Meta processes of entrepreneurial and enterprising learning – the dialogue between cognitive, conative and affective constructs

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Abstract

Our approach to entrepreneurial and enterprising learning allows us investigate "how the cognitive, conative and affective self-regulating abilities interplay in entrepreneurial and enterprising learning process?" This research consists of the two year follow-up reflections of 18 university students who participated in two consecutive study programmes of entrepreneurship education during years 2003-2006. The programmes adopted entrepreneurial and enterprising pedagogy. Textual data consisted of 400 pages of reflections. Research methods and data analysis followed a two-part progression: 1) The application of Straussian Grounded Theory with the coding proceeds through open, axial and selective phases, 2) the concept map method. The results indicate that all constructs appeared in these entrepreneurship education learning interventions as well and transitions between them. However, the disappearance of affective construct in meta-level reflections emerged. Strengthening this underrepresented element might enhance students' reflection and self-regulation processes and as a consequence empower entrepreneurial and enterprising learning. Such ideas encourage us to suggest that this stream of research should get more emphasis in entrepreneurship education research.

Introduction

The question of how to learn entrepreneurial and enterprising behavior has recently become one of the core questions in entrepreneurship education (for example Acs and Audretsch 2003, Fayolle and Klandt 2006, Kyrö and Carrier 2005). According to Bosman and Gerard (2000) in this field the individual, competency-based approach is fast becoming the most common type of structure for training programmes and courses. It digresses from what entrepreneurs are towards what they do, and hence towards the competencies they need to play their roles. Recently this discussion has also introduced new elements to the conceptual development of competences by integrating the concept of competence to the learning processes (e.g.Cope 2005, Hayton and Kelley 2006) This approach argues that competencies should not be viewed as inputs, outputs or processes but as a context dependent process of learning. However, adopting such a holistic perspective still leaves many essential concepts such as values, believes, motives, volition, ability, skill and knowledge undefined.

To contribute to this stream of research this paper adopts the three-partite constructs of the personality and intelligence originally introduced by Snow, Corno and Jackson (1996) and further applied to entrepreneurship education by Ruohotie and Koiranen (2001). This construct helps to differentiate the cognitive, conative and affective aspects of learning and organises such concepts as values, beliefs, motives, volition, ability, skill and knowledge for further research. Ruohotie (2000) claims that in entrepreneurial education the key processes concern the conative aspects of motivation and volition. But as Gibb argues, the affective aspects relating to our values and attitudes should take a more explicit place in learning practices (Gibb 2002). We suggest that to do this requires that we know far more about meta-level-abilities of self-regulation and how to learn them. Self-regulation refers to an individual's active participation in his or her own learning process. It is the process through which self-generated thoughts, feelings, and actions are planned and systematically adapted as necessary to affect one's learning. We argue that learning depends on the learner's ability to manage all three, cognitive, conative and affective meta-level abilities of self-regulation. Thus to know more about these and their interplay might enhance learning entrepreneurial and enterprising behavior. This field of research, even though gaining in strength, is still rare in entrepreneurship research and thus this paper aims to contribute on that discussion by investigating the dynamics of "how the cognitive, conative and affective self-regulating

abilities interplay in entrepreneurial and enterprising learning process?" Our context is Finnish society and its entrepreneurship education programmes. More specifically, we investigate students' experiences about and during these programmes.

This paper is organised according to our research question. First it focuses on the concepts of entrepreneurial and enterprising learning and its ontological and epistemological bases. Then we proceed to the dynamics of cognitive, conative and affective constructs and meta-level self-regulating abilities. This is followed by a description of the research design and methodological approach. After that we report the results, conclusions and finally the implications, we think the findings lead to.

Entrepreneurial and enterprising learning and their ontological bases

To define entrepreneurial and enterprising learning we have to lean mostly on Anglo-American terminology that focuses on the terms "entrepreneurship", "enterprise", "enterprising", "entrepreneurial" and "entrepreneur". Erkkilä (2000) argues that in order to avoid conceptual confusion in the USA, UK and Finland, we should use a single concept of "entrepreneurial education". Alain Gibb, however, claims that there is a substantial synonymity between entrepreneurial and enterprising behaviour. The only major distinction is that an entrepreneur is traditionally associated with business activity (Gibb 1993, 2001). To avoid confusion and be exact, we use explicitly both concepts, entrepreneurial (referring to the business context) and enterprising (referring to more general readiness) learning. This reflects the expanded understanding of entrepreneurial and enterprising learning as the EU and the Finnish national policy assumes.

