN FRANCE

Whereas entrepreneurship education within an Anglo-Saxon context has increased tremendously over the past 30 years, and the earliest entrepreneurship courses date back to the 1940s, the situation is quite different in France, despite growing awareness of the importance of entrepreneurship and enterprise creation for the French context (Fayolle, Hernandez, and Sénicourt 2005). Following Carayannis, Evans, and Hanson (2003) the French educational context is characterised by a lack of entrepreneurial activities in the educational system as well as a lack of acceptance of failure. Education 'is targeted at the "normalization" of students' (Carayannis, Evans, and Hanson (2003, 760) and discourages the expression of creativity. This is also in line with Fayolle, Hernandez, and Sénicourt (2005), who highlighted that in the French education system students are asked to resolve well structured problems. Right from the start they are provided with all the elements needed to solve the problem, which creates the impression that only one solution is possible. As the authors underline, this does, however, not reflect the entrepreneurial reality and students are ill-prepared to develop entrepreneurial projects.

As Fayolle and Sénicourt (2005) concluded, entrepreneurship teaching is important to develop an entrepreneurial culture in France and 'render French society more tolerant in terms of risk taking, accepting

innovation and the recognition of individual initiative.' In response to the growing socio-economic problems in the mid to late 1990s, the French state encouraged a very strong mobilisation in entrepreneurship education (Mandelin 2002). As a result a number of surveys were conducted by for instance Béranger, Chabbal, and Dambrine (1998) and Fayolle (1999) to establish the state of entrepreneurship in the educational sector (universities and Grandes Ecoles) in France.



Following the publication of these reports, the Ministry of Education, Research and Technology made teaching and training of entrepreneurship a priority in education. Proposals were developed to target three levels of intervention: to raise student awareness, irrespective of the subject studied; to support students who are promoters of projects to set up a business and to provide specialised training for particularly motivated students to allow them to obtain specific managerial skills. As emphasised by Gabriel Madelin, responsible for the relationship between schools and enterprises at the national Ministry for Education, the primary objective was not the creation of enterprise but awareness raising for the real functioning of an enterprise. Thus a profound renewal of pedagogic practices is needed which gets translated into a pedagogy of stimulation and a very deep involvement of the teacher into the subject to motivate and interest students in issues of entrepreneurship. At least once in their educational career students should have the experience of setting up a company, even if it is only fictitious (Lecherbonnier 2002). In response to this, Frugier (2005) found that case studies or project work based on creativity exercises have increasingly been used in French entrepreneurship teaching which place students in an entrepreneurial situation where they can apply their already existing management competences. Verzat, Byrne, and Fayolle (2009) also report on the use of games as a pedagogical tool when teaching engineering students within the French Higher Education context.

Based on a recent INSEE survey, Létowski (2006) found that in 2006 out of 321,500 entrepreneurs in France 124,000 were younger than 35 years, which represented 38.5.% of the total entrepreneurial population. Subdividing the number of 'young' entrepreneurs further into three age groups, younger than 25, 25 to 29, and between 30 to 34 we

find 20,900 (6.5%), 48,200 (15%) and 54,600 (17%) entrepreneurs respectively in each group. Among those entrepreneurs younger than 35 years about 8,000 were graduate entrepreneurs, i. e. students who had created immediately after they had finished their studies. These graduate entrepreneurs represented 2.7% of all entrepreneurs in France.

[118]

Taking the population of 8,000 graduate entrepreneurs who were less than 35 years old and comparing them with the general population of young entrepreneurs (individuals younger than 35 years), Letowski found that two thirds of the former either had a 2nd cycle (18.6%), 3rd cycle (40.5%) or Grande Ecole (8.4%) diploma, which is different from the group of young entrepreneurs who often only possessed a secondary school qualification (62.5%) (a 2nd cycle qualification is roughly equivalent to graduate education (A-level plus 4 years), a 3rd cycle requires at least A-level plus 5 years of study ranging from Master's degree to PhD). Graduate entrepreneurs tend to create in consultancy services (41.8%), retail trade (10.3%) and health services (8.4%). Conversely, young entrepreneurs created in construction (25%), retail trade (15.5%) and industry (9.8%). For both graduate and young entrepreneurs the entrepreneurial networks consisting of family, friends and business support organisations were of importance as they sought support from their family to create their project, yet the former slightly more (37%) than the latter (32.5%). Young entrepreneurs also sought more advice from specialists (22%) and business support organisations (34%) compared to graduate entrepreneurs with 18% and 17% respectively. Young entrepreneurs were also more supported by their spouse (21%), which is three times higher than the number of graduate entrepreneurs (7%).

