Paper IntEnt 2010
Strategies for teaching opportunity identification at science students. Experiences of expert teachers.

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Keywords: opportunity identification, teaching, strategies

Abstract
This paper will go into strategies to teach opportunity identification, which is at the heart of entrepreneurship, and therefore it should be part of entrepreneurship education. However, the process of opportunity identification is hardly emphasized in education, and a need exists for validated strategies to foster science students' competence to identify opportunities. In a previous study four strategies were elaborated and then evaluated in the classroom. These strategies aim at stimulating idea generation techniques, at stimulating the conceptualization and evaluation business opportunities, at promoting transfer of knowledge and skills in opportunity identification and at challenging students to abandon their routine patterns. The present qualitative study intends to validate these strategies in education by interviewing expert teachers in science education whether they use these strategies in teaching, and in what way, and whether they use alternative successful strategies with the same objective. This study confirmed the application of the strategies above by the teachers, and the study brought in new ways for implementation. Besides, three alternative strategies were deducted from the interviews: admit students to an elective by means of assessing their business idea, organize time for incubation of the business idea, and provide authentic feedback.

Introduction
In Europe entrepreneurship education is promoted by governmental policies at al levels of education EC, 2005; EC, 2008). Because opportunity identification or opportunity recognition is at the heart of entrepreneurship (Nixdorff & Solomon, 2007), it should be part of entrepreneurship education. In most programs opportunity identification is an implicit element in entrepreneurship education. For example in writing business plans students are expected to come up with business ideas, and subsequently explore their market potential and feasibility. However, the process of business identification is hardly emphasized in education. Some studies have been reported on this issue (DeTienne & Chandler, 2004; Saks & Gaglio, 2002; Kickul, 2006), however validated strategies on how to design education on opportunity identification have scarcely been published and are hard to deduct from scientific and non-scientific sources. Therefore a need exists for validated guidelines or strategies for teachers that are developing and implementing education on opportunity identification. Here a strategy is a sort of heuristic for design and implementation of educational programs. In a previous study strategies to foster science students' competence to identify opportunities were elaborated, grounded on practical experiences and on literature, and evaluated in the classroom (Nab, Pilot & Bulte, 2009). These authors proposed four design strategies: 1) stimulate knowledge and skills on idea generation techniques, 2) stimulate the conceptualization and evaluation of business opportunities, 3) let students apply their knowledge and skills in authentic tasks in order to promote transfer, and 4) challenge students to abandon their comfort zone. The present study intends to evaluate the value of these strategies in education by asking expert teachers in science education whether they use these

strategies in teaching opportunity identification, and in what way, and whether they use other successful strategies. This study aims at refinement and adjustment of strategies that might be used for designing education on opportunity identification.

Theory

Opportunity identification lies at the heart of entrepreneurship (Nixdorff & Solomon, 2007), and therefore it should be part of entrepreneurship education. In most programs where students write a business plan, opportunity identification is an (implicit) element in entrepreneurship education, because for the writing of business plans students must have business ideas, and subsequently explore their market potential and feasibility. Although theories are published on opportunity identification (Alvarez, 2005), these theories are hardly implemented in entrepreneurship education. Only few empirical studies have been reported on the teaching of opportunity identification.
DeTienne & Chandler (2004) successfully focused on creativity stimulation to foster students' competence to identify opportunities. These authors applied a set of exercises effectively, consisting of registering opportunities, idea generation techniques, exchanging ideas and challenge. Their approach resulted in the improvement of both the number of ideas generated and the innovativeness of these ideas. Saks & Gaglio (2002) asked expert teachers about the teaching of opportunity identification and found that teachers have varying opinions whether the creation of business ideas can be taught, but all these teachers agreed that evaluation of business concepts can be taught. Kickul (2006) showed that perceived entrepreneurial self-efficacy and entrepreneurial intention are both related to the competence to discovery of new ideas.

