



Theory and Practice of Entrepreneurship Education: A German View

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Abstract. Following developments in America, entrepreneurship education has now become a political issue in Germany, too. More and more institutes of higher education are making efforts to add courses of study specifically designed for potential entrepreneurs and self-employed business people to their curricula. Many different paths have been taken and there have been few attempts to systematically analyze them. There is little agreement on objectives and target groups or on content and suitable concepts of learning and teaching. Against this background, the following paper explores the question of teachability and learnability of entrepreneurship both theoretically and based on a discussion of empirical case study material on entrepreneurship education concepts at German universities. The aim is to present some ways of approaching an individual and integral education of entrepreneurs.

Keywords: entrepreneurship education, Germany, curriculum development, target groups (for entrepreneurship education), entrepreneurial competency development, teaching methods, entrepreneurial networks.

1. Examination Context ¹

1.1 Preliminary Thoughts

In principle, the decision as to whether and how certain subject matter will be integrated into university teaching is decided on two levels: on a positive level it must be possible to separate the material from other content, and the degree to which the subject matter is independent, teachable and learnable is of the essence. On a normative level on the other hand there is the question as to what societal, cultural, economic and / or political reasons exist which would support implementation in a university qualification context. If there are enough supporting arguments on both levels, the modus operandi of effectively integrating content and how to deal with it in teaching can then be addressed – for example concerning the question whether the organizational

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framework should be based on a separate course of studies, a subject within a course of studies or a sub-module within a subject.

In Germany the discussion of such questions is in full swing with particular emphasis on the theme ‘entrepreneurship education at universities’ and for some time now ‘competition’ between the different qualification methods has been developing. In general it should be mentioned that the term ‘entrepreneurship education’ usually stands for a more or less contrapuntal opposition to established, mainly business-economics-oriented education concepts in which the image of managers employed in large companies dominates. The main demand, therefore, is for more integral, action-oriented education which focuses on the genesis and management of new or smaller enterprises and all the problems which go with that. It should be kept in mind here that, according to Grant (1998, p. 31) for example, about 95 percent of employers in the USA have fewer than 50 employees – a fact which should really be taken into account when designing economics curricula.

Finally, it is assumed here that entrepreneurship falls in the category of economics, even though this swiftly leads to the classic debate about whether economics should be defined by its object of research or rather by the fact that the discipline uses specific instruments. As will be outlined later, here it is mainly the object under study, that is the Schumpeterian entrepreneur, that inheres the economic essence. However, it is important to note that for entrepreneurship education the use of instruments of analysis will be interdisciplinary, integrating concepts from other disciplines in entrepreneurship education. The extent to which the object of analysis is economic in essence may be judged from attempts to consider “entrepreneurial capital” along with land, labor and capital as the fourth factor of a macroeconomic production function (e.g. Audretsch/ Keilbach 2003).

In face of the demands to integrate entrepreneurship in economics curricula it may be helpful first to take a short retrospective look at relevant historical developments both in America and Europe before examining in more detail the normative aspects of ideal- and real-type courses of education.

1.2. A Retrospective on Entrepreneurship Education

The discussion on providing university qualification to promote more entrepreneurial initiative began in English-speaking countries and especially in the United States much earlier than in continental Europe. “From ... a base of 16 universities and colleges offering entrepreneurship courses [already, LTK] in 1970, the number of schools offering entrepreneurship courses had grown to over 400 by 1995” (Vesper / Gartner 1997, p. 406). An early pioneer of this development was the Harvard Business School which started offering sporadic courses as early as 1947 in response to structural problems of the

post-war economy in America. “Peter Drucker then began offering courses at NYU in 1953. Babson College offered the first undergraduate major in entrepreneurship in 1968 and USC ... the first entrepreneurship major at the MBA level in 1972” (Finkle / Deeds 2001, p. 616).

As this kind of course spread there was a gradual move towards differentiation in content in spite of high levels of skepticism and opposition on the part of the established forms of economic study: “As the number of schools offering entrepreneurship courses grew, so did the number of schools offering more than one course in entrepreneurship. There began to be programs in this subject” (Vesper / Gartner 1997, p. 406). Today in the United States there are more than 50 universities offering not only single courses (entrepreneurial training), but also complete programs – at least as optional subjects and often even with their own degree (ibid.). Accordingly, in a recently published study dealing with the curricular integration of modern entrepreneurship education at American universities, the following summary was made: “The field has clearly made significant progress toward being institutionalized” (Finkle / Deeds 2001, p. 614).

Taking a look at the situation in Europe, the conditions are much more heterogeneous. In Great Britain a series of universities has been offering BA, MA or MSc courses in entrepreneurship for some years now and in Spain and The Netherlands there is at least the possibility of attending modules on entrepreneurship when studying economics courses at some universities. In Italy and France on the other hand hardly any comparable courses could be found. Although there are political steps being taken in almost all European countries to promote individual initiatives and programs in entrepreneurship, almost all these countries are clearly lagging far behind the transatlantic situation outlined above (Koschatzky / Rink 2001; Merkle 2000).

This is also true of Germany, Austria and Switzerland, although there have been particularly intensive efforts to catch up over the past five years. Not until 1998 was the first professorship founded in Germany which included entrepreneurship in its denomination; today there are already 17 active institutions of this kind (with a further 10 in the planning phase). The situation is similar concerning the range of courses offered in the field of entrepreneurship education: in 1996 the only courses in Germany were extra-curricular. Today there is already a number of institutions with integrated examination and optional subjects or programs on offer (for the above-mentioned statistics cf. Klandt 1999, p. 247; Hagemeister 2001, p. 63).

In spite of these changes, however, Germany still takes a bottom place in the category ‘Status quo of education at schools and universities’ in the ranking of the Global Entrepreneurship Monitor 2000. Although there was increased willingness on the part of teachers and students “to address and discuss the theme of entrepreneurship” (Sternberg / Otten / Tamásy 2000, p. 28), at the same time there was criticism of an insufficient interdisciplinary make-up of

courses of study which would come into question, lacking practical qualification of teaching staff regarding the founding of new enterprises and how to manage them, very bureaucratically-run universities and a lack of incentive for the teaching staff to teach the subject (ibid, p. 22 / 28).