The very concept of entrepreneurship and consequently entrepreneurial and enterprising learning still remains a challenge to researchers; the recent discourse revolves around such concepts as creativity, opportunity recognition and a prior assumption of action as the medium between knowing and doing. This dialogue is chiefly concerned with the way that individuals and organisations create and implement new ideas and ways of doing things, respond proactively to the environment, and thus provoke change involved with uncertainty, complexity and further insecurity and complicacy (Carrier 2005, Gibb 2005, Schumpeter 1934). However, when it comes to learning processes, Koiranen and Ruohotie argue that entrepreneurship is neither a profession nor a career, but a 'cognitive, affective and conative process intended to increase value through creation, revitalization and/or growth' (Ruohotie and Koiranen, 2000). This strives for similar aspects, which, as Gibb (2002) argues, are essential in entrepreneurial and enterprising learning; namely ways of doing, seeing, feeling, communicating, organising and learning things. This process approach is flexible enough to let students' experiences about the dynamics of their learning to lead our research process.

Two fundamental assumptions; first to view the world as it is experienced and understood, the second to give the priority of an individual's action lead us to *pragmatism-orientation to phenomenology*. Pragmatists strive to understand reality through action. For the pragmatist, truth is born through action and justified through the consequences (Dewey 1951, James 1913, Mises 1966). This action takes place on the one hand as an interaction with others, and on the other hand is deeply rooted in the context in which it takes place. These assumptions lead to the fundamental role of individuals' action and interaction with others in the learning process, as, for example, Fiet (2000) and Gibb (2005) argue to be the core in entrepreneurial and enterprising learning. Also for example Sarasvathy's (2000) logic of effectuation explaining how expert entrepreneurs act actually represents this kind of thought. As John Dewey (1859-1952) explicates emotions are an essential factor in learning (Dewey 1951). However, as Gibb argues, the affective construct is still rare in entrepreneurship research and should be taken a more explicit place in learning practices.

The dialogue between cognitive, conative and affective constructs

To research these meta-processes entails understanding the differences between the **affective, conative and cognitive constructs** of personality and intelligence. As Snow, Corno and Jackson (1996, p. 243) argue, these three modes of mental functioning have been historically distinguished but are still regarded as interactive elements in human intelligence and personality. The following Figure 1 indicates the interplay between constructs and metaconstructs of personality and intelligence.

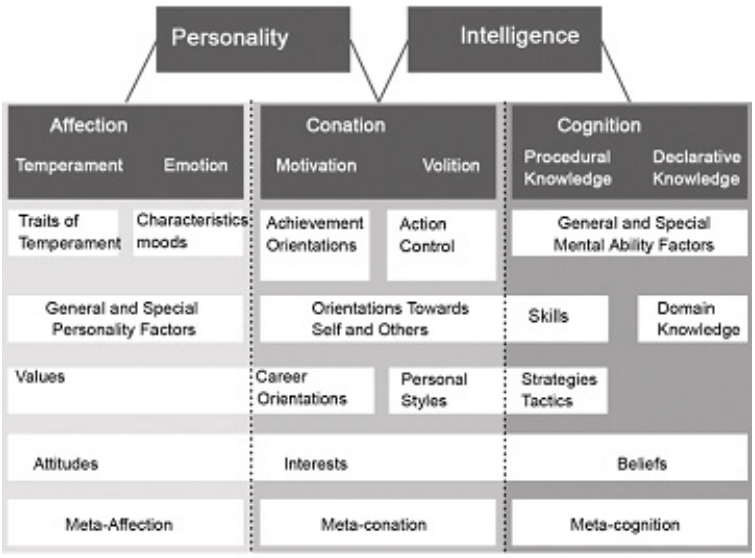


Figure 1: Constructs and metaconstructs of personality and intelligence (Combined: Snow, Corno & Jackson 1996, p. 247; Koiranen & Ruohotie, 2001, p. 104) and complemented with Metal-level construction

Personality refers to all those factors which distinguish a person as an individual human being. It includes the ability to undertake activities which are difficult, complex, abstract, demanding, goal-oriented, socially prestigious and original as well as the ability to accomplish these activities in situations which demand concentration and control of one's emotions. (Ruohotie and Koiranen 2000) Thus these two abilities deal with those qualities identified as specific to entrepreneurial and enterprising learning.