Among those entrepreneurs aged 25 to 35, 43% had an HE diploma, yet only 5% came from a Grande Ecole background. This is certainly a very interesting finding, given that the innovative teaching practices have been happening within the Grande Ecole context which seems to be less conducive to producing entrepreneurs (also see Klapper 2004). Examining the development from 1998 to 2006, Letowski (2006) showed that the number of entrepreneurs with an HE qualification in the age group of 25–35 has increased continuously from 33% to 43%. Twice more entrepreneurs in this age group created in the services sector than graduates without an HE diploma. Very little change

occurred between 1998 to 2006, as 21.5% of all creations targeted the services sector. Those entrepreneurs with a 2nd or 3rd cycle qualification were numerous in creating on their own (32%), receiving help from their family (30.5%) or from a enterprise agency (26.5%).

The statistical data presented here suggest that Grandes Ecoles graduates creating an entrepreneurial venture are in the minority in France. Given this situation, the question needs to be raised as to which teaching tools are appropriate for encouraging an interest in entrepreneurship in the Grande Ecole student population. [119]

## REPERTORY GRIDS — A TOOL FROM PERSONAL CONSTRUCT THEORY (PCT)

Repertory grids are the methodological tool of Personal Construct Theory (PCT), which was developed by the practising psychologist George Kelly (1955) and aims to elicit concepts defined in the participants' own words in a systematic way and enables comparison between an individual's construct systems. Personal construct psychology is a theory of individual and group psychological and social processes that takes a constructivist position in modelling cognition (Aranda and Finch 2003; Fontaine and Fransella 1988). Kelly's key question was: *How does a person, consciously or unconsciously, construe the world?* (Fontaine and Fransella 1988). This theory provides a fundamental framework for both theoretical and applied studies that seek the acquisition of knowledge, aim to measure attitude, personality and engage in cognitive mapping (Aranda and Finch 2003). As Fontaine and Fransella (1988) comment, Kelly's demand for the individual to be actively involved in anticipating events from the *inside out* was at his time revolutionary given the ongoing struggle against the then dominant paradigm of complete determination from the *outside in.* For further information about the theoretical aspects underlying repertory grids see Klapper (2008) and Klapper and Tegtmeier (2010).

## EXPERIMENTATION WITH REPERTORY GRIDS IN ENTREPRENEURIAL PEDAGOGY

I have experimented with repertory grids in different situations: First, in doctoral research which I conducted between 2005 and 2007 with French entrepreneurs and from December 2008 onwards in en-

trepreneurial teaching in a French Management school context. In general there were between 25 and 38 participants per course.

The application of repertory grids in entrepreneurial network analysis is embedded within the context of a lecture on the importance of
[120] networks and social capital for the success of a fledgling venture, which has been preceded by a practical session on entrepreneurial idea development, i. e. the students have already developed and presented an idea that could be appropriate for an entrepreneurial project. The analysis of their entrepreneurial network is hence a practical tool to make the students aware of the contribution any contacts from their diverse networks could make to their entrepreneurial project. The theoretical context of the network lecture (early research on entrepreneurial networks, definitions, types of networks, the benefits from entrepreneurial networking) are presented in a standard lecture format (1.5h), followed by an explication of repertory grids and their use/merits in entrepreneurship. The task for the students is then to use repertory grids either to analyse their entrepreneurial network at the pre-organisation stage. As a last step the information is integrated in Gridsuite 4 which produces both a cluster analysis and principal component analysis. This analysis can potentially highlight the strengths and weakness of the participant's existing network, but also the interrelatedness of network contacts and their competences and ways of thinking. A further major advantage of this tool is that it allows the participants to develop their own networking strategy appropriate to their individual situation.