Although these studies give some information about teaching opportunity identification, validated strategies for the design of education on opportunity identification have scarcely been published. Design strategies are also hard to deduct from scientific and non-scientific sources. Entrepreneurship education is widely stimulated by governments in Europe (EC, 2005), with the intention that new entrepreneurship programs will be developed. This implies that there is a need for guidelines or strategies that can help teachers to design their education based on validated and successful experiences and guidelines of others. In a previous study Nab, Bulte & Pilot (2009) presented strategies to foster science students' competence in identifying opportunities, after elaboration, grounding on practical experiences and literature, and evaluation in classroom. In their study four strategies were proposed and evaluated.

The first strategy of Nab et al. (2009) is to *Stimulate the knowledge and skills on idea generation techniques*. Nixdorf & Solomon (2007) argue that creativity plays an important role in the fostering of opportunity identification. Models of opportunity identification in entrepreneurship (Shane & Venkataraman, 2000; Shook, Priem & McGee, 2003) show great resemblance with models from creativity research (Amabile, 1983; Hills, Shrader & Lumpkin, 2004). Cognitive processes in opportunity identification also show resemblance with creativity cognition (Plesk, 1997; Corbett, 2005). Opportunity identification can be considered as a domain specific form of creativity, meaning that theories, concepts, techniques and instruments from creativity education can be of value in teaching opportunity identification. Amabile (1982) developed a three component framework for creativity that can be applied in the teaching of opportunity identification. Creativity relevant skills are one of Amabile's components that have relevance in this study, and these skills depend on factors such as training, experience in idea generation and personality. In the fostering of opportunity identification attempts should be made to identify, teach and stimulate learning to apply effective creativity

heuristics (Amabile, 1996, p255). Students should acquire skills in idea generation techniques and have an understanding of the heuristics behind idea generation techniques, which can be achieved by practicing and reflection. Subsequently students must apply these heuristics in opportunity identification in authentic practices.

The second strategy that was used is to *Stimulate the conceptualization and evaluation business opportunities.* Creativity is the recombination of existing information, declarative as well as procedural. New schemas on opportunity identification should be developed and elaborated, and be recombined with existing mental structures in students' knowledge. These strategies with its cognitive focus are connected with activating pre-knowledge, elaboration and combination of knowledge, application of knowledge in varying contexts and developing heuristics (Valcke, 2007). These strategies are especially suited for ill-defined problems, such as identifying business opportunities in entrepreneurship through reflection in action (Ertmer & Newby, 1993).

The third strategy is: *Let students apply their knowledge and skills in authentic tasks in order to promote transfer*. Opportunity identification is a domain specific form of creativity, and the use of heuristics for idea generation can, by transfer activities on knowledge and skills, be expected to stimulate the identification of new business opportunities. Meta-cognitive knowledge of heuristics for idea generation is determining whether the competence of opportunity identification will be transferred into other situations. Simons (1999) stated that the transfer of concepts and heuristics is stimulated by application of these in professional tasks in a professional context. Transfer of knowledge and skills is achieved by introducing authentic elements in the learning environment (Nab, Brinkkemper, TenBerge & Pilot, 2010), by metacognitive activities on domain specific knowledge and concepts of opportunity identification and by assessment where clear criteria have to be met (Simons, 1999).
Components of authentic learning in entrepreneurship education were published by nab, Brinkkemper, TenBerge en Pilot (2010): working atmosphere of the learning environment, the roles of students, type of tasks and activities, role of the instructor, and assessment.

