

**VALUE CREATION IN CHANGING STUDENT STATE OF MIND AND
BEHAVIOUR: NEW RESEARCH APPROACHES TO MEASURE THE EFFECTS
OF ENTREPRENEURSHIP EDUCATION.**

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ABSTRACT

Entrepreneurship teaching programs and initiatives in educating people towards entrepreneurship are everywhere growing in the world. In relation to this development some practical and research key issues are rising. Among them, the question of entrepreneurship teaching programs assessment is probably one of the most crucial both at a social and at a research level. Very often, entrepreneurship teaching programs (ETP) are launched within the universities with a strong involvement of the political and economic environment. These partners are waiting for concrete results which turn around the creation of start-ups and the creation of new jobs by people having been educated and taught through the ETP..

Some research works have been made on this topic and the greater part of them clearly underline the complexity of the assessment question, mainly in terms of indicator choice and also because the measure itself is very complicated due to the existence of late effects . Moreover, the field of the ETP is very diversified and heterogeneous, depending on the teaching objectives, the audiences, the contents, the teacher profiles, the pedagogical methods and approaches, etc.

The aim of our paper is to show that it is possible to avoid some of these difficulties by reconsidering and reformulating the assessment question. It seems to us that the most important result of the ETP is not necessarily the creation of start-ups, but could be, among educated students, mindset changes, attitude changes and the development of an entrepreneurial orientation, measured through intentions. We are thus proposing a conceptual framework in assessing the ETP. This framework is using the theory of planned behaviour elaborated by Ajzen, which could allow us to measure, under the influences of independent variables related to ETP, attitude changes towards the entrepreneurial behaviour, attitude changes in relation to subjective norms, attitude changes concerning perceived entrepreneurial behaviour control and finally, changes in entrepreneurial intentions. The main research paper idea is to consider that it is expected and also feasible to design a dynamic tool using the theory of planned behaviour to assess the ETP and so to measure variations on entrepreneurial intention throughout the education process.

The research paper implications are concerning the entrepreneurship research community. The paper is opening some interesting research perspectives in the field of entrepreneurship teaching and education. One of them could be addressed to the study and the analysis of attitude changes and entrepreneurial intention changes in the ETP processes. Implications are also concerning the entrepreneurship teachers and educators. The presented dynamic approach using the theory of planned behaviour could allow them to improve their understanding of how each ETP is functioning and what are the key ingredients (contents, teacher profile, pedagogical methods, ...) and the optimal combination in relation to a particular teaching objective.

Finally, the implications are concerning the social and economic world. Politicians and decision makers need probably to reconsider their ideas and views about entrepreneurship teaching and education. The most important thing is not one more start-up by a student or a young graduate, but a strong emergence and diffusion of the entrepreneurial spirit within the university campuses.

INTRODUCTION

In recent years, entrepreneurship education has been developing steadily but unevenly in most countries. In the United States, for example, which has been a trailblazer and leader in the field, the last decade has been described as an important era, with a significant increase in student interest (Fiet, 2001a). The figures tend to support this statement. In 1971, only 16 colleges and universities in the U.S. offered entrepreneurship education programs, while today, there are more than 800. More American students are showing an interest in venture creation and independent employment, and are seriously considering entrepreneurship as a career option. They are therefore looking for and choosing entrepreneurship programs. In 1996, for example, roughly 45%² of first-year students in Northwestern University's management program said they wanted to specialize in entrepreneurship (Fiet, 2001a). During the same period, entrepreneurship teachers began to meet regularly at conferences to discuss recent developments and compare their educational practices and methods (Fiet, 2001b). In France, entrepreneurship education has spread considerably over the last few years, and is currently in a structural phase (Fayolle, 2000 and 2003). Two recent initiatives clearly illustrate the process: first, the creation in 1998 of the "Academie de l'Entrepreneuriat", a French association of entrepreneurship teachers and trainers from the secondary and higher education levels; and second, the creation in 2001 of the "Observatoire des Pratiques Pédagogiques en Entrepreneuriat", a joint initiative involving three government departments whose primary mission is to identify entrepreneurship teaching and training activities throughout France.