## REPERTORY GRIDS

### *Practical Steps to Establish the Repertory Grid*

First, students had to organise themselves in teams of two; they had to decide whose network analysis comes first. Second, the person whose network was to be analysed was asked to provide a list of possible contacts. The elements integrated in the matrix are the different individuals or organisations that could potentially be involved in the different stages of the entrepreneurial venture creation process. If the interview partner refers to an organisation, I would advise him/her to identify at least one personal contact. Third, the names of the different individ-

uals/organisations were then transferred to individual cards and one of the students, usually the one whose network was to be analysed, had to draw three cards randomly, which in the literature is referred to as the 'triad' (Beail 1985; Hunter and Beck 2000). Fourth, the interview participant was asked to identify what two elements of the triad had in common and how a third was different to them. The key issue here is to identify the differences in the contribution of the different elements to the entrepreneurial project. The similarities and the contrasts that are identified throughout this exercise represent a bipolar description (dichotomous construct) (Hunter and Beck 2000), which is used to fill the grid. As Beail (1985) commented critically, the disadvantage of dichotomising is that it 'does not allow for shades of grey' (p. 7). Fifth, this problem is, however, addressed through a rank ordering of the elements according to the bipolar concepts. Once all cards had been dealt with, the interview partner was asked to rank the different network contacts with regard to the identified constructs on a scale from 1 to 5. The ranking itself did not automatically contain a value judgement about the network member's competences, but should rather be understood as an indicator of their positioning with regard to the identified concepts. As Beail (1985) points out, ranking has much more potential to discriminate the data than the dichotomous method; the downside is, however, that the interview partner may be obliged to indicate differences between elements where there are none. Sixth, as a last step the network analysis via Gridsuite 4 provides information about the interrelatedness of the different concepts and the like-mindedness of the different network contacts.



*An Example*

The example given here was taken from the MBA session 'Products and Markets seen from an entrepreneurship point of view', referred to earlier. Two students: NB and his partner X conducted the interview together. The objective was to analyse NB's existing network that could be of use for an entrepreneurial project of a company that specializes in building management systems (BMS). These systems basically offer to the customer the ability to control all the technical aspects of a building from one computer, such as electricity, plumbing, A/C, fire

detection, video surveillance, elevators and many more. Needless to say, this is a very demanding field that requires a high level of technical expertise and a network of people able to provide the company with its potential first customers and possibly even help in financing the project.



The first part of the analysis consisted of choosing a number of people that form the network the student believed could help achieve his professional objective. Eleven people were chosen who are briefly presented below. NB was integrated in the grid too.

- NB is a 26-year-old engineer with 3 years of experience in the area of building management systems. He received a bachelor's and a master's degree from Virginia Tech and is currently pursuing an MBA degree at a French Management School.
- AC is a 42-year-old controls engineer and has 20 years of experience in the field of building automation. AC was the student's manager when he was working for IB CM.
- HB is a 28-year-old electrical engineer and has been working for CM for over 5 years. The student worked with him in close collaboration on several projects as their companies were partners.
- MB is a 59-year-old financial manager with 35 years of experience in finance and economics. He is very knowledgeable about business administration and happens to be the student's father.
- AH is a 55-year-old business man with experience in many areas. He has a great level of expertise in Entrepreneurship since he has created several successful companies. He is the student's father in law.
- YI is a 27-year-old business man who is one of the student's best friends. He received a Master's degree in Management Information Systems from Boston University and is now running his family business which consists of a steel plant and several real estate companies.
- ZC is a 25-year-old notary who is currently working at a large notary office in Morocco. She has only been working for a few years but she is very knowledgeable when it comes to legal issues.
- D is 24 years old and is the student's wife. During her university

studies, D specialized in marketing before working in the sales department of an advertising firm. She is currently pursuing an MBA degree.

- NK is a 28-year-old sales manager at DM. He has had no formal university training but has been working in the sales department of many companies for over 8 years.
- IJ is a 65-year-old Electrical Engineering professor at VTech in the US. IJ has a PhD in Electrical Engineering and has many years of experience. He also has a large network of people working in the High-tech area.
- MZ is a 26-year-old consultant at A in the US. MZ has a bachelor's degree in Business Information Technology.



Having identified the people who would be involved in the entrepreneurial network during the pre-organisation stage, these contacts were integrated horizontally into the grid (see figure 1). An initial three people were chosen randomly from the list of contacts to establish the differences and commonalities between the different contacts in the network based on the 'triading' procedure described earlier aiming to arrive at bipolar constructs. The student would then rate the network contacts on a scale of 1 to 5, with 1 being the lowest and 5 being the highest.