The fourth strategy that was reported by Nab, Bulte & Pilot (2009) is: *Challenge students to abandon their comfort zone*. Students have acquired in their daily life or in educational activities to a certain extent the relevant set of skills and competences in problem solving. These competences can be performed consciously or unconsciously, and no need exists to develop an alternative problem solving competence as long as the present competence will suffice. When students are brought into entrepreneurial circumstances of uncertainty and ambiguity they can be faced with the ineffectiveness of their problem solving competences. Challenging circumstances force students to reflect on their abilities and a need will arise to develop new, creative solutions and knowledge. Vermunt (1982) described the concept of constructive friction, which is characterized by degrees of scaffolding by teachers and autonomy and responsibility of students. Deliberately and selectively taking students out of their comfort zone can create a very strong stimulating environment for learning. Nevertheless, students learn to function in an entrepreneurial context where they are educated for.

The strategies described above, were implemented and validated in an intervention study in classroom. For generalization it is necessary that these strategies are validated in further studies. The present study has the aim to evaluate the value of these strategies among expert teachers. By interviewing these experts we want to study

whether they use these strategies *effectively and feasibly* in teaching opportunity identification, and in what way they use these strategies, and whether they use alternative strategies effectively and feasibly. This study aims at refinement and adjustment of strategies that might be useful for designing education on opportunity identification.
This specific research questions for this study are:
1. What is the experience of expert teachers in entrepreneurship on the following strategies to teach opportunity identification?

a) *using idea generation techniques*
b) *conceptualization of opportunity identification*
c) *transfer by means of authentic learning*
d) *challenging students to abandon their comfort zone*

2. Which alternative strategies do expert teachers apply successfully in teaching opportunity identification?

Methods

In this study participants were selected by purposeful sampling (Patton, 1990). Teachers from Dutch research universities and universities for applied sciences were selected, based on their well-known expertise in teaching entrepreneurship and opportunity identification with science students. Interviewed participants were asked to name two other persons for this study. Interviewing of teachers will continue until saturation occurs.[1]
The interviews were semi-structured, using issues, derived from a previous study (Nab, Pilot & Bulte, 2009) as items for the interview questions. Firstly, the interviewer asked if the four described strategies were considered feasible and used effectively, and which experiences the teacher had with each strategy. Secondly the interviewer asked which alternative strategies have been used by the teacher and what the experiences were with those strategies. The interviews lasted for about one hour, and each interview was audio taped and transcribed ad verbum.
The interviews were coded using the four strategies of Nab et al. (2009) as an analytical framework. For analysis of the authenticity of learning another framework of Nab et al. (2010) was used: working atmosphere of the learning environment, the roles of students, type of tasks and activities, role of the instructor, and assessment. Subsequently codes were clustered and experiences and arguments were structured in a thick description. Results were used to determine whether the four described strategies could be affirmed by expert teachers and whether alternative promising strategies could be identified. The results are reported as strategies and corresponding strategy components. Results were scored as the proportion of teachers that considered a strategy as feasible and effective of the total number of the interviewed expert teachers. An example is (3/6) meaning that 3 of 6 teachers used this strategy or strategy component. If teachers did not have a statement on a strategy or were not asked for, the proportion is corrected for this.
All interviews and transcripts were in Dutch, and citations in this paper are translations from Dutch into English. The interviews were focusing on the research questions, however during the interviews some details of the elaboration of opportunity identification were reported, that were relevant for this study. The section Results will start with some general remarks of the interviewees on teaching opportunity identification.

Results

[1] This paper presents the preliminary results of 6 interviews.

Some general remarks of the expert teachers
Three out of five expert teachers (3/5) were convinced that the competence of opportunity identification can be learned to a certain extend, one teacher did not know whether it can be learned, and one expert teacher stated that students in this phase of their professional development lack the scientific knowledge to be innovative. Personal attributes of students, attitudes and pre-knowledge of the market and the science domain were considered to be conditional for the identification of business opportunities. Still, all interviewed teachers stated that in their entrepreneurship programs students had to find one ore more business opportunities. In most programs this business idea has to be evaluated on innovativeness, feasibility and market potential, has to be elaborated in a business plan, and sometimes has to be implemented as a student company.