The cognitive construct contains declarative and procedural knowledge. The distinction between these refers to the way we link concepts together and to our abilities to apply this knowledge. Conation is subdivided into two parts: motivation and volition. The motivational factor includes among other things internal and external goal-orientation, fear of failure, need for achievement, self-esteem, belief in one's own abilities and prospects, all of which are at the core of entrepreneurial and enterprising learning. Volitional structure entails among others, persistence, will to learn, endeavour or effort, mindfulness in learning, intrinsic regulation and evaluation processes as well as different control strategies. (Ruohotie and Koiranen 2000).

Motivation precedes volitional processes to formulate the goals, but volition guides in setting clear goals as well as in the enactment and realisation of the decision. Thus both of these factors are essential in entrepreneurial and enterprising learning. From a social perspective, the conative construct contains our orientation toward self and others, which is essential in Mises' praxeology. Affection is divided into temperament and emotion.

Temperament is more lasting and hardly dependent on individual situational factors, while an emotion may be strongly linked to a situation. If affection is embedded in all situations and each individual has his/her own temperament, it is hard to see that we can isolate these from a learning situation. For example, research in the field of fear of failure is deeply embedded in the concept of emotion and also temperament. A need for achievement can also be seen from an affective perspective. At a deeper level the affective construct relates to our values and attitudes. To put this simply, what we regard as valuable guides our willingness and interest to learn. Thus the affective construct is as fundamental to our learning as the conative construct. Actually the demographic perception that those whose family or significant others have been self-employed are more likely to start up their own business might exemplify this construct. (Kyrö 2008)

Meta processes of entrepreneurial and enterprising learning

To understand the individual's active participation in his own learning process led us to research self-regulation processes and, as Ruohotie (2003, p. 251) argues, to its key factors of meta-cognitive, motivational and behavioural processes and further to the concept of self-regulatory ability. This research has brought new aspects to the concepts of meta-competencies that are still unexplored in the competence-oriented research of entrepreneurship. To overcome the conceptual problems and difficulties with such concepts as competencies, abilities and meta-competencies and abilities as well as to bridge these debates we employ the concept of readiness from curricula research. Although the definition of readiness varies according to the contexts, it has recently expanded from a set of competencies towards self-regulation processes which also contain cognitive regulation as well as emotional and social processes regardless of the age of the learners. Besides self-regulation, intelligence is a dominant factor in readiness development. (Blair 2002.) Thus readiness is a more extended concept than competence. Its current meaning is also more flexible and process-oriented than the competence concept in entrepreneurship research and helps in integrating the concept of competence to the learning processes. It also theoretically allows us to gain access to the complex conceptualisation of the dynamics of meta-level learning processes.

In short, we can say that meta-cognition is the concept used to describe a learner's competencies to reflect his/her learning and consequently change or improve it. Thus to cover all three constructs, besides meta-cognition there are also meta-conation and meta-affection. Thus the competence-based approach in entrepreneurship education research is expanded to consider all these meta-competencies. In formal education these should be explicitly embedded in planning, conducting and evaluating learning. As Ruohotie and Koiranen (2000, p. 13) argue "when a person learns entrepreneurship, changes take place not only in her/his knowledge constructs, but also in meta-cognitive skills, motivation, belief self-esteem etc. Ruohotie (2003) has modelled this dynamics of metaprocesses between conative and cognitive constructs. The meta-cognitive component of self-regulation includes awareness of one's own knowledge structures, processes and cognitive and affective states. Limón-Lugue (2003) uses the terms meta-motivation and meta-emotion to refer to knowledge and regulation of one's motivation and emotions. Thus affective meta-aspects are interwoven into this dynamics. He argues that meta-cognition consisting of meta-knowledge and meta-competencies is fundamental to learning to learn.

Self-regulation refers to an individual's active participation in his or her own learning process. It is the process through which self-generated thoughts, feelings, and actions are planned and systematically adapted as necessary to affect one's learning and motivation. Learning depends on the learner's ability to manage all three meta-level abilities of self-

regulation. Ruohotie approaches self-regulatory abilities as meta-competencies and define them through conative constructs, which intermediate between an individual's cognitive and affective attributes. However, since our perceptions highlight the importance of the affective construct as fundamental to entrepreneurial and enterprising learning, we would prefer to take affective meta-abilities as an equal player in this dynamics. The affective aspect of learning processes is also stressed in recent studies (Malmivuori 2006, Op' T Eyende, De Corte and Verschaffel 2006).