Although entrepreneurship education is flourishing, a large number of questions, some of them important, have yet to be answered or clarified. They include the question of evaluating entrepreneurship programs and training (Bechard, Toulouse, 1998). This is certainly a difficult and complex issue. While the impact of the program or session on the trainees, students and other participants may be an acceptable evaluation criterion, the problem of how to measure it still remains. What indicators should be used, and how should they be measured? How can you measure a change in someone's state of mind or behaviour? How can the importance of the time factor be taken into account? And how can factors relating to education, teaching and training be separated from all the other factors that have an impact on the decision to choose a specific career path or profession?

² This figure can be compared with others: 30% in 1995, 12% in 1994 and 7% in 1993.

It is not our intention here to try to answer all these questions. We will, however, attempt to show the potential utility of the theory of planned behaviour in addressing the complex problems encountered in the evaluation process. The first section of the paper will identify some of the major issues affecting the evaluation of entrepreneurship education programs, while the second section summarizes prior research on the evaluation and impact of entrepreneurship programs, and the third presents models of intention and the theory of planned behaviour as they apply to entrepreneurship. A final section sets out our research approach and presents the overlying conceptual framework.

1. SOME QUESTIONS RELATING TO THE EVALUATION OF ENTREPRENEURSHIP EDUCATION

In a recent paper, Vesper and Gartner (1997) listed 18 criteria for evaluating entrepreneurship education programs, ranked in order of importance by expert respondents. The top five criteria were:

- The number of courses offered,
- Publications by teachers,
- Impacts on the community,
- Venture creation by students and young graduates, and
- Resulting innovations.

Two observations are in order here. First, the above classification was produced by academics, not by venture creation professionals or economic and political decision-makers. And second, the paper does not say how the selected indicators can be measured. Measurement is often extremely difficult. As shown by Block and Stumpf (1992) and summarized in Table 1, indicators can often produce delayed effects. For example “venture creation” cannot possibly be measured during or immediately after training, since the venture creation process takes time – sometimes a great deal of time. And the more delayed the measurement, the harder it is to isolate the role played by a given factor from the potential impacts of other variables on the venture creation act.

Table 1: Evaluation Indicators and Measurement Times

Measurement Period or Time	CRITERIA
<i>Same time as the courses</i>	Number of students enrolled Number of courses General awareness of and/or interest in entrepreneurship
<i>A short time after the courses end</i>	Intention to act Acquisition of knowledge and know-how Development of entrepreneurial self-diagnosis abilities
<i>Between 0 and 5 years after the courses</i>	Number of ventures created Number of buyouts Number of entrepreneurial positions sought and obtained
<i>Between 3 and 10 years after the courses</i>	Sustainability and reputation of the firms Level of innovation and capacity for change exhibited by the firms
<i>More than 10 years after the courses</i>	Contribution to society and the economy Business performance Level of satisfaction with career

Based on Block and Stumpf (1992)

Educational institutions also offer a wide range of entrepreneurship awareness and training activities (Gartner, Vesper, 1994; Fayolle, 2003). Given that the goal of entrepreneurship education is not necessarily for all participants to launch businesses, or for businesses to be launched immediately, the simplest and most obvious indicators are not generally the most appropriate. The worst-case scenario would be to evaluate a program by counting only the number of businesses launched by trainees or the number of jobs generated. This is especially true because, given the inherent risks and difficulties of the venture creation process, it is often unwise to push students too hard, or to take an evangelical approach. Students are young, easily influenced and often looking for models. Evaluation should always be adjusted to the educational level, the goals of the training and the target clientele, all of which need to be clearly identified (Bechard and Toulouse, 1998). The range of possible learning situations is clearly illustrated by Johannisson's (1991) taxonomical approach, which proposes five levels of learning designed to develop the attitudes, skills, tools and knowledge required for entrepreneurship.