Strategy 1. Stimulate knowledge and skills on idea generation techniques
In analysis of the interviews the following strategy components were determined: explicit emphasis on *idea generation techniques, reflection on the process of idea generation, the importance of domain knowledge in creativity, and demands on assignments*.
All six expert teachers (6/6) reported that there was a certain emphasis on *idea generation techniques* in their entrepreneurship programs and it is their experience that this will foster opportunity identification. All teachers (6/6) reported lessons or workshops on creativity. In the creativity lessons techniques for idea generation were practiced by students and appealing, authentic problems were used to work on. In one case (1/6) a teacher with a background in Arts was involved in promoting creativity. Creativity training as such was not considered useful, but it should be combined with content, from science or business, and with realistic and meaningful problems and tasks. One teacher (1/6) reported a specific industry-based method to innovate (Systematic Inventive Thinking) that was applied as a generic idea generation technique.
Reflection on the process of idea generation and on heuristics were propagated by three teachers (3/5), in this way creating awareness about procedural knowledge on techniques, and fostering the transfer of the techniques to new situations.
Also 3 expert teachers (3/6) emphasized the importance of domain knowledge. Students must possess domain knowledge as a condition to be creative in this particular domain.

The relevance of a safe and social learning environment for the stimulation of idea generation was mentioned by three expert teachers (3/6). They strived for a safe learning environment, in this way avoiding negative factors for idea generation, such as competition. Creativity in most cases meant changing or adjusting existing concepts or products, and using heuristics to achieve this: for polishing existing products, or changing one of the values of a product, and thereby innovation of the product. Most ideas were identified in the students' domain knowledge (6/6), or at the cutting edge of disciplines. In three courses finding new ideas is seen as a matter of association of already existing concepts, and seldom is a new idea radically innovative.
It was reported that *high demands* by the teacher on the output of creativity was effective in promoting creativity or idea generation. Firstly quantity and quality of ideas must be demanded from students. The teacher should not be satisfied to soon with the number and the quality of the ideas. Students must be challenged by high standards that have to be met.
It can be *concluded* that practicing and reflecting on idea generation techniques is used in many entrepreneurship programs and that the teachers have the experience that this will foster opportunity identification competences of students. The strategy to use idea generation techniques was conformed in this study. Relevant strategy components that

were identified are: reflection on the process and techniques of idea generation, the importance of domain knowledge in creativity, and making high demands on idea generation assignments.

Strategy 2. Stimulate the conceptualization and evaluation business opportunities
For this strategy five components were identified in the analysis:

- *Identifying the type of business opportunities*
- *Elaborating on concepts of opportunities*
- *Judging business opportunities by use of criteria*
- *Assessment of business ideas by external experts*
- *Identifying special demands on opportunities*

During the interviews it appeared that two *types of business opportunities* can be distinguished: opportunities can be identified in the market as well as in the (science) domain of the students.
All teachers (6/6) confirmed that they want students to identify business opportunities in the market, where others (4/6) also expect students to develop opportunities related to innovation in their science domain. Some teachers give their students freedom to identify opportunities in science or in the market. In one case (1/6) reflection on students' learning experience was required, and this could include reflection on the process of opportunity identification. One teacher (1/6) claimed that students do lack the scientific knowledge to discover innovations.
Concepts of opportunity identification are to some extend part of most entrepreneurship courses (5/6), as reported by the teachers. Analysis showed diversity in this component: in two cases (2/6) examples of business opportunities of others had to be analyzed and discussed by students, as a way to understand the concept of business opportunities. In one case (1/6) the focus was on business models, and one teaching program (1/6) focused fully on market opportunities. In another case students had to find markets and a business model for a validated, science-based innovation, and they cooperated with the researcher of the innovation. One teacher (1/6) reported that experiences with students finding their own business ideas appeared not effective.