Self-reflection refers to examining and making meaning of the learning experience (e.g Seibert 1996) as Ruohotie (2003) points out, to regard it not only as retrospective action but as a continuous, ongoing process throughout the entrepreneurial and enterprising learning that facilitates and is a precondition for self-regulation process. Masui & De Corte (2005) in their intervention study found that reflection advanced both meta-cognitive and conative learning activities which had a positive impact on academic achievements. It is notable that this process of thinking and learning could not be developed without significant others (Vygotsky 1978). The future challenges consist of integrating self-regulation strategy training into the everyday study context and consequently, affective, conative and metacognitive competencies need to be introduced into their programmes in order to enhance their self-reflection and self-regulated learning.

These propositions finalise our approach to entrepreneurial and enterprising learning and allows us investigate "how the cognitive, conative and affective self-regulating abilities interplay in entrepreneurial and enterprising learning process?" This approach consists of three categories of self-regulatory abilities; meta-cognitive ability referring to the cognitive construct, conative meta-ability referring to the conative construct and affective meta-ability referring to the affective construct.

Research design and methodology

In order to investigate this kind of meta-level dynamics assumes learners' own perceptions of their learning process. Thus we have chosen an authentic, longitudinal and explorative research setting. It consists of the two year follow-up reflections of 18 university students who participated in two consecutive study programmes of entrepreneurship education. These programmes were especially planned to enhance entrepreneurial and enterprising behaviour. Both programmes were available to all university students in Finland regardless their educational disciplines and they were largest programmes specialised in entrepreneurship education.

Figure 2 describes our research design from three perspectives. At the same time it defines how we understand the dynamics of entrepreneurial and enterprising learning process, how the learning interventions were organised, how the gathered data relates to that design and finally the research and analysing methods used.

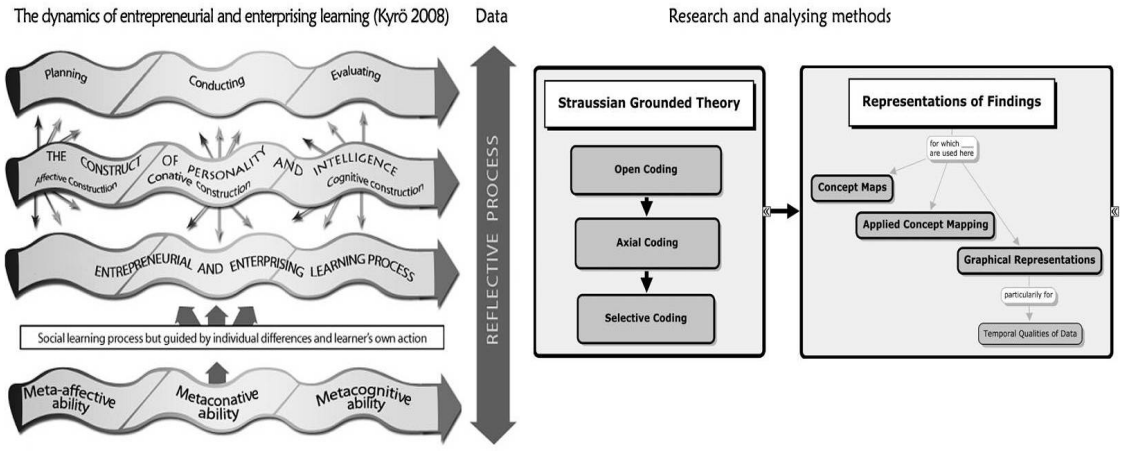


Figure 2. Research design

The dynamics of the entrepreneurial and enterprising learning process is the individual and social interplay between affective, conative and cognitive constructs, which should be taken into account in planning, conducting and evaluating the learning process. The continuous retrospective, on-going and future-oriented reflections are tools to learn and understand meta-level processes for enhancing meta-affective, meta-conative and meta-cognitive abilities. In the learning interventions the guiding principle is to respect the learner's right, freedom and (duty) to decide and act and means for that is to support collaborative learning but at the same time taking account of the individual differences. The learning programmes were planned accordingly. The data consisted of students' reflections.

Research methods and data analysis follow a two-part progression. First we applied Straussian Grounded Theory with the coding proceeds through open, axial and selective phases (Strauss & Corbin, 1990), then the concept map method. The coding scheme was carried out within NVivo 7 qualitative data analysis software (QSR NVivo 7.0.281.0 SP4, 2007), while the construction and analysis of map representations expands NVivo's modelling functionalities by utilizing IHMC CmapTools concept mapping and knowledge modelling software (IHMC CmapTools 4.11., 2007; see e.g. Cañas et al, 2004). The resulting matrices were exported from the software to be processed further in spreadsheet and concept mapping software to summarize the results in meaningful representations.