The following bipolar concepts (vertically on the left and right hand side of the grid; see figure 1) were integrated in Gridsuite 4. The concepts were as follows:

a People that can give financial support/People that can give moral support
b People with good engineering expertise/People with good managerial skills
c People with a huge network within local administrations/People with a huge network of potential clients for the company.
d People that are for the project/People that need to be convinced
e Distance/Proximity
f People that can be trusted under some conditions/People that can be trusted under all conditions.

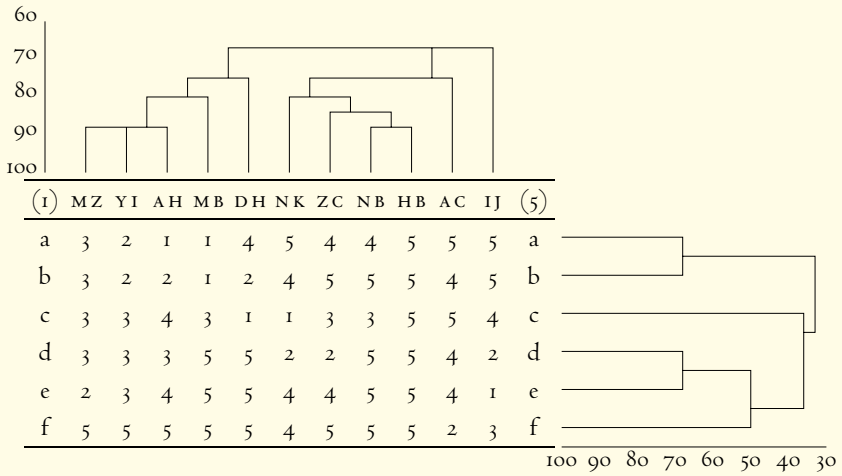


FIGURE 1 Dendogram of NB's entrepreneurial project

Figure 1 shows the resulting cluster analysis with the concepts on the left and right hand side of the grid and the network contacts horizontally. From the analysis of this dendrogram we can detect a high correlation (88%) between the student himself (NB) and his network contact HB. Discussing the results with NB he commented that this result made a lot of sense, as the two share a lot of common interests and have almost similar ratings with respect to the bipolar concepts. In addition, there was a high correlation between NB, HB and ZC at 83%, and NK at 80%, indicating a high level of like-mindedness among these network partners. As NB suggested, the latter two could be even closer to him if he could convince them to be in favor of his professional project. In comparison, MZ, YI and AH are very close to each other (88% correlation), but further away in their thinking from NB at 67%. Along with MB at 80%, these people are very similar in the sense that they all have significant business administration expertise and they can all potentially provide financial support for the project. These people are very important for the entrepreneurial project as they can all be trusted under all conditions and can be very helpful in providing managerial advice since most of them are successful businessmen. The majority of them needs to be convinced, however, of the potential of the project. As a result, NB concluded that he needed to present a strong business plan and a feasibility study to bring them on board.

Furthermore, as shown in figure 1, there was a correlation between the people that have a good engineering expertise and the ones who can give moral support. NB suggested that this was a very positive result, given that he would most probably need the technical expertise of these people and it would be very beneficial to get moral support from them as well. [125]

One final point that was made concerned the correlation of 70% between the two concepts 'people in favor of the project' and 'proximity.' This result is understandable, given that those closest to NB would also have a tendency to be in favor of the project.

## FINDINGS OF THE RESEARCH

The investigation of the efficiency and efficacy of repertory grids in entrepreneurship classes has focussed on three key questions:

- What are the advantages/disadvantages of using this tool in classroom teaching?
- What are the advantages/disadvantages of this tool in network analysis?
- Would you recommend this tool for more teaching next year?

One of the first results of this investigation is the overwhelmingly positive approval of the use of repertory grids as an innovative teaching tool, 98% of the course participants recommended the tool for next year's teaching.

Having applied Grounded Theory methods, I was able to identify two main categories of advantages and disadvantages of repertory grids in classroom situations: technical/hard aspects versus soft skills development. The results are summarised in table 1.