Precisely what, then, should be evaluated? When should the evaluation take place? As with any educational program, it is possible to evaluate the knowledge acquired and measure how

well students have understood the key techniques and mechanisms. Student interest, awareness and intention can also be measured. Attendance rates, participation and student motivation are the classical criteria for measuring satisfaction, and evaluations or measurements taken during and shortly after the training are also important, in that they can help identify variations and progress in performance levels (project management, team work, creative capacity, etc.). For the purposes of this research, we have limited the analysis period or measurement time to the first two categories in Table 1.

2. THE EFFECTS AND IMPACTS OF ENTREPRENEURSHIP EDUCATION PROGRAMS

Throughout the world, student interest in entrepreneurship as a career choice is growing (Brenner et al., 1991; Hart et Harrison, 1992; Fleming, 1994; Kolvereid, 1996), while interest in traditional professional employment in big business is gradually declining (Kolvereid, 1996). The orientations and behaviours of students and young graduates are influenced by a number of personal and environmental factors (Lüthje and Franke, 2003). Empirical research has shown that the presence of entrepreneurship education programs and a positive image of entrepreneurs within the university are both incentives for students to choose an entrepreneurial career. For example, Johannisson (1991) and Autio et al. (1997) underscored the positive impact of students' perceptions of entrepreneurship as a career choice, along with the role played by the resources and other support mechanisms available in the university environment. Other research has shown the importance of the social status of entrepreneurial activities and situations (Begley et al., 1997) and the statistical link between the level of entrepreneurial intention and the number of management courses taken by students enrolled in other programs (Chen et al., 1998).

Entrepreneurship education and training influence both current behaviour and future intentions (Kolvereid, Moen, 1997; Tkachev, Kolvereid, 1999; Fayolle, 2002). In other words, there are significant differences between students who have taken entrepreneurship courses and those who have not. But can the causal relationship between the educational variables (course content, teaching methods, teacher profile, resources and support, etc.) and the direct intentional and/or behavioural antecedents (attitudes, values, knowledge, etc.) really be explained in detail? Some researchers have attempted to do this and their findings are summarized below, but we believe there is still a need for further conceptualization and testing.

Attempts have been made to compare the intentions and/or behaviours of students from different groups. For example, Varela and Jimenez (2001), in a longitudinal study, chose groups of students from five programs in three universities in Columbia. They found that the highest entrepreneurship rates were achieved in the universities that had invested the most in entrepreneurship guidance and training for their students.

Noel (2001) looked specifically at the impact of entrepreneurship training on the development of entrepreneurial intention and the perception of self-efficacy. The students in the sample had all taken an entrepreneurship education program and were graduates in entrepreneurship, management or another discipline. Noel's findings at least partially confirmed the assumption that the entrepreneurship graduates were more likely to launch businesses and had a higher level of intention and a more developed perception of self-efficacy than students in the other two groups.

Other researchers have tried to explain the relationship between entrepreneurship programs and characteristics such as need for achievement and locus of control (Hansemark, 1998) or the perception of self-efficacy (Ehrlich et al., 2000). They found that entrepreneurship education had a positive impact, enhancing these characteristics and the likelihood of action at some point in the future.

However, less attention appears to have been paid to educational variables. Dilts et al. (1999) tried to show that certain teaching methods (traineeships and field learning) are more successful than others at preparing students for an entrepreneurial career, while Lüthje and Kranke (2003) mentioned the importance of certain contextual factors within the university environment in hindering or facilitating access by technical students to entrepreneurial behaviours. Their findings confirm those of Autio et al. (1997) and Fayolle (1996), obtained using similar samples.