The systemizing discussion at the beginning of this paper, together with this short look at the recent genesis of the educational landscape concerning entrepreneurship are reason enough to carry out a perspective analysis of the possibilities and limits of as well as the reasons for “entrepreneurship education at universities” following the system described. In this article, an analysis of the German situation with regard to entrepreneurship education will be focused on.

1.3. Entrepreneurship Education as a Socio-Political Issue

The discussion of a new culture of entrepreneurship existed in Germany, as in other countries, before political efforts to widely establish entrepreneurship education at universities spread (e.g. Kohl 1995, quoted in Frick 1999, p. 73). This culture of entrepreneurship can be understood as how society perceives the economic significance of entrepreneurs, the new enterprises they found and their interests. This “Public Opinion” is interdependent with all those values, informal rules and rules of positive law which can influence the quantity and quality of new enterprises.

The aim of certain interest groups to improve the prevailing conditions for new enterprises in their national economy was made a political issue by activating certain mobilization resources (Koch 1998). There are noteworthy approaches in this context which place particular emphasis on the relevance of pathological learning at the collective level (e.g. Siegenthaler 1994). They provide an idea of why innovative entrepreneurs of medium-sized enterprises have enjoyed a gradual Renaissance as free market dynamos over the past two decades. A long term consequence of oil crises and reorientation of exchange rate policies as well as the continuing challenge of globalization was that existing measures were no longer able to get to grips with mass unemployment.

The expectations which developed following an increasingly supply-side-oriented understanding of the economy played a decisive role in the implementation of the politically influential metaphor ‘culture of entrepreneurship’:

- From a business economics perspective this includes in particular the assumption that, as our modern economic systems move more and more towards the tertiary sector, driven by ever-progressing technology, it is the small and medium-sized enterprises (SMEs)

which in some ways have a relative competitive advantage over established large companies. Here, in addition to ‘real’ new enterprises, other kinds of change taking place in industrial production structures – especially the outsourcing of service functions – are gaining relevance.

- From a national economics point of view, on the other hand, the possibility of a positive welfare effect is significant. In addition to competitive and employment implications, innovation and structural change effects play a decisive role here (cf. Scott et al. 1998). As there is an acceleration of social and economic problems which develop in the process of globalization, a competitive context from which new solutions to problems and innovative organizational structures are motivated is today more than ever before a decisive mechanism for the ‘evolutionary success’ of socio-cultural systems. Following this, it is the innovation-oriented new enterprises which increase the adaptability of economic structures and the political pressure to take action increases because, in a global context, national locations are exposed to a certain amount of crowding-out competition.

Against this background it becomes clear why politicians are increasingly making efforts to improve the climate of entrepreneurship at universities. From the ‘reservoir of competency’ at universities they hope to draw on generator, incubator and accelerator effects regarding innovation and technology-oriented new enterprises with added value relevance. Here, the term ‘reservoir of competency’ has two meanings: on the one hand it means direct entrepreneurial competency; on the other hand universities and technical colleges are home to a huge pool of inventive specialist knowledge which can be taken for further transformation – depending on the degree of practical applicability – into venture opportunities. Taken together, the entrepreneurial idea and entrepreneurial competency result in the economic opportunities that Frick et al. (1998, p. 17) have in mind when they stress: The most effective technology and knowledge transfer from universities and research institutes is the founding of new enterprises. However in view of the much broader role of entrepreneurs and entrepreneurial thinking in the structural economic change process, the scope of entrepreneurship contains more than the creation of new enterprises and generating employment. Thus for entrepreneurship education at universities, the target group is not solely based on those students who are nascent entrepreneurs. In addition therefore, the content of entrepreneurship education entails not only factual knowledge about how to set up a business. On the one hand, the subject also comprises aspects like opportunity recognition and entrepreneurial thinking (which may also be employed by

intrapreneurs involved in organizational change processes), on the other hand also economic policy issues like creating an institutional framework for fostering entrepreneurship may be addressed. Both the composition of potential target groups and possible contents of entrepreneurship education will be addressed in subsequent sections alongside with a discussion of the extent to which this can be implemented as focused teaching / learning arrangements.

2. Theory of Entrepreneurship Education

2.1. On the Learnability of Entrepreneurial Competency

Any reflection on the teachability and learnability of entrepreneurial expertise first demands an understanding of the teaching and learning subjects. Here, the focus is on subjects who ‘undertake’ something innovative as intrapreneurs or entrepreneurs in order to generate added value through change. But what is the process leading up to this activity?

From an economic point of view the creation of something new is normally not a result of pure fantasy or coincidental discovery. It is much rather driven by the incentive to achieve a better position by creating something new. Entrepreneurs recognize such opportunities. They put themselves in the position of those who have reached the limit in solving their problems and look for new solutions in order to then market them and to profit from the willingness of others to pay for new, limit-shifting solutions to problems. It is precisely these Schumpeterian characteristics of entrepreneurial action, the discovery of new entrepreneurial ‘opportunities’ in connection with the creation of innovative goods, processes and organizations which are now considered a central aspect of the discipline of entrepreneurship in its struggle for recognition (e.g. Shane / Venkataraman 2000). The corresponding image of what an entrepreneur is should therefore be the point of departure for the question of the learnability of respective content. To find an ideal-type answer to this, two objectives of entrepreneurship education can be differentiated:

- Assuming there is an academic interest in entrepreneurship, learning is based to a great extent on theories of the entrepreneur, his features, typical mistakes and his role in the economy and society. This group can be called ‘those interested in (the issue) entrepreneurship’.
- If on the other hand the interest is of a practical nature, learning will concentrate on preparing individuals for their own entrepreneurial

career. Therefore this group can be called ‘those interested in becoming entrepreneurs’.

Following Pinkwart (2001), regarding the respective educational approaches, the second case can be called ‘entrepreneurship (education) in the narrower sense’ (in the following sections: EE i.n.s.) and the first case ‘entrepreneurship education in the broader sense’ (in the following sections: EE i.b.s.). The discipline ‘Pedagogics and didactics of entrepreneurship education’ (which has so far been abbreviated here as ‘entrepreneurship education’) should be seen separately from these two forms. The latter deals with the formulation of learning objectives and ways to achieve and influence these objectives (for a more detailed description cf. Braukmann 2000 and 2001).