> "*In the early years of this course we asked students to create a business idea, and then elaborate it into a business plan. But it was boring and not inspiring. They came up with the typical business idea of someone offering a product and another one wanting to buy it, and I put myself in between and have my profit. It was not very interesting. I think it is not possible to give an assignment to think up an innovative idea. Therefore they need a lot of domain knowledge and students don't have it".*

In two academic entrepreneurship programs (2/6) theories and models behind opportunity identification were emphasized. In one entrepreneurship program (1/6) there was no emphasis on conceptualization of business opportunities.
Judging business opportunities by students and *developing criteria* to do so can be expected to improve students' competence to identify potential business opportunities themselves. Two expert teachers (2/6) reported that they stimulate students to develop criteria for judging business opportunities, after which students have to apply these criteria on business opportunities of fellow students. In two cases (2/6) students had to give peer feedback on business opportunities without having explicit criteria. In one case

criteria for peer assessment of business ideas and plans were given by the teacher. Two teachers (2/6) reported that they let students rank business opportunities as an effective way of judging and applying criteria.

Assessment of students' business opportunities was done by teachers together with experts such as entrepreneurs and investors (5/6). All external assessors (5/5) applied explicit criteria, also known to the students, but in two programs (2/5) the assessors used intuitive or implicit criteria as well to judge students' business ideas.
Three expert teachers (3/6) reported that they demand special conditions that had to be met by the students' business opportunities. These teachers demanded that the business ideas had to be founded within the science domain. In few programs it was reported that students did some field research as a preparation to opportunity recognition. One teacher stated that he had required uncommon demands as a way to foster creative thinking at students, which resulted in better quality of students' opportunities.

> *"We have seen that the more conditions we required, the better the ideas. Without conditions there is no challenge. The more conditions we demanded the better were the products that were delivered".*

It can be *concluded* that conceptualization of business opportunities is reported to be to some extend an effective and feasible strategy to foster students competence in identification of opportunities. Various components of this strategy were reported: *type of business opportunities, elaborating on concepts of opportunities, judging business opportunities by using criteria, assessment of business ideas by external experts, and special demands on opportunities*

Strategy 3. Let students apply their knowledge and skills in authentic tasks in order to promote transfer.
Interviews were analyzed for strategy components of authentic learning, because authentic learning is expected to stimulate the transfer of opportunity identification competences to new situations. Analysis was performed by using the framework of authentic learning in entrepreneurship education, which includes: *simulation of a working atmosphere, the roles of students, type of tasks and activities, role of the instructor, and assessment.*
All six teachers (6/6) reported that they strive after a *working atmosphere* similar as in a (starting) company. Working in self-selected multidisciplinary teams was found to be an authentic condition that resembles the working environment of starters (4/6). Courses in entrepreneurship are mainly situated in school (6/6), but authenticity is introduced by activities in the market or in companies (6/6). One teacher (1/6) reported that the environment of a starting company is simulated as much as possible within the school environment.
It appeared that most entrepreneurship programs (5/6) stimulate students to take the *role of problem* solver by giving them responsibility and ownership of all activities as well for entrepreneurial tasks as for school activities. Students fulfill partial entrepreneurial roles in entrepreneurship programs (4/6) as initiator of a company (4/6), starter (2/6), staff member in a holding (1/6), or researcher in the domain of entrepreneurship (1/6). All expert teachers (6/6) reported that students have several professional roles in their entrepreneurship programs.
All six programs include *authentic tasks (*6/6). A variety of entrepreneurial tasks was reported: speeches, visits to business cafe, writing business plan, market research, elevator pitch, starting a business, managing a student company, finance of a company,

specific tasks for companies, inviting guest speakers, internships, case studies, and desk research on entrepreneurship. In most programs students were stimulated to solve entrepreneurial problems and questions in the real world and in authentic circumstances. *Teachers fulfill the role of coach* (4/6), expert (2/6) or CEO (1/6). Coaching of students was also performed by entrepreneurs in 2 programs. In all entrepreneurship programs entrepreneurs are invited as guest speakers, and serve as role models. Other ways to introduce students to entrepreneurial role models is by analyzing videos, studying biographies, and monitoring and analyzing entrepreneurs' behavior.