3. THE THEORY OF PLANNED BEHAVIOUR AND ITS UTILITY IN THE FIELD OF ENTREPRENEURSHIP

The theory of planned behaviour is based on the theory of reasoned action (Ajzen and Fishbein, 1980). It was developed by Ajzen (1991) and has recently been reformulated (Ajzen, 2002). Basically, the concept of intention plays a central and overriding role in predicting and explaining a plannable human behaviour that is controlled entirely by will and is not dependent on factors outside the control of the person concerned. This clearly limits the utility of the theory, since situations that satisfy all these conditions are rare. The

limitation relates principally to the automatic nature of the relationship between intention and behaviour. Although in certain conditions intention is a good predictor of behaviour, it is by no means true that behaviour will automatically follow on from intention. It all depends on the type of behaviour. The examples cited by Ajzen (1991) are mostly behaviours that can be controlled by the individuals concerned, in which will plays a major role – for instance, the decision to stop smoking, short-term elective preferences or the choice of how to feed a baby (breast or bottle feeding). Although we are convinced of both the interest and the utility of the theory of planned behaviour in the field of entrepreneurship, we also believe entrepreneurial behaviour is more complex (and thus, perhaps, less easy to predict from intention) than the cases cited above.

In the theory of planned behaviour, intentions are formed over time as a result of three principal factors whose relative importance depends on the specific case. The first of these is the attitude towards the behaviour, derived from perceptions of the behaviour's consequences and the value ascribed to those consequences. The second is awareness of social standards and pressure, resulting from a perception of what other people (of importance) think should be done and the reasons for submitting to their expectations. The third is the perception of behavioural control, determined first by the subject's perception of the opportunities and resources required to achieve the behaviour, and second by a belief that it will in fact be possible to obtain those resources. The underlying basis of intention and the determinants of behaviour are therefore perceptions, which are developed gradually from beliefs.

The theory of planned behaviour is part of the larger family of intentional models, created principally to try to explain the emergence of entrepreneurial behaviour. In the view of many authors (Shapero and Sokol, 1982; Bird, 1989; Krueger and Carsrud, 1993; Autio et al., 1997; Tkachev and Kolvereid, 1999), venture creation is a planned and hence an intentional behaviour. Intention therefore appears to be a better predictor of behaviour than attitudes, beliefs or other psychological or sociological variables (Krueger and Carsrud, 1993).

Krueger and Carsrud (1993) were the first to apply the theory of planned behaviour to the field of entrepreneurship by trying to make Ajzen's (1991) model compatible with other theoretical frameworks, especially that of Shapero and Sokol (1982). Their final model (Figure 1) is the result of this approach.