Obviously the group interested in EE i.b.s. is more heterogeneous regarding its motivation to learn. However it can be said in general that due to the relatively high level of academic interest, the search for scientifically-based knowledge rather than direct active competency is often in the foreground. This academic interest in entrepreneurship within the EE i.b.s. group mainly addresses the interdependence between the socio-economic environment and the role of entrepreneurs in the economic development process. The overall learning target for students in this group is to become competent in analyzing possible implications of economic policy concepts, both at the regional and national level, for entrepreneurial action.

In the case of the practically-motivated group on the other hand, the dominating desire is to gain active competency which will enable the participants to successfully found a new enterprise or to work as a self-employed entrepreneur. Behind this wish there can be different push and / or pull factors or intrinsic and / or extrinsic motives (Preisendörfer 1999), whereby Albach (1997) rightly points out that there is a certain discrepancy between theoretical logic and empirical evidence regarding these motives.

It is important to note at this point that for both educational approaches, while directed at different target groups, there ought to be an interlocking design, thus neither completely neglecting theoretical nor action-orientation elements in both. For example, the EE i.b.s. group will also benefit from insights into hands-on entrepreneurial management problems in their attempt to properly understand the implications of economic policy making at the national economic level. At the same time, developing a broad understanding of the institutional framework will also be of relevance for potential entrepreneurs studying managerial aspects of entrepreneurship at the micro level.

While the group of ‘those interested in entrepreneurship’ presents less of a learning problem from a theoretical point of view, the question of the learnability of successful entrepreneurship is subject to much more

controversial discussion. Although Timmons (1999, p. 28) states that an essential skill of the evolutionary entrepreneur seems to be the ability to recognize possibilities for action where others initially cannot see any connection to ‘potential added value’, there is, however, still no good explanation which could be generalized and thus communicated as to why and with what logic some people recognize opportunities before others. Here one fact plays a decisive role: the cognitive-creative functions of the brain which form the basis for every new action, imply mental processes which can neither be fully explained nor mapped as an algorithm (Koch 2003).

These considerations do not question the overall learnability or teachability of entrepreneurial competences. However, it appears suitable here to go further into some general questions regarding possible routes to knowledge transfer in the context of entrepreneurial competence building:

- It has to be asked, which of the knowledge components making up the successful entrepreneur are implicit and which are explicit.
- Secondly the level of congenital and acquired entrepreneurial competency needs to be determined.
- And finally scientifically-valid statements are necessary on the time to maturity of learning processes which can in principle be initiated.

In answering the first question, initially one faces the problem, that there is by no means agreement on what the characteristics of a successful entrepreneur are. As in leadership research which has in the meantime come of age, in entrepreneurship research the idea seems to dominate that an evaluation of personality-based characteristics can never be carried out without considering contextual factors (cf. for example Gartner 1988). The fact that traits approaches which simplify things to a certain extent (cf. Aldrich / Wiedenmayer 1993) are still often followed may be due to the fact that the corresponding design of empirical studies is easier to work with (Brüderl / Preisendörfer / Ziegler 1998, p. 35).

The answer to the second question is just as unclear in the light of expert literature on the subject and more basic knowledge has to be used, gained from psycho-biology and the cognitive sciences which assume an inseparable interfunctionality of inherited and acquired competency elements. In principle every element which can be separated in thought can be traced back to genetic constellations. The degree of its perception and effectiveness in the environment, however, depends on to what extent it is activated based on socialization or the learning environment as well as to what extent it is called up as a result of what is happening in the environment (e.g. Delius / Todt 1995).

Thirdly, if the time to maturity of initial learning processes is to be included, other disciplines also need to be referred to. For example today one of the basic ideas of the theory of learning is that the ontogenetic history of the learner plays a decisive role in the range of possible qualification measures (Delmar / Davidsson 2000). From the very beginning subjects build up cognitive structures which are meant to enable them to take the most suitable action possible in their respective environments (Oerter / Immelmann 1995).

Applying these more general contexts to the question of the learnability of successful entrepreneurship, three basic statements can be made:

- If inherited characteristics always need social communication to be sufficiently applicable in the respective relevant environment, entrepreneurship must also be at least partially communicable.
- However, as it is difficult to isolate specific entrepreneurial characteristics which have a neutral contextual significance, the communication of general active competency gains significance at least in the context of EE i.n.s. It faces pure concentration on the kind of factual knowledge which is obsolete on the application level or is too specific for flexible transfer.
- Finally the historicity of every sub-learning process needs to be considered. The relative inertia of structures on a cognitive level once they have been formed leads to the conclusion that, especially in the area of communication of action-oriented problem-solving competencies, long-term qualification measures provide more sustainable learning success than short-term ones – even if there is an effort to make up for the shorter time period by offering more intensive courses.

2.2. On the Teachability of Entrepreneurship Competency

After the above discussion on the learnability of entrepreneurship, the focus will now be placed on an issue which is closely connected to it, i.e. the question of the teachability of such skills. Based on what has already been said it would seem essential to start from a subjective and integral understanding of education. First of all this means the expectation that a canon of objective knowledge is available to teach people how to set up and manage an enterprise must be rejected. If this fact is accepted, the aim cannot be to base teaching on know-how alone. A pure differentiation of factual knowledge on entrepreneurship – e.g. following the logic of function-specific (special) managerial economics teachings – is in opposition to the aim of teaching

potential entrepreneurs to take independent action with an understanding of the complex system 'enterprise' and its context as an action radius (for an empirical view cf. Gresham / McClure Franklin 1997).

Braukmann emphasizes the demand for this kind of integrated qualification when he speaks in favor of the parallel promotion of expert, methodical and social competency. Here expert competency refers among other things to the primarily cognitive skills of the content of expert knowledge, methodical competency covers the knowledge of basic learning and working techniques and the possibility of applying methodical procedures of problem-solving and social competency refers to the ability to use basic cooperation and communication techniques (Braukmann 2001, p. 83). Following on what was discussed above, the range of such competencies based on complementarities and synergy gains significance for entrepreneurship education at universities when the educational focus is to be on entrepreneurial action in future enterprises or in small firms. This is because there are fewer possibilities of division of labor and competency. Further, for the proposed subjective and integral understanding of entrepreneurship education, the educational perspective needs to be subjective in that it has to consider the above mentioned ontogenetic history of the individual learner.