Below we will describe in more detail the interventions, data gathering as well as the research and analysing methods.

Interventions: Entrepreneurship education courses consisted of two programmes altogether seven modules and 60 Euro credits and consequently reflections of each of these modules.

The students participated in both of these during years 2003-2006. Students were encouraged to start working immediately individually and collaboratively. The assignments actively supported students' own knowledge creation, action and interaction with surrounding firms and organisations. They contained the concept mapping examinations, group works, peer evaluations and reflections. The assignments consisted of a real life cases, their peer evaluation and presentations.

Data gathering: Textual data consisted of 400 pages of reflections altogether 90 documents, out of which 36 were group documents (18 students * 7 modules = 126-90=36). The reflection instructions to gather students' experiences were same in all modules. The reflection format was based on action research studies. It guided towards three levels reflection; technical, practical and critical levels and to focus on the learning of an individual, the group and the course as well as an organisation and society.

Data analysis: The sociologists Barney Glaser and Anselm Strauss developed Grounded Theory in the 1960's. Since then it has been applied mainly in sociology, education and only recently in new fields like nursing and information technology. Its use in entrepreneurship research is still rare and only two examples were found (Douglas 2004 and Fernandez 2004). Both of them applied developed Glaserian approach.

Grounded Theory is recommended for those fields with few established theories, lacking sufficient knowledge or concepts or when new perspectives are of special interest (Glaser & Strauss, 1967). It perceives theory as process; that is, theory as a constantly

developing entity, further developed and validated in and through practice. (Glaser & Strauss, 1967, p. 32).

The dynamic, data-oriented approach has remained at the core of this method regardless of its different contributors. Glaser and Strauss claimed that it is possible and even desirable to construct theories through inductive reasoning from empirical observations. (Strauss & Corbin 1990) Later, however, their opinions diverged. Glaser represents strictly inductive reasoning and denies the role of existing scientific theories. The Straussian analysing process involves e.g. making hypotheses and "developing small theoretical frameworks, (miniframeworks) about concepts and their relationships" as our approach and research design contain (Strauss & Corbin 1990, p. 43). Siitonen (1999) suggests, however, that these two lines of thought represent different schools within Grounded Theory.

The coding process: In Grounded Theory analysing includes "operations by which data are broken down, conceptualised, and put back together in new ways" (Strauss & Corbin1990, p. 57).

In the *open coding phase* the topical content of the reflections and their related meta-level expressions were identified. In *the axial coding phase* first the references and meta-references were identified and organised according to the three constructs as a mini frame work. Then, by further adopting the three-partite constructs of personality and intelligence, these were organised according to different elements of each construct and presented as a concept map. Finally the transitions between these constructs were analysed. (see e.g. Åhlberg, 2004). In the *selective coding phase* core categories are chosen and systematically related to other categories validating those relationships. This provides a tentative model or a theory for further development.

Results

Open coding: First 1686 expressions were coded and then categorised according to their topics. All together 25 topics were identified and out of these 72 percent focused on seven categories. 242 meta-level expressions were identified among these 1686 references. From these 239 (99 percent) were identified in seven topical categories. Thus since our research question concerns self-regulating abilities these are most valid to us. Table 1 presents these frequencies.

Table 1. Topical categories and their references and meta-level expressions

Topical categories	Documents / category		Documents with Meta-level expressions		References/ category		References with Meta-level expressions	
	Number	%	Number	%	Number	%	Number	%
Learning and change	80	89	43	48	117	6,9	70	28,9
Collaboration, group dynamics	90	100	35	39	125	7,4	60	24,8
Studies and praxis	67	74	26	29	287	17,0	36	14,9
Individual work and processing	58	64	22	24	326	19,3	34	14,0
Time as resource	49	54	15	17	146	8,7	21	8,7
Joy, positive experiences	49	54	7	8	88	5,2	8	3,3
Teaching and pedagogy	48	53	9	10	117	6,9	10	4,1
Others 18 different categories					480	28,5	3	1,2
Documents N=90					1686	100	242	100

The meta-level reflection was defined by criteria, which allows taking into particular account the temporally regular nature of producing the reflection texts over a lengthy period

of time. This is performed in explicit order to control and/or understand the relevant factors affecting own studying action and its' conditions. Expressions can also serve as foundation for planning or anticipation of future events and action explicated in text. Thus the inherent *meta-levelness* of the category refers to learning as reflected through explicating observations of how things keep changing, as different phases, activities and conditions of the path sequentially become active. An example of each category is presented in Table 2.