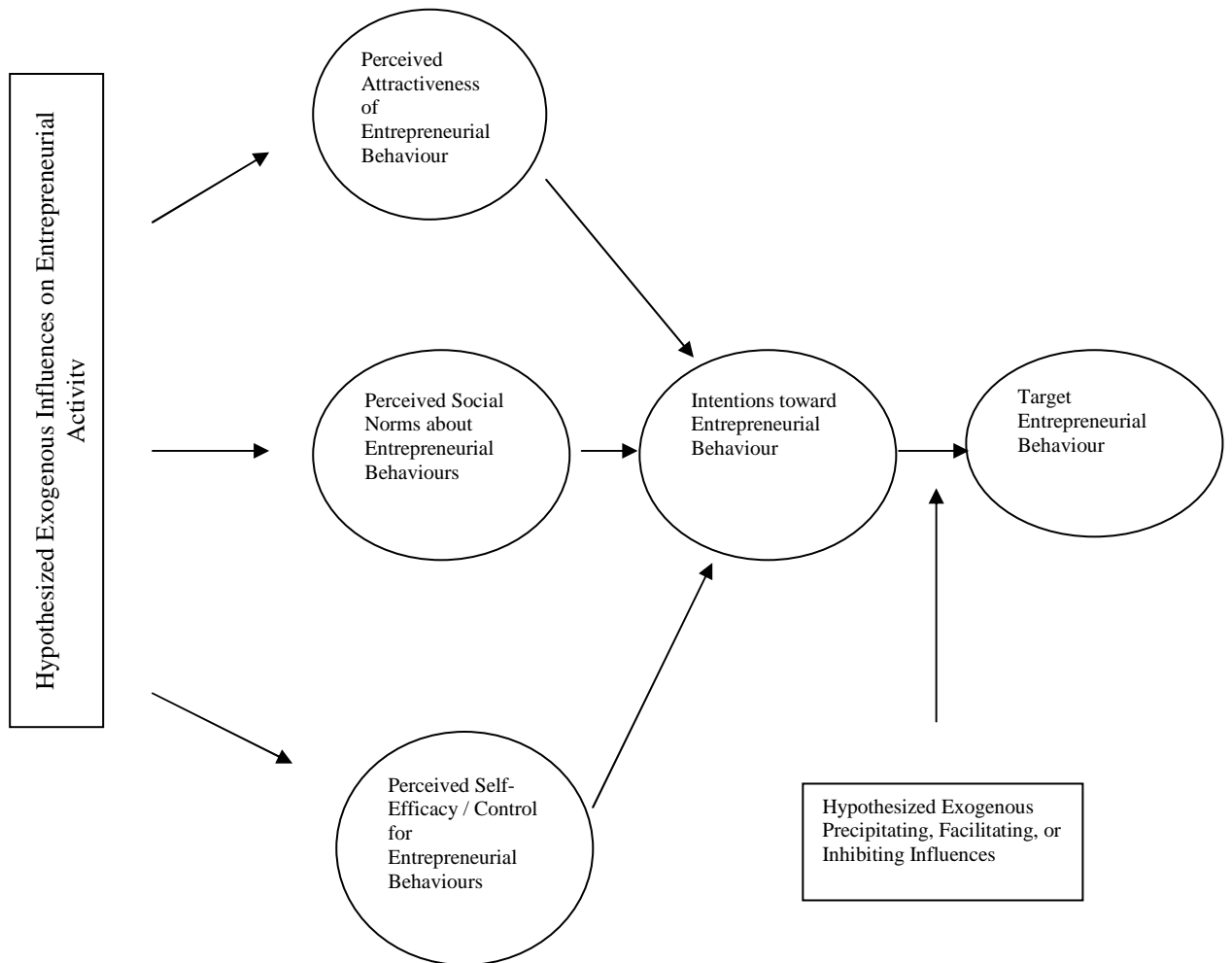


Figure 1: Intentions Toward Entrepreneurial Behaviour: The Theory of Planned Behaviour (Simplified) – Krueger & Carsrud (1993: 323)

The three antecedents of intention in this model are:

- *Perceived Attractiveness of Entrepreneurial Behaviour.* This factor corresponds to the attitude towards the behaviour, and is dependent on beliefs relating to the behaviour’s positive or negative impacts. It encompasses the notion of perceived desirability (or lack thereof), which is one of the components of Shapero et Sokol’s model (1982)
- *Perceived Social Norms about Entrepreneurial Behaviours.* This factor includes perceptions of what important people or groups (peer pressure, friends’ wishes, family

wishes, etc.) think of the target behaviour. These perceptions are influenced by normative beliefs and are of less relevance for individuals with a strong internal locus of control (Ajzen, 1987) than for those with a strong action orientation (Bagozzi et al., 1992). The factor covers the notions of desirability and feasibility from Shapero et Sokol's model (1982).

- *Perceived Self-efficacy / Control for Entrepreneurial Behaviours*. This factor is as important in this model as in that of Ajzen (1991). It relates to perceptions of the behaviour's feasibility, which are an essential predictor of the behaviour. Individuals usually elect to work towards behaviours they think they will be able to control and master. The *Perceived Behavioural Control* factor in Ajzen's model (1991) is very similar to the *Self-Efficacy* notion constructed by Bandura (1986), which has been used in numerous studies of entrepreneurship, although not enough according to certain authors: "Self-efficacy should be a particularly useful tool in the researcher's repertoire and entrepreneurship researchers seeking a psychological explanation for organizational emergence should examine the role of perceived self-efficacy". (Krueger and Carsrud, 1993: 325).