> *I think that authenticity is one of the most important characteristics for learning to become entrepreneur. It means little structure, uncertainty, ambiguity, and new knowledge to be created. This is in contrast to what is propagated at universities: closed doors and salary scales. That's my view of authenticity and what I experience myself as a starting entrepreneur.*

Entrepreneurs and investors have a major role in the *assessment* of students (6/6). They assess business plans (6/6), entrepreneurial behavior or entrepreneurial attitude, in co-assessment with teachers (6/6). Co-assessment with students was reported in three cases.

It can be *concluded* that authentic learning is applied effectively and feasibly in all programs that were reported by teachers. All previously described components of authentic learning were used by the expert teachers: a working atmosphere similar to a starting company, the roles of students, sort of tasks and activities, role of the instructor, and assessment.

Strategy 4. Challenge students to abandon their comfort zone

The fourth third strategy in the interview was if teachers challenge their students to go beyond their familiar actions and contexts, and to get out of their routine way of solving problems: to abandon their comfort zone. In the analysis of the interviews five strategy components with the aim to challenge students in entrepreneurship courses were found. Challenges were achieved by *authenticity of tasks and context*, *the organization of education and the role students* were put into with regard to autonomy, responsibility and initiative.

All expert teachers (6/6) used *authenticity of tasks and context* in different ways to challenge their students. Authentic tasks are tasks that share essential characteristics with tasks of entrepreneurs, adapted to the context of learning. Authentic problems in entrepreneurship were reported by all teachers (6/6) reported to be open-ended task and complex problems.

The expert teachers reported various manners of achieving authenticity in tasks and context: gathering market information, performing specific tasks for companies, networking, bringing business ideas into the market, pitching, presenting business ideas for investors or a group of entrepreneurs, selling stocks for their company, finding members for the board of the company, going to banks and chambers of commerce, internship in a company, analysis of entrepreneurs' biography, guest lecturers, etc

Challenge was also achieved by making the content of the course more complex (6/6), by working on interdisciplinary problems and tasks, that can only be solved with the knowledge from several disciplines. In three cases (3/6) students had to work in multidisciplinary teams.

All expert teachers (6/6) reported that they used the *organization* of their courses in entrepreneurship in a manner that challenges students to abandon their zone of comfort. All (6/6) teachers organized deadlines and work pressure, and supplied clear criteria that

have to be met by the students (6/6). In most cases (4/6) criteria to be met were authentic, meaning that the criteria were provided and assessed by entrepreneurs or by the market. Opinions of the expert teachers differed with regard to the use of intergroup competition as a way to challenge students: in one case (1/5) intergroup competition was severe and groups of students had to bring the same business opportunity into the market. In two other cases (2/5) competition was avoided by the teachers, because it may decrease, that is knowledge sharing and idea generation. In three cases (3/5) mild competition was organized to challenge students. In two cases (2/6) a challenge was achieved by obliging students to implement their business ideas in the real market, and thereby taking the business idea seriously.

> *"Everything they have to do is difficult. What is the assignment? I have to come up with an innovative idea. What can I introduce on the market? What technology is involved? I don't know what is going on. I see the problem but do not know how to handle it. And this is exactly how a starter in business begins. It is my experience that if you manage to challenge students, education will be successful".*

It was reported that students are stimulated to take a *role* during the course that requires a lot of autonomy (6/6), responsibility (6/6) and initiative (5/6), for their entrepreneurial activities as well as for the learning process itself.

It can be *concluded* that the strategy of challenging students out of their comfort zone was confirmed by the experts as feasible and effective. Challenge is achieved by giving students authentic tasks that are open-ended, interdisciplinary and complex of nature, and have them work in authentic entrepreneurial contexts, characterized by autonomy, responsibility and initiative for the students.