Table 2. Examples of the references and their meta-level expressions in seven main categories

Topical categories	Examples of expressions
1.Learning and change **Expression**	My view on entrepreneurship and entrepreneurial education expanded. I read quite a lot of new material that was mainly interesting. Hence, learning took place …
Meta-level expression	On the other hand, the recognition of also this deficiency is an essential thing for my own developement because for my own action as an educator of adults in the context of entrepreneurial education to evolve I must understand the diversity of the learners' starting points.
2. Collaboration, group dynamics **Expression**	Our group of people from […] performed well and easy together. We even have what it takes to start an enterprise of our own. * The structure of the group establishes a wide content base for discussion. This makes the day even more interesting, so one has the strength to study into the evening.
Meta-level expression	[Therefore] we ended up dividing the work over several training periods and this section functions mainly as a lead-in and base for the next section during which we'll focus on entrepreneur hatchery and the pedagogy related to it.
3. Studies and praxis **Expression**	If this module seems in my view too theoretical and too little applicable into praxis, I'm not going to continue my studies. The needed credits I already have, I came here to begin with to learn new things necessary for my profession.
Meta-level expression	I've witnessed characteristics of the internal entrepreneurship in different organizations, but I've not been able to name them or justify their value. This module has opened up the internal entrepreneurhip for me. I recognize the value of entrepreneurial education in different institutions, e.g. in polytechnics. The internal entrepreneurship of the teachers should be utilized in supporting the organizational development.
4. Individual work and processing **Expression**	During the first module, I've constructed a reasonable concept map on entrepreneurial education based on literature and group work. I've also dutifully participated in all the face-to-face-meetings…
Meta-level expression	Most of all, while there is a professorship being established in the local university, I keep wondering should I participate in the process by trying to meet the director to elaborate a dialogue of educational sciences also here in the provinces.
5. Time as resource **Expression**	Even though the studies have taken time –meetings, emails, reading, writing- studying has been in general rewarding and good for self esteem.
Meta-level expression	The schedule for completing the tasks was yet again tight. First my child was ill, and after her myself. The number of face-to-face-meetings could be larger in the future; it's easier to detach from the work routine that way.
6. Joy, positive experiences **Expression**	It was a happy mental state planning the structure for the interview questions after the first face-to-face-meeting and looked for a theoretical foundation for them from the material given to us.
Meta-level expression	Using the terminology of Grounded Theory we started to approach the point of saturation and things started to open up. Our collaboration "waved" from a stage to another and our knowledge deepened by each "wave". At times it felt like we were in a "tsunami", but happily it turned out in the end that we were "just surfing"! This gave us true experiences of "empowerment" and "flow" and also the true faith that "Grounded Theory" has that certain something".
7. Teaching and pedagogy **Expression**	Three face-to-face meetings fit this type of working as such, but the face-to-face meetings in the autumn should have been further apart from each other to make among other things absorbing the literature and group work less hasty.
Meta-level expression	* Personally I'd perceive more reasonable, if the studies were constructed less self-directed in the beginning. At least the orientation period should be more teacher-driven. During the latter modules the self-directed action is naturally better

	grounded. * How should we desing teaching to have it include all the constructs [in the table]? This requires a great deal of flexibility already at the planning stage. One must also take care of aiming the planning particularly towards the learner's right and freedom to act.

It becomes obvious from Table 2 how in the respect of topical content most of the reflection focuses on collaboration and learning on different types of studying tasks and their practical execution. The emotional content of reflection seems to strongly emphasize the positive.

A notable feature of data seen in Table 2 is the large relative amount of reflection related to the topical category of 'Learning and change'. This type of reflection seems to be primarily and by nature practical. Instead of focusing on the domain knowledge of the studied academic field, the reflection mainly focuses on different actions of contributing to the problem solving necessary to achieve the set goals of studying.

This suggests that action-oriented pedagogy is the key point in stimulating reflections. The second observation concerns the obvious emphasis on collaboration, which seems to be the key element for learning and meta-learning. In our conceptual research design these were the key aspects of entrepreneurial and enterprising pedagogy. (See Figure 2).

Axial coding: The distributions of the 1686 references and 242 related meta-level references are presented in Table 4 and examples of their expressions in Table 5.