Their model remains open to the influence of exogenous variables that may play a role in the development of beliefs and attitudes. It also uses some of the conceptual contributions of Shapero and Sokol (1982), including the notion of external trigger, to explain the shift from intention to behaviour.

The implications and applications of the theory of planned behaviour in the field of entrepreneurship are numerous and extremely promising.

Some of the theory's implications are related to education and training. Since the early 1980s, researchers have been able to identify the role played by education and teaching variables in the development of perceptions about the desirability and feasibility of entrepreneurial behaviour (Shapero and Sokol, 1982). In other words, a training program can have an impact on the antecedents of intention in the theory of planned behaviour (Krueger and Carsrud, 1993). As an example, Krueger and Carsrud (1993: 326) state that "Perceived self-efficacy / control for entrepreneurial behaviours" is influenced by the acquisition of management tools and exposure to entrepreneurial situations. They go on to say "Teaching people about the realities of entrepreneurship may increase their entrepreneurial self-efficacy, but simultaneously decrease the perceived desirability of starting a business" (Krueger et Carsrud, 1993: 327).

In conclusion, and based upon the observations of Krueger and Carsrud, we will make a number of recommendations concerning the use of the theory of planned behaviour as an instrument for evaluating entrepreneurship education. With regard to the teaching aspect, it would, for example, be useful to try to understand the process by which entrepreneurial intentions are formed, to situate the respective roles of intentional antecedents and to explore the configurations that generate high, stable intentions in different entrepreneurial situations. Teachers could also try to use the model to improve their understanding of their students' motivations and intentions, and then adjust their programs accordingly. With regard to research, the theory of planned behaviour could be used to analyze how and in what conditions a business plan preparation process within an educational program affects entrepreneurial intentions.

4. PREPARING AN EVALUATION FRAMEWORK FOR ENTREPRENEURSHIP EDUCATION PROGRAMS USING THE THEORY OF PLANNED BEHAVIOUR

As we saw in Section 1, it is difficult to use the venture creation act as the sole criterion for evaluating a program's impact. However, it may be easier and equally appropriate to use criteria related to entrepreneurial intention or change of attitude towards entrepreneurial behaviour. The likelihood of engaging in entrepreneurial behaviour, or entrepreneurial intention, could therefore be used to measure the impacts of a training program, even though *intending* to launch a business is not the same as *actually doing so*.

The purpose of this section of the paper is to construct a dynamic tool for evaluating awareness activities, training programs and courses in the field of entrepreneurship. The tool should, to a certain extent, permit us to penetrate entrepreneurship education's "black box" – in other words, to understand the impact of specific "educational" variables on changes of attitude and the development of entrepreneurial intention. The instrument is inspired directly by the theory of planned behaviour, and is presented in diagram form below (Figure 2)

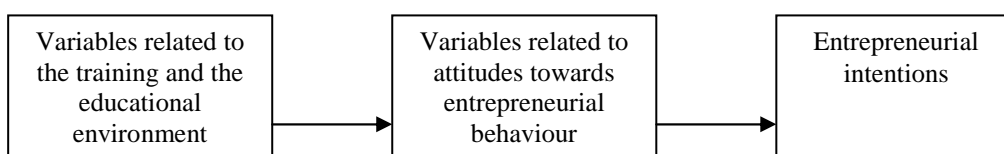


Figure 2. The General Model Underlying the Evaluation Tool

It now remains for us to define our concepts, the model's variables and a framework for their use.

Our general framework is designed to evaluate awareness activities, training programs and support programs for students and other types of learners. It should be capable of being transformed into hypothetical/deductive models appropriate to the situations in which it is used. As we mentioned earlier, awareness activities and educational programs differ widely in terms of their actions, teaching strategies and resources, duration and the types of people involved. In this paper, we will use the term "entrepreneurship education program" to refer to all awareness, teaching, training and support activities in the field of entrepreneurship, including their environment, content, teaching approaches, resources, teachers and other players. The measurement and analysis period begins slightly before the program and ends a short time afterwards. We do have a strong interest in intentional stability, however, and may decide to extend the observation period at a later date. In such a case, the same indicators would be used.