So what are the consequences of the discussion so far for the concrete design of teaching / learning arrangements in the broadest sense? On the one hand this question is directed towards the aspect of the organizational integration of an entrepreneurship qualification into university curricula as was touched on at the beginning of this paper. On the other hand it addresses the methodical aspects of how to teach the discipline. Looking at the question of suitable organizational integration, the problem is that the institutional reality of (German) universities stands in the way of the ideal type of entrepreneurship qualification which would be (1) long-term (full course of studies), (2) as continuous as possible (e.g. no block courses), (3) as far as possible individually taught (no lack of resources) as well as providing high incentives (e.g. regarding examination regulations).

The identifiable marginal conditions seem to be subject to different degrees of structurability. In order to determine how to achieve a realistic framework structure it would seem to make sense to go back to the above-mentioned idea of target groups. For a rough classification the following target groups exist:

- Firstly, the target group of non-economists which mainly consists of those interested in becoming entrepreneurs. While the primary motivation of this group, to become self-employed, is relatively homogenous, the competencies of the different members are very wide-ranging. Typical members of the target group of non-

economists are for example architects, civil engineers and designers, but also natural scientists, IT experts or engineering scientists.

- Regarding the target group of economists, the situation is to a certain extent vice versa. Here, there are also those who are aiming to become entrepreneurs later and are therefore interested in direct entrepreneurial skills, but for others the main interest is in general content. This group also includes those who have a different profession in mind and choose EE to gain ‘intrapreneurial competency’. When it comes to previous qualification this group is much more homogenous than the former one.

Which target group should be focused on in entrepreneurship education at universities depends on both normative criteria as well as on restrictions based on a lack of resources. There are two different models on the normative side: if the objective is to increase the number of new enterprises resulting from the university context, the tendency will be towards EE i.n.s, i.e. towards courses which are tailored to the needs of those directly interested in becoming entrepreneurs. Here the non-economists would be the main target group because, as a study by InMit and IFM showed, “only 10 % of entrepreneurs with a university degree... are economists, about 84% on the other hand have engineering or scientific degrees” (InMit / IFM 1998, p. 11).

However, if the objective is to improve the social culture of entrepreneurship, EE i.b.s would be more applicable. The main aim of this model is the communication of causal context into society. It is only when a change in public opinion takes place (Koch 1998), which creates in particular an understanding of the relevance of entrepreneurship for prosperity, that initiatives find fertile ground to positively structure further prevailing conditions for entrepreneurship (cf. Albach 1997; Koch 1999). Suitable target groups for EE i.b.s would thus seem to be: future opinion leaders and decision-makers in politics and associations as they influence among other things the evolution of institutions relevant to entrepreneurship; future managers in larger companies who, as intrapreneurs within such organizations, prepare the ground for the innovative power and adaptability of the economy (or who become self-employed after working at such companies); future teachers at schools and institutes of further education who can awaken in young people an understanding of the significance of entrepreneurship and innovation as an engine of economic and social development; potential advisors in credit institutions and other such companies; journalists and other media-makers who can steer public opinion in different directions in their role as agents of modern media democracies.

As has already been seen, EE i.n.s. and EE i.b.s. should not be considered mutually exclusive options. They are rather the framework for a whole range

of possible programs. Those who take part in such courses in the hope of becoming successful entrepreneurs in the future should also be confronted with both the ‘periphery’ of entrepreneurial existence (e.g. economic and ethical aspects of the entrepreneurship phenomenon) as well as being able to reflect on the possibilities and limits of their search for competency. On the other hand, those whose aim is not to become self-employed, instead choosing the subject ‘Entrepreneurship’ out of general interest will be able to make more precise analyses the more they deal with the real, situational decision-making and action-taking aspects of entrepreneurship. The focus which is selected regarding the qualification poles EE i.n.s. and EE i.b.s. as well as the corresponding target groups, e.g. whether two parallel programs should be offered with joint and separate modular units (see case studies in section C), depends mainly on the personnel and material resources available as well as on aspects of educational methodics:

- A particular requirement for focused EE i.n.s. is a high level of educational expertise and suitability of the teaching staff, a fact which should be paid particular attention to even at the earlier stages of interviewing potential teachers. The more heterogeneous the target group is, the more important this requirement becomes. If the group is made up of interested parties from all disciplines, there will be a very high level of differentiation regarding previous knowledge. Many participants will at first have no basic knowledge of economics at all. The challenge to the teachers is even greater in these cases, if the course content has to be adapted to suit the respective disciplines at least to a certain extent (‘industrial competency’).
- To ensure that the content of EE i.b.s. is sufficiently demanding on the other hand, the range of courses / subjects on offer requires a high level of differentiation. Therefore as many different perspectives as possible should be included within the framework of a suitable qualification program, organized for example as a main subject in a Bachelor’s and / or Master’s degree. Thus it would be recommendable to include at least the following content when designing an application-based, interdisciplinary program: managerial economics (enterprise management), national economics (market and competition, entrepreneurial functions and economic development, promotion of new enterprises), law (institutional prevailing conditions), and psychology (entrepreneur as a person, key qualifications). This requires several experts from the different disciplines working together – complemented by ‘practical experts’.

The discussion now turns to methodical issues, for example, the type of teaching method to be chosen in terms of action orientation. This depends on the make-up of the target group. To begin with, the EE i.n.s. as well as the EE i.b.s. group benefit from a threshold level of action-orientation relevant to both. For example, economics students in an EE i.b.s. course may be integrated in interdisciplinary group seminars on business plan writing together with non-economics EE i.n.s. students (for this also compare illustration 3c below from the first case study example). From there, in accordance with what has been said above and bearing in mind resource constraints, the degree to which courses are action-oriented would have to positively correlate with the percentage of the learning group which is interested in becoming entrepreneurs.

The focal point of action-oriented teaching is integration; this means teaching / learning arrangements which are reality-based and therefore relevant to real life, didactically-structured and supportive of personality. This includes for example the promotion of multi-dimensional learning, addressing all behavioral dimensions, the promotion of thinking and learning complex action (setting objectives, implementation, monitoring, evaluation etc.), a close relationship between theory and practice as well as dealing with subject matter on an interdisciplinary basis (Braukmann 2001, p. 87).

Furthermore there is emphasis on the significance for action-oriented teaching to promote problem-solving and transfer competency. This can be achieved by individualizing teaching in the sense of subject-dependency of the subject matter as well as dealing reflexively with learning content in order to teach participants to become aware of their own actions.