In Table 1 a summary is given of the results of the study on the four strategies in the previous empirical study. All four were confirmed by the experts as feasible and effective, and supplied with detailed descriptions of strategy components for use in other circumstances.

Table 1: Summary of results from interviews with expert teachers on strategies used in a previous empirical study.

Strategies	***Strategy components for teaching this strategy and proportions of all teachers reporting components***
1. stimulate knowledge and skills on idea generation techniques	• idea generation techniques (6/6) • reflection on experiences with of idea generation (3/5) • domain knowledge (3/6) • demands on quantity and quality (3/6)
2. stimulate the conceptualization and evaluation business opportunities	• opportunities in market (6/6) or by innovation (4/6) • elaborating concepts of opportunities (5/6) • developing criteria (2/6) and judging business ideas(4/6) • assessment by experts (5/6) • special demands (3/6)
3. let students apply their knowledge and skills in authentic tasks in order to promote transfer	• Working atmosphere (6/6) • Students' role (5/6) • Type of tasks and activities (6/6) • Teacher's role as coach (4/6), expert (2/6) and CEO (1/6) • Assessment (6/6)
4. challenge students to abandon their comfort zone.	• Authenticity of tasks and context, open-ended, interdisciplinary and complex tasks (6/6) • Organization of education (6/6): intergroup competition (4/6), implementation of plans (2/6) • Autonomy, responsibility and initiative for students (6/6)

Subsequently three alternative strategies for teaching opportunity identification were deduced from the interviews.

Strategy 5. Provide authentic feedback on business ideas
In most programs the business ideas that students mentioned in the first phase of their learning process were assessed by peer students and the teacher. After analysis of the market potential and feasibility of the business idea by the students and adaptation of the ideas by the students, the resulting business plans were usually assessed in an authentic way, by presenting these to entrepreneurs, investors, venture capitalists, in co-assessment with teachers. According to the interviewees assessors used clear and consistent criteria from the market that are generally accepted in entrepreneurship:

> "*I think we have a good view on the market, of the number of clients and the competitors. We have some kind of formula in our head*".

Other criteria that were mentioned in the interviews are financial criteria and feasibility of the opportunity. Two of the assessors mentioned that they also used "intuitive" criteria. They did not use a checklist in assessing presentations and pitches of business ideas, but they assess intuitively and subjective.

> "*I do not have it in my head explicitly. But you can feel it immediately if someone comes with an application that is a big hit in the US. If this field is still free in Holland, and there is no competition, you know right away that it is a good idea*".

In two cases criteria are given in advance to the students, and a checklist of criteria is used by the assessing entrepreneurs. Entrepreneurs at a work placement give feedback on the product that the student wants to bring to the market as well as on the person

itself. In several entrepreneurship programs peer feedback or co-assessment is used in assessing business ideas, with the aim that students learn to distinguish successful from non-successful opportunities. But there is little explicit emphasis on the criteria themselves: criteria are applied but not analyzed in detail. One program was reported were students' initiatives is assessed in networking in the specific context of a business café. Another teacher reported that feedback was only given when students asked for it, being one of the measures to bring the initiative to the student.
Feedback was summative as well as formative in nature. Feedback from entrepreneurs and venture capitalists would mean a Go/No Go decision, mainly based on feasibility. Their feedback was also intended to further improve the business opportunity. There were no records of completely cognitive assessment on opportunity identification.

Strategy 6. Admit students to the program, based on their business ideas
In two of the electives programs (2/6) students were selected and admitted based on the quality and the presentation of their business idea. In advance of the course students were told to identify a business idea that had to be elaborated and presented before the start of the course. This business idea was assessed by the teachers for its potential and teachers using explicit and intuitive criteria to assess the business idea. Besides the quality of the idea, teachers judged the presentation and the persuasiveness of the presenters. If the assessment was judged to be adequate, the student was admitted to the elective. Both teachers applying this strategy (2/6) reported an improvement of business ideas to start the elective program.