Technical/functional advantages of using repertory grids in classroom situations related to the *ease of application of the tool, its practicality, its clarity and its interactive character.* In terms of soft skills developments, repertory grids made course participants more aware of the importance of their network contacts for their entrepreneurial project. Furthermore the use of repertory grids promoted *self-criticism and critical reflection* among the different audiences, the students reflected upon their individual behaviour but also in relation to their team. In general

TABLE 1 Advantages and disadvantages of repertory grids in classroom situations

| Advantages in terms of their technicality/ functionality (hard skills) | Advantages as measured in soft skills development | Disadvantages (mix of technical/functional issues & soft aspects) |
|---|---|---|
| Objectivity | Awareness raising ⇒ who is useful in our environment | Process of conducting method may be a bit *long & monotonous* |
| Ease of application | Promotes self-criticism and reflection of individual behaviour | *Subjective* method as person creating grid evaluates friends |
| Practical tool | Promotes teamwork, submission, sense of responsibility and solidarity | *Class size* as disadvantage, teacher may not be able to check that all students saw most of opportunities, not all students engaged in process, the bigger the group the more time required |
| Clarity | Points out relationships between key aspects in entrepreneurial project | During initial set up of tool only one student is involved |
| Promotes interaction | | |



the respondents highlighted that the tool promoted *teamwork, a sense of responsibility and solidarity.* A further key aspect that emerged from the data analysis was that the work with repertory grids triggered awareness of the interrelatedness of different aspects appertaining to the entrepreneurial project.

Few students pointed out any disadvantages of working with repertory tools, but those who did mentioned that the process of conducting the method could be a bit long or potentially monotonous. A few participants criticised the subjective nature of the grids which may lead to mistakes in evaluating people in one's network. One of the disadvantages was that the tool's demonstration in the classroom focused on one student only who developed his/her grid with the teacher. The remaining students' role was reduced to that of observers trying to understand the process of creating a grid. Class size was also mentioned as a disadvantage; the bigger the class the less attention the

TABLE 2 Advantages and disadvantages of repertory grids in network analysis situations

| Advantages in terms of its technicality/functionality | Advantages as measured in soft skills development | Disadvantages |
|---|---|---|
| Clarity | Helps SWOT analysis – strength, weaknesses, opportunities and threats in environment | Evaluation may not be clear |
| Visibility | Helps develop guidelines for network development | Grids give a snap shot of today, may be different in six months |
| Ease | Helps in decision making processes | Confusion about how to use the tool, better to practice in classroom than as homework |
| Gives big picture | Extracts tacit knowledge about network ⇒ reveals knowledge/competences already possessed in network, highlights usefulness of friends/family | Emotions may get in the way ⇒ heart rules over brain, subjectivity, grids may be different from one person to another |
| Minimum resources required | Combines in and outside world | Not the same level of detail known by everybody |
| Can be designed to accommodate specific purposes (high degree of flexibility) | Shows inferences about personalities in network | It should not be the only method |
| | Triggers reflection | Ethical problems: don't treat people as a tool |

teacher could give to helping students develop their repertory grids.

Table 2 gives the advantages and disadvantages of repertory grids in a specific context, i. e. network analysis in a start-up situation. Similar to the earlier analysis, course participants stressed functional aspects such as clarity, visibility and ease of dealing with the grids. They provide a *big picture,* i. e. give a global overview of an individual's network, without requiring many resources. Grids were considered as very flexible and easily adjustable to many different purposes, even outside of network analysis. Some students recommended that the tool could find its application in human resource management.

In terms of soft skills, course participants emphasised that the grids facilitated a SWOT analysis an individual's network, promoted reflection and aided the development of guidelines on how the network could be modified in line with the aims and objectives of the entrepreneurial project. Furthermore grids were considered as an important tool in decision-making processes, and participants emphasized that the grids helped to extract tacit knowledge about an individual's network, revealing knowledge and competences possessed by the different contacts, thus highlighting the usefulness of friends and family for start-up. As a result, inferences could be made about the people involved in the entrepreneurial project. One of the most interesting comments made by one group of Master students was that repertory grids combine the in-and outside world, which is a very appropriate description of the dual nature of these grids.