Taking a look at this catalogue of criteria, the high demands placed by entrepreneurship education as defined above on those responsible for that education become clear (for a similar summary cf. Pinkwart 2001, p. 24). It is obviously not sufficient just to delve into the tool box of action-oriented educational methods which would include for example: (computer-aided) simulations, case studies, idea and business plan competitions, guiding texts, learning offices, network groups, internships, projects, scenarios, practice companies, future workshops and so on (cf. for example Ronstadt 1990). Much more decisive is an agreement on target group and, derived from this, an internal balance in the program for teachers and students regarding the promotion of the competency categories discussed above (cf. McMillan / Boberg 1991). The following classification gives a first rough methodical orientation:

Table 1: Classification of Teaching and Learning Methods

A. Knowledge transfer	B. Indirect application	C. Direct application
Lectures	Group work / workshops	Role plays
Practical tasks	Project course	Simulations
Private study of literature	Presentations / discussions	Co-operation with enterprises
Essays and degree dissertations	Case studies	Internships
	Presentations / success stories	Business plan seminars
	Excursions	
Combinations of A.-C. (e.g. lecture with case studies; degree dissertation at an enterprise)		

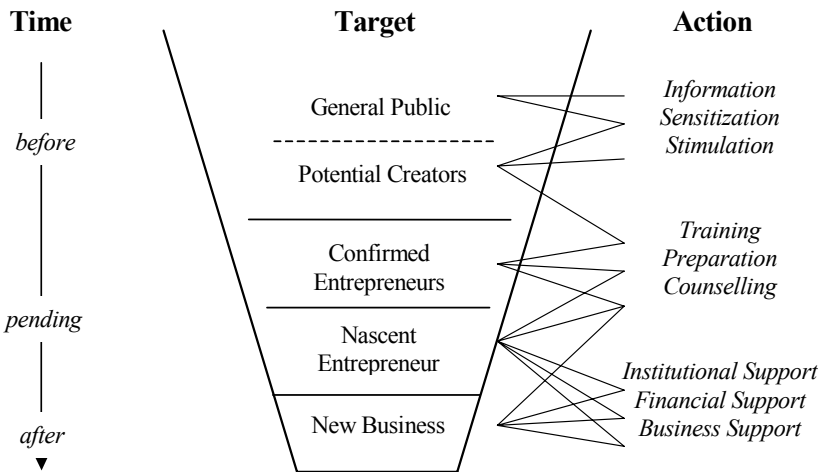
Source: extended version of Beer 2000, p. 173

When discussing integrated EE programs, a sequential, normatively-based harmonization continues to be at the forefront in the sense of the basic principles mentioned above. For example, at the very beginning of the course, should the target group first be opened up to the subject at hand, then to be followed, if necessary, by the motivation to found an enterprise later? Or: how can the transfer from the university's virtuality to the reality of self-employment at the end of the course be structured as smoothly as possible? Are business plan seminars particularly suitable here? Does it even make sense to keep in touch with the already self-employed after their studies in the form of an Alumni system? As these questions make clear, it is not only the educational concept per se which is important, the qualification context which already exists or has yet to be developed also plays a significant role. This issue will be dealt with in the following section.

2.3. Qualification in the Context of Networks

Both theoretically and empirically, the understanding today is that the success of entrepreneurship education significantly depends on its integration into internal and external university networks which promote entrepreneurship (for an empirical view cf. for example Benson 2001). Depending on the institutional and procedural quality of the networking, positive externalities may be generated (cf. for example Müller-Merbach 2000). In order to systematically present network-induced synergies of an integrated EE, the promotion of entrepreneurship by universities should be mapped as a 'chain of added value'. The basic idea behind this goes back to a model by Vickery (1985) which "represents the various stages through which a potential entrepreneur passes to become a confirmed entrepreneur, which in turn implies the creation of a new business" (Gasse 1990, p. 100):

Figure 1: Support Functions on the Way to Becoming an Entrepreneur



Source: Adapted from Gasse 1990, p. 100 similar to Vickery 1985

This evolutionary approach is chosen to make clear that the objective order of the activities supporting entrepreneurship plays a decisive role (cf. Chef / Müller-Merbach 1999, p. 30):

- At the beginning of this ‘chain of added value’ as it is called here, there are measures to produce initial interest (informational events, education marketing etc.). Here the regular and perhaps also curriculum-based confrontation of students in primary and secondary schools with relevant subjects should be seen as complementary to university EE (e.g. Fischer et al. 1997).
- There is a smooth transfer from this phase of awakening interest to a phase of sensitization and stimulation. Here the general social significance of entrepreneurship and in particular self-employment as a career option is brought to the fore. Authenticity and a role model effect can be created here, especially by including self-employed businesspeople in course-teaching (cf. Chef / Müller-Merbach 1999, p. 34). One idea would be for example to have a “guest entrepreneur” program as already pilot-tested at Danish schools (FAZ 4/01).
- Suitable ‘practical experts’ (with educational competency) should also be included in the actual EE. At least in connection with EE i.n.s., the theoretical spectrum should be designed to provide methods of dealing with real problem situations of day-to-day

entrepreneurship so that practicing entrepreneurs can have a corrective function when discussing the relevance of themes to be dealt with. Of course there is the danger when including ‘practical experts’ in courses that method-based, integrated teaching as described in the above principles will end up becoming random ‘story telling’ (for a critique of EE as ‘edutainment’ cf. Fiet 2000, p. 104 f.). One way to avoid this may be to offer the relevant courses in the form of team teaching.

- Basically, it seems important to bring students into contact with practicing entrepreneurs during their studies to facilitate the subsequent transfer from the university to professional life or to entrepreneurship without suffering a ‘practice shock’. Contact discussions, guest presentations, excursions and internships are suitable for this purpose. In addition business plan seminars in which participants have to make various contacts to potential business partners (e.g. to venture capital investors) in order to solve realistic planning problems are suitable for EE.
- Furthermore, complementary to qualification measures, individual advice should be available in all phases of founding a new enterprise. Adapted to the respective phase as well as to the individual seeking advice, the range is restricted on the one hand to primarily personality-oriented consultation (as advice on suitability as well as in the framework of development, mentoring and loyalty management as described by Braukmann 2000). On the other hand it is restricted to a service which is focused on knowledge of the subject as consultation on content, concept and process (e.g. in the context of business planning, patent research, accessing funds, mentoring negotiations).
- The functions of coaching and coordinating entrepreneurship go beyond the university context and are thus located further down in the chain of added value. While coaching relationships can result from a consultation situation at the university, the function of entrepreneurship co-ordination initiates or activates network relationships in the region outside the university. This happens for example when entrepreneurs are passed on to commercial consultants or coaches after completing their studies, when the search for a suitable location is facilitated by cooperation with centers of entrepreneurship or technology parks or when the entrepreneur is supported in making contacts to existing (perhaps specialized) entrepreneurial networks.