Table 3. References and meta-level references according to the three-partite constructs of personality and intelligence

Construct	References		Meta-level References		Meta-level as % of total references
	Number	%	Number	%	
Cognition	698	41,4	169	69,7	24,2
Conation	561	33,3	57	23,6	10,2
Affection	427	25,3	16	6,7	3,7
Total	1686	100	242	100	

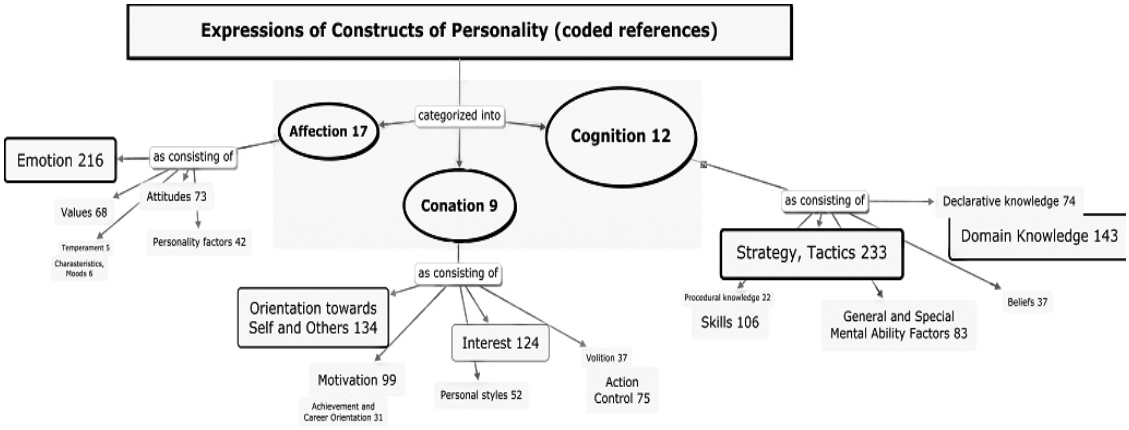
Table 4. Examples of the references and their meta-level expressions in three constructs

Construct	Examples of expressions/references
Cognition **Expression**	Domain knowledge: "*I received theoretical substance among other things about the parameters related to computation and economics in the starting phase of an enterprise. I learned that from the parameters it is quite easily to deduct the viability and economical stability of an enterprise. The process of constructing a business plan from a give model took form through the good material and the instruction from the entrepreneurship center."*
Example of meta-level expression	Domain knowledge: "*I need concrete help and training for my own business plan. The correct address for receiving that could possibly be the government's advising agency. My knowledge on countryside travelling business is also too shallow. For this there is literature available, but a training session by an institute would be in order."*
Conation **Expression**	Action control: *"Nobody has to be dragged along with the group but everyone strives to do one's best and invest in the effort."*
Example of meta-level expression	Action control: *"I felt myself receiving something else in exchange. I was the first to announce that "I'm allowed to do what I want". This was the element of freedom that also the research indicates entrepreneurhip to bring."*
Affection **Expression**	* *"I felt truly happy. [The beginning of the 15 credits unit suited me well timing wise.]"** *"After meeting the people of the group for the first time I felt like I'd rubbed elbows with them for a long time already."*
Example of meta-level expression	*"[…] Another praiseworthy thing is that all the group members were enthusiastic about our effort, inspite their other obligations and hurries in work and studies. This enthusiasm is contagious and has made studying extremely fun and rewarding. […] Also it was obvious*

	from observing the peer-group activity, how it had evolved. Most of the groups had truly examined their peer-group's work and considered the possible improvements to be implemented. In this sense, the peer-group activity should be first and foremost consoling, seeking for the positive and good qualities and aimed at improving the products, sustaining not that much focus on the negative or failed things."

Both the references and meta-references are cognition dominated. Almost seventy percent of all meta-level reflection of the constructs is focused on the cognitive content, whose reflection is fairly evenly distributed over the path of seven consecutive modules. Also, it is obvious that all three constructs are represented in the references. In the meta-level however, especially the affection-related references seem to disappear and also conative references are proportionally less represented than the actual proportion of references assumes.

To look into these in more detail we constructed a concept map describing the relationships inside each construct.



(size of a sub-category relates to the frequency of coded references, size of the main construct to the relative size summed from the frequency of references in the sub-categories)

Figure 3. Expressions of constructs of personality with their associated sub-categories.