4.1. THE MODEL'S INDEPENDENT VARIABLES

In our model, the variables relating to training and the educational environment are independent variables designed to explain the dependent variables (attitudes towards entrepreneurial behaviour and entrepreneurial intention).

In an entrepreneurship education program, depending on its type and nature, students and learners must deal with one or more learning processes and an institutional environment that conveys a positive or negative image of entrepreneurship and offers variable amounts of resources. At first glance, these three families of variables (learning process, institutional environment and resources) appear to constitute a satisfactory point of departure. We will examine them individually, in more detail, below. Although the latter two have been identified and incorporated into the work of other researchers, the first does not appear to have been used very much.

- Learning processes

Learning processes can be broken down into teaching objectives, types of students and disciplines, content, duration, intensity, frequency, teaching methods and approaches, and teacher numbers and profiles. Potentially, all these aspects could be independent variables with individual and collective impacts on attitudes and intentions. For example, a study by

Fayolle (2000) revealed the importance of the teaching objectives assigned to entrepreneurship education programs. With regard to content, the balance and range of knowledge are important features of such programs (Gibb, 1988; Wyckham, 1989; Gasse, 1992; Ghosh and Block, 1993). Johannisson (1991) identified five content levels for the development of entrepreneurial knowledge: the know-why (attitudes, values, motivations), the know-how (abilities), the know-who (short and long-term social skills), the know-when (intuition) and the know-what (knowledge).

Teaching approaches and methods can be divided into content strategies, relationship strategies and acquisition strategies (Develay, 1992). They may involve “learning by doing”, immersion in real-life situations, case studies and talks by entrepreneurs, or more didactical and conventional procedures. For example, would the fact of asking students to develop a business plan based on their own ideas and/or projects, have a different impact on their attitudes and intention than the fact of working on a case study or attending a traditional classroom lecture? The purpose of our study is to test all these possibilities, a task that may well involve incursions into the field of educational science.

- Institutional environment

Not all educational institutions (universities, management schools, business schools and so on) offer the same political, social and cultural environments. Research in France has shown the important impact of the course or program on the students’ choice of career (Safavian-Martinon, 1998). An institutional environment that accepts and values entrepreneurial behaviour and employment in small and medium-sized enterprises may have an impact on the entrepreneurial intentions of students. Through its policies, incentives and behaviours, an institution can encourage its students to take the initiative and engage in venture creation, and can also convey a positive image of entrepreneurship as a career choice (Autio et al., 1997).

- Resources

Resources may be material, financial and intellectual in nature. Examples include the availability of funds to help finance venture creation projects by students, support networks for entrepreneurial initiatives (professionals and businesses), entrepreneurship centres, business incubators, a broad supply of entrepreneurship programs, entrepreneurship institutes and specialized libraries.

4.2. THE MODEL'S DEPENDENT VARIABLES

Before addressing the dependent variables – attitudes and intention – we will first discuss what we mean by “entrepreneurial behaviour” and how we have used the concept in our research. The term “entrepreneurial behaviour” refers back to the definition of entrepreneurship itself, on which there is no real consensus. We therefore propose to replace this somewhat generic term by a series of more precise terms applicable to different entrepreneurial situations. These include “venture creation” – although here again we would need to specify the type of creation (technological, innovative, craft, industrial, tertiary, agricultural, etc.). Individual buy-outs of problem firms could also be included, as could certain instances of corporate entrepreneurship (innovative activities within a large firm), provided they are clearly defined to avoid any possible ambiguities.