- Networking EE also means establishing an Alumni culture at the university. This allows for a systematic evaluation of experiences made by young graduate entrepreneurs, further qualification of former students in so-called senior academy courses, their integration as ‘role models’ into the current courses as well as long-term sponsoring for purposes of university-associated promotion of entrepreneurship. This function is of particular relevance in view of the fact that many new enterprises are often not founded until some years after the graduates have started their professional careers.

3. Entrepreneurship Education in Practice

Coming to the end of this paper four selected case studies of EE programs at German universities will be examined – two of which have already been implemented and two not yet implemented. The aim here is to find accentuation, similarities and differences between the different concepts against the background of the discussion so far.

First of all it should be kept in mind that all four case studies can be seen as resulting from a subjective and integral understanding of education as described above. It may not seem easy to apply subject-orientation, integration and interdisciplinary make-up as evaluation standards but there are some arguments to support this. Vesper and Gartner (1997, p. 407) referring to Plaschka and Welsch (1990) suggest the following four dimensions as classification features: “number of courses offered (single to multiple), degree of integration (low to high), stages of business transition (...), and number of disciplines.” One dimension should be added to this with a view to what has been discussed earlier: the degree to which the course of studies is action-oriented (between methodically-balanced and one-sided) (similar to Pinkwart 2001, p. 26).

When talking about general differences between EE programs as expressed below, the following contextual influencing factors (among others) may be of essence, some of which are discussed further in the empirical case study material: structure and history of the university (age, size, location, subjects offered etc.), resources available (personnel, material etc.), as well as the influence of individual promoters and creative designers (at the university, in regional politics).

The already up-and-running concept of the University of Wuppertal, based on the ‘Wuppertal model of entrepreneurship education’ (Braukmann, div. / Koch, div.), will be briefly presented as the first case study. It can be classified as a real-type of explicit EE which offers two parallel streams of study, on the one hand for economists and on the other hand for non-economists. In the former stream the objectives and methods of an EE i.b.s. form the focus, and

in the latter stream those of an EE i.n.s. take priority. In some selected courses, however, both target groups study together to create synergies (especially in the business plan seminars which take place on a regular basis; cf. illustration 2c below). This program, organized by the economics department, is complemented by individual seminars, both internally and from other departments, which are adapted to varying degrees to the two-stream core program.

Table 2a depicts the curriculum on offer for EE i.n.s. students. The structure differs from the EE i.b.s. program (Table 2b) in two ways. Firstly, its entrepreneurial management content in the curriculum is tailored to suit non-economics students. Secondly, the degree of action-orientation is comparatively higher to cater for the needs of students who plan to set up their own business. For example, this program of study includes compulsory components to improve “soft skills” (for example role play sessions on team building, conflict management and negotiation issues; cf. Table 2a) but also business start-up simulations to address methodical competence building.

On the other hand, the EE i.b.s. program is designed as an optional main subject in the main phase of studies in economics. The individual modules which include offers by several lecturers are mutually complementary and / or refer to one another. Even so in the EE i.b.s. program proximity to practical experience is also central, however, the educational aspiration level in terms of abilities to abstract and analytical skills is significantly higher as compared to the EE i.n.s. program.

Table 2a: Case Study ‘Wuppertal Model of Entrepreneurship Education’ (EE I.n.s.)

Program structure (part I)		
	<i>Semester I</i>	<i>Semester II</i>
Content	Ia: Induction course for potential entrepreneurs: entrepreneurial motivation, chances and risks of self-employment etc.	Ila: Case studies in entrepreneurship (application of Ib and I Ib)
	Ib: Entrepreneurial management: venture creation process and new venture management	I Ib: Advanced entrepreneurial management (builds upon Ib)
	Ic: Soft skills for entrepreneurs: presenting business ideas, negotiating, team management etc.	I Ic: New venture map exercise, practice start-up firms (sandwich course in entrepreneurship)
Target group	Non-economists (those interested in becoming entrepreneurs)	
Curricular integration	Elective module for students enrolled in non-economics degree courses (e.g. science, engineering)	
Period of studies	Two semester program of study (may also be extended)	

Table 2b: Case Study 'Wuppertal Model of Entrepreneurship Education' (EE I.b.s.)

	Program structure (part II)		
	Semester I	Semester II	Semester III
Content	Business economic and social scientific aspects of founding and developing new enterprises: "The entrepreneurial personality" (traits approaches to entrepreneurship); entrepreneurship as an employment opportunity; entrepreneurial innovations and modes of market entry etc.		
Module I			
Module II	Legal aspects of founding and developing new enterprises: Patent legislation; labor law for entrepreneurs; capital markets: financing contracts (debt & equity financing arrangements); international and German tax regimes etc.		
Module III	National economic aspects of founding and developing new enterprises: Entrepreneurship and market development; business cycles and entrepreneurial action; the role of entrepreneurs in globalization and structural economic change etc.		
Target group	Economists (those interested in entrepreneurship as a theme + those interested in becoming entrepreneurs)		
Curricular integration	As an optional main subject 'Entrepreneurship and economic development' both within the framework of a phased BA / MA and as a regular German "degree course"		
Period of studies	Main course of studies is three semesters (modules can be attended simultaneously)		

Table 2c: Case Study 'Wuppertal Model of Entrepreneurship Education' (Integration)

	Program structure (part III)	
	EE i.n.s. (Table 2a)	EE i.b.s. (Table 2b)
Streams of study		
Integration	Business plan seminar: I business plan development and writing in interdisciplinary teams of economists and non-economists (coached by university staff members of the entrepreneurship section)	
Period of studies	One semester program succeeding the two separate streams of study (EE i.n.s./ EE i.b.s.)	