Strategy 7. Provide incubation time for the idea
Together with the strategy above, a second strategy was introduced. By demanding a business idea at onset, and announcing it in time, students had more time to find ideas, compare and evaluate them, and further refine these in time. It was reported by the expert teachers that students were able to bring their first idea to high level in this incubation period. The period of incubation should not be long, because students should feel a need to act by the deadline of the presentation. If students had to possibility to ask for formative feedback on their business ideas during this incubation period, this would even further improve the idea. This can be a feasible and effective strategy in teaching opportunity identification. It can be introduced in advance of a course, but also during the course, with the aim to improve the quality of business ideas.

Conclusions en discussion
The first research question is: *What is the experience of expert teachers in entrepreneurship on the following strategies to teach opportunity identification?*

1) stimulate knowledge and skills on idea generation techniques
2) stimulate the conceptualization and evaluation business opportunities
3) let students apply their knowledge and skills in authentic tasks in order to promote transfer
4) challenge students to abandon their comfort zone

These four strategies on teaching opportunity identification from a previous study have been confirmed by the expert teachers to be feasible and effective.
The strategy of *stimulating knowledge and skills on idea generation techniques* is used in all entrepreneurship courses to some extend. It is considered to be an accepted strategy for fostering the competence of opportunity identification.
If the strategy of *conceptualization of business opportunities and deduction of criteria* to identify opportunities is used, this is done mostly implicitly. This strategy was confirmed by most expert teachers to be part of their program. In all programs students have to

find some kind of business opportunity and apply their competence in the real-life context of entrepreneurship, so this is also considered to be an accepted strategy. *Using components of authentic learning* was confirmed by the expert teachers to be an effective and feasible strategy for the identification of business opportunities. *Challenging* students *to abandon their comfort zone* was confirmed by all teachers to be important in opportunity identification.

These results provide a strong basis for further generalization of the feasibility and effectiveness of these strategies. Some refinements, adjustments and details on possible elaborations of all previously mentioned strategies were described, based on the experience of experts.

The second research question of this study is: *Which alternative strategies do expert teachers apply successfully in teaching opportunity identification?*
Three alternative strategies for teaching opportunity identification were identified:
a) provide students with authentic feedback on business ideas,
b) admit students based on the quality of their business ideas, and
c) provide time for the incubation of business idea.

This study presents the results of a first phase of a qualitative study on teaching opportunity identification. Therefore the results and conclusions are preliminary, and the study will be extended until saturation of results will occur. At the same time the first description of design strategies helps in further refinement of the method used and especially the list of items for the interviews.
This study was aiming at confirmation of previously described strategies on opportunity identification at one hand, and on the other hand on enriching our knowledge on alternative strategies that are also considered to be effective and feasible by expert teachers. Because teachers have a wide variety of ways to their disposal to teach a subject, diversity can be expected in the implementation. And it is just this diversity that can enrich our design strategies.
Authentic learning appeared to be crucial in many of the strategies that were reported by the expert teachers, and was part of all programs that were reported by the interviewees. It was reported to play role in the effectiveness of idea generation techniques, in challenging student and in teaching opportunity identification. Authentic learning can be considered as strategy at a higher level and to be involved in the other strategies.

Results from this study are presented as strategies and strategy components that should be evaluated in intervention studies in order to validate to what extend the strategies are effective and feasible in other educational conditions. This should be the focus of further studies on this subject.
In this study the strategies are presented as separate items, but from other design studies (Prins, 2010) it became clear that the sequence of strategies and activities is of importance for the effectiveness of the strategies, where the sequence of learning activities is related to learning phases and instructional functions. Therefore further studies on this subject should also include the relevance of the sequence of activities in designing education.

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