- Attitudes

The various types of “entrepreneurial” attitudes are derived directly from the theory of planned behaviour (Ajzen, 1991) applied to the field of entrepreneurship (Krueger and Carsrud, 1993). Kolvereid (1996), in subsequent empirical research, proposed a series of indicators designed to operationalize the attitude variables (attitude towards action, subjective norm, perceived behavioural control)

- Intention

Kolvereid (1996) used a three-part indicator to measure an individual's intention to create a business.

The attitude and intention variables are measured using Likert-type scales as opposed to a binary system, so that they can be graded by intensity.

4.3. MEASUREMENTS

The proposed evaluation tool is dynamic; in other words, the most important element is its development over time, rather than the value of a given variable at a given time. The goal is to capture changes of attitude and changes of intention. There is therefore a need for different measurements at different times – for example, at the beginning and end of the program, with one or two intermediate measurements in the case of long-term programs.

For the independent variables, the measurements can be binary in some cases (e.g. “exists” or “does not exist” for resources), or they may estimate the interest or relevance of a given strategy or the progression of learning.

Given that we are concerned with intention and not with the behaviour itself, we may, to obtain a proper evaluation, need to try and measure intentional stability over time, and this may involve adding measurements one or two years after the end of the program.

CONCLUSION

The evaluation of entrepreneurship education programs is currently attracting a lot of interest from researchers. Numerous initiatives have been launched or are underway, and the social demand is always as strong with regard to venture creation, job creation and widespread development of the entrepreneurial spirit and associated behaviours. All this has triggered a need for evaluation, in that the governments, regional communities and socio-economic partners providing the funding need to know the results of their contributions. The information they want relates basically to venture creation and the creation of direct and indirect jobs, and these factors have therefore become the most important evaluation criteria. The most surprising element here is that this particular conception of the role and issues of entrepreneurship education has been taken up by the educational community in general, which also tends to use the venture creation and job creation indicators to prove the relevance, quality and effectiveness of its educational programs. This raises a dual question. First, as we have shown in this paper, these particular indicators produce significant delayed effects, so that it is difficult if not impossible to use and measure them objectively and reliably within an acceptable timeframe. Second, the focus on these indicators to the exclusion of all others tends to minimize the existence and importance of other indicators. It would be equally relevant to examine pedagogical criteria such as knowledge acquisition and the relevance and effectiveness of a given teaching strategy, not to mention indicators such as awareness of an area of economic or social life or the development of an entrepreneurial mindset and entrepreneurial intention.

The basic contribution of our research is to show that the theory of planned behaviour and models of intention can be used to evaluate entrepreneurship education programs. The development of and changes to entrepreneurial intention are therefore core elements in our approach. In the theory of planned behaviour, intention is a good predictor of certain types of human behaviour. Intention is developed as part of a process and is subject to changes of

attitude. Three types of attitudes are relevant to entrepreneurial behaviour, namely attitudes towards the behaviour, attitudes subject to social pressures and subjective norms, and attitudes towards the control and mastery of the behaviour. Our proposed evaluation framework includes a generic model comprising a number of independent variables related to the education program and its environment, which influence the dependent variables (the three types of attitudes listed above, and entrepreneurial intention). The framework opens up a broad field of research covering the objectives, assumptions and independent variables to be included in the model. Hypothetical-deductive type research can be used to test the impacts of a wide range of variables and variable configurations. Another feature of the framework relates to the type of research. We feel it is extremely important to work longitudinally throughout the duration of a training process, and to take several measurements at different times both during the program and afterwards.

We believe our work has many implications, primarily for researchers. The framework opens up numerous avenues for future research to understand the influence and impacts of entrepreneurship education programs on student attitudes, intentions and mindsets. Ultimately, it could help improve knowledge of intentional models. It also has implications for teachers, trainers and political and economic decision-makers. For example, teachers and trainers may ultimately be able to adjust their programs by reformulating and clarifying their objectives as a result of this study and future extensions of it. Political and economic decision-makers, for their part, may be able to reconsider their vision of the evaluation issue and reorient their policies and practices accordingly.

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