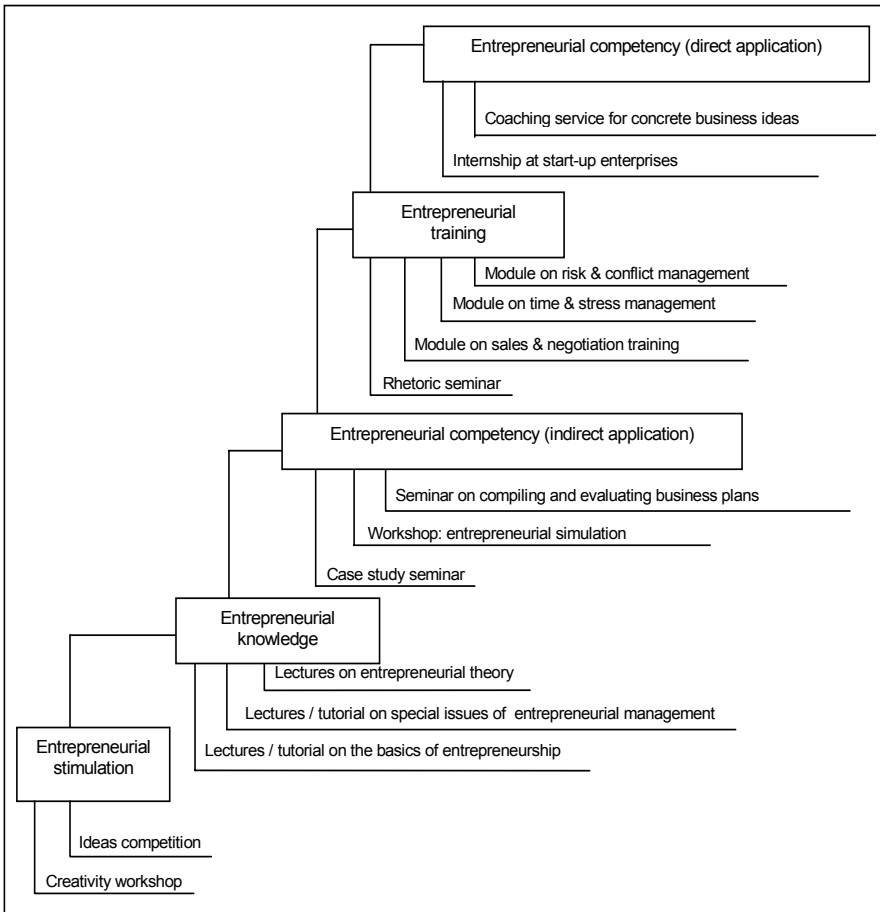
It should be noted that the University of Wuppertal with its promotion of entrepreneurship and entrepreneurship education came first "by far compared to the top-ranking universities in Germany" in a recently published nationwide comparison of universities (the study was commissioned by the Frankfurter Allgemeine Zeitung, the BMW Group and the Deutsche Bank)

which compiled a ranking of 78 universities based on eight criteria (Schmude / Uebelacker 2001, p. 7; cf. also Hagemeister 2001).

The second case study (Figure 2 opposite) is based on a proposal made by the economist Andreas Pinkwart from Siegen University, thus it will be called the 'Siegen model of entrepreneurship education'. The concept has special exemplary value, in particular because, in addition to their integrative character, the modules are ordered in strict sequence, mirroring the above idea of 'entrepreneurship education as a chain of added value' to a certain extent.

In contrast to the Wuppertal model which gives approximately equal weighting to EE i.n.s. and EE i.b.s., the focus of this model concept is on EE i.n.s. From the point of view of educational methods there is a balanced overlapping of communication of expert, methodic and social skills which is expressed, for example, in the selection of course types. It has yet to be determined to what extent the ideal-type phase structure can be implemented in practice when faced with the restrictive technicalities of studying at a university.

Figure 2: Case Study ‘Siegen Model of Entrepreneurship Education’



Source: Pinkwart 2001, p. 26

The third case study (Figure 3 below) is also a model of EE i.n.s. As it is the result of research commissioned by the University of Würzburg, here it will be called ‘Würzburg model of entrepreneurship education’.

Figure 3: Case Study ‘Würzburg Model of Entrepreneurship Education’

Content: Motivation Lecturers: Practical experts Method: Presentations Success-stories Case studies Excursions	Content: Creation of a value base Lecturers: University lecturers Method: Lectures Literature Discussions Case studies	Content: Economic creativity Lecturers: University lecturers and practical experts Method: Presentations, group work and workshops		
		Content: Ability to make decisions under risk & uncertainty Lecturers: University lecturers Method: lectures, case studies, group work		
		Content: Leadership and other key qualifications Lecturers: University lecturers and practical experts Method: Presentations, <u>role plays</u> , <u>video recordings</u>		
Preparing entrepreneurs in	Venture concept creation	Implementing the concept	Market entry	Market establishment
Content: Basic knowledge on the start-up theme Lecturers: University lecturers Method: Lectures Literature Tutorials	Content: Businessplan preparation Lecturers: University lecturers Method: Lectures Practical and case studies	Content: Organisation Development of resources Lecturers: University lecturers Practical experts Method: Lectures Case studies Presentations	Content: Strategies and measures for market development and penetration Lecturers: University lecturers Practical experts Method: Lectures Case studies Presentations Excursions	

■ First semester courses □ Second and third semester courses

Source: Beer 2000, p. 185, slightly modified

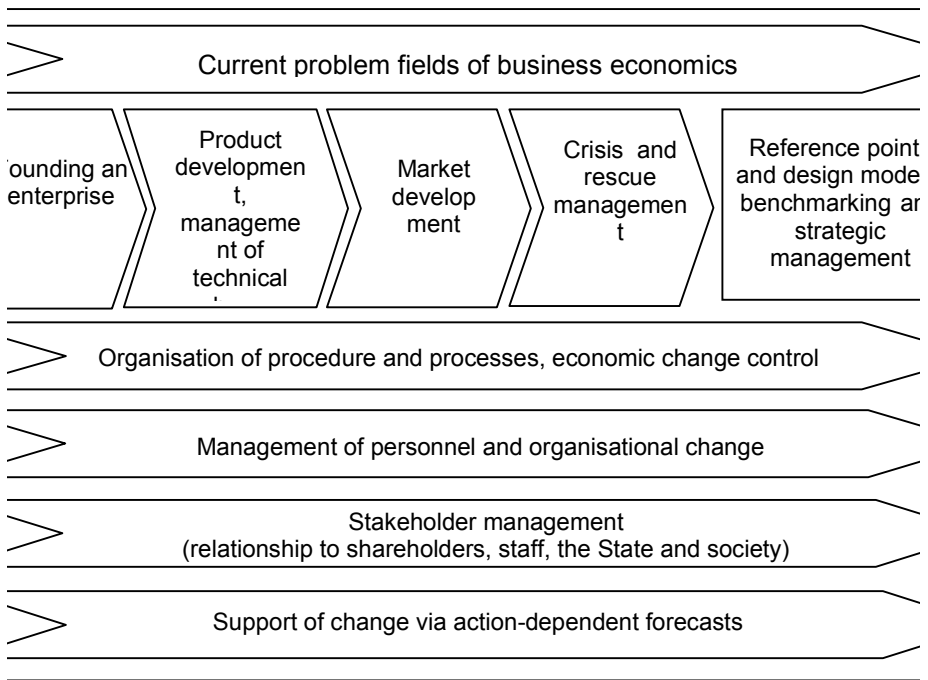
A characteristic of this proposal, which has not yet been put into practice, is that the curriculum is divided into two parts. The top part of the program (see