Course participants rarely mentioned major disadvantages of the grids, several found the evaluation of the network members difficult and a few were confused about how to use the tool. One group of students criticized that the grids only provide a snapshot of the entrepreneurial network at a given moment in time, the situation may be very different in six months' time. Another group of students was concerned, as already mentioned earlier, about the subjective nature of the grids and that emotions may get in the way when evaluating network members. Some students also felt that they did not have the same level of intimate detail of every network member, which made the creation of the grids more difficult. It was hence recommended to use complementary methods to analyse the network. It was also very interesting to see that one group of students was very much concerned with the ethical implications of using repertory grids as they warned against using people as tools. These results are summarised in table 2.

Table 3 summarises the technical/functional aspects of repertory grids such as their ease of application, practicality; clarity, their flexibility and the potential advantages of the tool as it encourages soft skills development such as obtaining a holistic view of the network, spotting opportunities through the network and raising awareness about who could be 'useful' for the project and the different strengths, weaknesses and risks inherent in the network and the project itself. Other aspects

TABLE 3 The usefulness of repertory grids

| |
|---|
| Promotes acquisition of soft skills, such as<br>• Learn the big picture<br>• Spotting opportunities in network<br>• Awareness raising (who is 'useful' for an entrepreneurial project)<br>• Self-criticism, reflection on individual behaviour<br>• Teamwork, sense of responsibility and solidarity |
| • Facilitates decision making processes<br>• Helps reduce risk in start-ups<br>• Facilitates creating without much experience |
| Technical aspects of repertory grids: objectivity, ease of application, practicality, clarity, interaction, task specific, economic, flexible – can be tailored to different situations |

encouraged through the grids relate to increased levels of self-criticism and reflection by students and the promotion of teamwork, a sense of responsibility and solidarity. Important was also the role of repertory grids in decision-making processes where they help deal with situations of uncertainty and aid the process of risk reduction. Finally, as the course participants pointed out, the tool facilitates creation without much professional experience as it increased awareness of the usefulness of their surrounding environment for the entrepreneurial project.

## CONCLUSION

This article has reported on an example of innovative teaching using the methodological tool of George Kelly's PCT, applied in entrepreneurship courses at a French Grande Ecole Management School. I have presented the advantages/disadvantages of repertory grids in classroom teaching and network analysis, as identified by the course participants.

Further analysis is needed to establish cross-national differences in the perception and usefulness of grids. The overwhelmingly positive response of the audience has, however, underlined the importance of repertory grids in teaching entrepreneurial network analysis and its appropriateness as an innovative pedagogical tool in entrepreneurship education.

*Implications for Business Support Policy*

The findings of this research are of particular relevance for policy-makers and business support organisations (BSOs) involved in the development of start-up policies at both local, regional and national level, as the study has underlined the need to include a networking element in entrepreneurial support programmes at local, regional and national level. Awareness needs to be raised of the importance of entrepreneurial networking at the different stages of the start-up, as already emphasised by Neergard and Madsen (2004) and Tötterman and Sten (2005) who found that networking was not necessarily a priority for entrepreneurs. Hence network analysis tools such as repertory grids should find their acceptance in the training programmes of BSOs.



*Implications for Education Policies*

The findings of this study have also wider implications for the pedagogy employed in Higher Education institutions in different cross-national contexts. There are different implications for the course design, but also for the teaching staff. In terms of the course design there are a number of recommendations that arise from the findings of this study:

- As existing curriculum development does generally not consider the way entrepreneurs think and perceive their world, future course design should take into account the role of networks and networking, thus raise awareness of the need to develop effective networking skills, but also train the students' analytical skills to evaluate their existing networks, personal and professional, and develop strategies of how best to employ these for their entrepreneurial project.
- There are also a number of implications for teaching staff themselves: First, awareness needs to be raised among staff that networking is key throughout the start-up and second, staff needs to be trained to use appropriate tools such as repertory grids for network analysis. The development of a pedagogy for entrepreneurship courses also pre-supposes that those involved in

such programmes should better understand the link between networking skills, strategy development and survival of the venture.

*Potential for Future Research* [131]

The study participants have already pointed out the potential applicability of repertory grids in wider business contexts, an idea I will pursue at a further stage. Further research is also anticipated using existing student assignments to analyse the information about the latter's networks at start-up, which gives a potentially unique insight into students' contacts.

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