above figure) focuses on the role of the entrepreneur and the communication of methodic and social competencies forms the core. At the beginning there is an “ice-breaking” course which is meant to have a stimulating function as discussed earlier (Beer 2000, p. 185). In the bottom part a task-based structure has been chosen which is oriented towards the phases of starting up and developing a new enterprise. In contrast to the ‘Siegen Model’, courses following the three phases of ‘knowledge transfer – indirect application – direct application’ are planned in each individual phase.

As is typical for offers of EE i.n.s., the ‘Würzburg Program’ also aims to attract students or members of all disciplines. Here the integration of EE into the examination guidelines of the individual courses of studies would be desirable (Beer 2000, p. 187) – an aim which is also being followed for the second stream of the courses on offer in Wuppertal (EE i.n.s.).

The fourth case study (Figure 4 below) will be described in this section as the ‘Jena Model of Entrepreneurship Education’. Here, in contrast to the latter two types described above, the discussion is of implicit EE with explicit elements rather than explicit EE. The classification of EE i.n.s. and EE i.b.s. which was used so far is also difficult to apply here. The particular feature here is that the University of Jena has taken the common guiding theme of ‘Change Management’ and subordinated the teaching of general business economics to this. “The basic idea can be identified as a life-cycle concept related to enterprises as a whole. This systematically includes the various development stages and phases of an enterprise from the founding of the enterprise to the adjustment of the enterprise to changing competitive conditions right up to rescue operation packages for enterprises in trouble” (Alewell 1997, p. 164).

Figure 4: Case Study 'Jena Model of Entrepreneurship Education'



Source: Alewell 1997, p. 164 referring to Knyphausen

This means that the Jena model can also be identified as an integrated approach with sequential elements. But while in the Siegen model the structural sequencing results from an orientation towards the chain of added value from 'producing entrepreneurs', here there is a certain similarity to the 'Würzburg model' which is based on the ontogenesis of enterprises. The latter seems easier to understand, whereas the former tends towards facilitating the successive guidance of students towards professional reality according to the principle of decreasing abstraction.

If the division mentioned above were to be applied with care in spite of the categorical differences, the Jena model would be classified as EE in the broadest sense, regarding both the target group of students following the main course of studies as well as the academic demands and the lower level of action-orientation. This remains quite apart from the fact that extra-curricular courses are offered in Jena for those interested in becoming entrepreneurs; this however has no program character.

A synopsis of the discussion of the four case studies is provided in Table 3 opposite. The illustration also summarizes selected key attributes of entrepreneurship education programs, which have been discussed in previous chapters.

With this brief, very restrictive selection of four case studies of entrepreneurship education in Germany organized in program form, the relation to the remarks on historic development at the beginning of this paper has been shown again: in spite of the still large amount of ground to be made up on the US American status quo, there are certainly constructive trends in entrepreneurship education at German universities. In the competition on educational policy, it remains to be seen which type of program will become established from the still very heterogeneous number of prototypes and real types. However, in the future of German entrepreneurship education a convergence of educational concepts is likely to be observed. This is because government institutions, both at the federal and state level, presently support the development of such programs significantly (e.g. in the context of the so called “EXIST-Initiative” by the German Federal Ministry of Education and Research), adopting existing benchmark concepts as “good practice models”. An increasing institutionalization of university staff involved in both entrepreneurship education and research points in a similar direction. Within the German entrepreneurship community, the Society for Entrepreneurship Research (FGF e.V.), a dynamic academic association, aims to advance the infrastructure for teaching and research in entrepreneurship in Germany towards Anglo-American standards. Against this background it can only be hoped for that improving the level of entrepreneurial activity in Germany, perhaps in the context of the abovementioned GEM-project, remains only a question of time.

Table 3: Synopsis of Case Studies and Key Attributes of Entrepreneurship Education Programs

	<i>Case Wuppertal</i>	<i>Case Siegen</i>	<i>Case Würzburg</i>	<i>Case Jena</i>
Target group	All faculties	All faculties	All faculties	Economists
Special focus	EE i.n. + b.s.	EE i.n.s.	EE i.n.s.	EE i.b.s.
Program content	Interdisciplinary integration of contents from economics, law and social science	Integration like in “Wuppertal case” with less economics contents	Integration like in “Wuppertal case” with less economics contents	Stronger concentration in economics (relative to the three other cases)
Period of studies	Long term	Long term	Long term	Long term
Progression of modular composition	Based on content and practice relevance for entrepreneurs	Based on practice relevance for entrepreneurs	Based on content and practice relevance for entrepreneurs	Based on content
Teaching methods	Mix of methods according to illustration 1 (parallel promotion of expert, methodical, and social competences is considered)	Mix of methods according to illustration 1 (parallel promotion of expert, methodical, and social competences is considered)	Mix of methods according to illustration 1 (parallel promotion of expert, methodical, and social competences is considered)	Limited application of methods to train methodic and social competences
Teaching staff	University lecturers (with specific didactical qualification) and didactically qualified practitioners	University lecturers and didactically qualified practitioners	University lecturers and didactically qualified practitioners	University lecturers (with specific didactical qualification)
Level of network integration	High	Low (so far)	Medium (planned)	Medium
Established professorships in entrepreneurship (or equivalent)	Yes	Yes	No	No
Qualification context	Existing	Nearly existing	Yet-to-be-developed	Existing

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