Within the cognitive category's sub-categories the reflection focuses on the areas of strategy and domain knowledge. This is largely due to the students' tendency to reflect on the decisions done in order to solve different kinds of problems mainly related to coordinating collaboration and organizing own action accordingly. The understanding of the strategic reflection being connected with collaborative operations gets support even on this level of representation, while viewed in context with the results from the open coding stage and especially when observing stress being received by the 'Orientation towards Self and Others' sub-category within the conative content.

The second large sub-category within cognition labeled 'Domain knowledge' should also be investigated in close contact with the previous two. At the same time it is instructive to view it alongside with the understanding of the prominent weight that comparative reflection on studies and praxis represents within the results of open coding. Here, looking at the open coding category, 'Studies' are seen as both the content and materials used in

teaching, and also the pedagogically grounded action of the task setting. 'Praxis' in turn is the professional and everyday experience of the student related to the subject of teaching and studying.

In addition to the interplay between cognitive and conative constructs the main finding is the apparent significance of the amount and quality of action for the processes being accessible to reflection. The strong presence of the elements of 'Procedural knowledge' presented by the reflection on *how to act* gets even stronger, when taking into account the amount of reflection on skills. Skills can be reflected as either being learned as a result of studying or as operating as resource or limitation for the variety of strategies being available for application.

Secondly the aforementioned generally positive nature of the reflection reveals itself here, too. The content related to the construct of affection holds within the second largest, single theoretical category of 'Emotion'. This is due to students' notable tendency to eagerly name and point out positive feelings and emotion throughout and across the reflection on different themes – to say, events, activities, and stages of the study path.

At this stage we can say that all three constructs are present and also that action and positive emotions are extremely visible within these constructs and also that the reflections are written as interplay between these three constructs. However, to look more deeply into their interplay we still identified the transitions between different constructs. Transition is defined as a distinct, sequential passage within text from reflecting one construct to reflecting another, throughout which the narrative and thematic focus remains unbroken. The analysis of such transitions was done to understand the dynamics of reflecting constructs of personality in more detail, e.g. in which kinds of sequences do constructs get reflected in context with one another. Among 1686 references 238 transitions were identified.Their relationships are presented as a concept map in Figure 4.

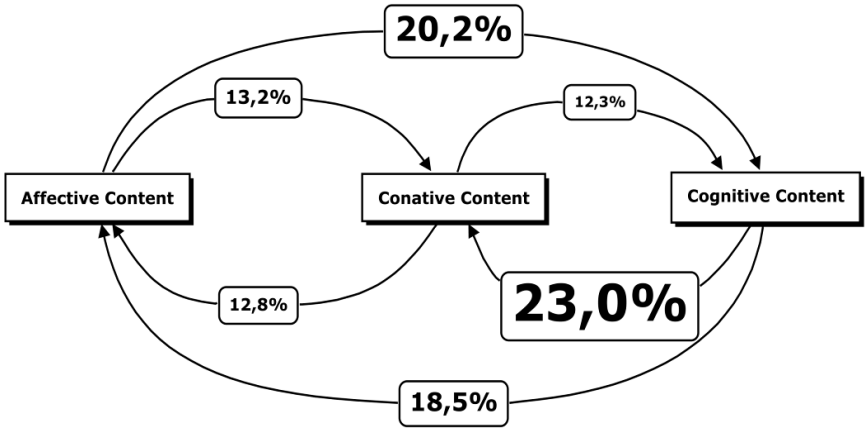


Figure 4. Transitions between the constructs (N 238)

Table 5. Examples of expressions of transitions

Transitions	Examples of expressions
From cognitive to conative	Will the assignment fail, if the references aren't the "correct ones"? When searching for the idea of the entrepreurship education, from the perspective of the subject, this is in turn an "academic" conflict which is the evaluation criteria used for not ending up "murdering souls" once again? On the other hand, there emerged an idea, that we definitely won't be content with ourselves receiving "less than two" [for a grade]… …this to notify [teacher], even though we're not promoting rivalry for it's own sake.

From conative to affective	[...] On the other hand, there emerged an idea, that we definitely won't be content with ourselves receiving "less than two" [for a grade]… …this to notify [teacher], even though we're not promoting rivalry for it's own sake. We are in that sense "typical female entrepreneurs, for whom the entrepreneurship is a way of life". This perspective of female entrepreneurship has come up also, when […]
From affective to Conative	I've managed to form a distinct feeling about things that motivate me and to which I'm committed to invest my time and resources. I'm not even going to collect the necessary credits from courses that are not interesting or useful concerning my future.
From cognitive to Affective	* During the 15 credits at hand, I've aimed at extracting as much as possible out of the subject. Even though the studies have taken time –meetings, emails, reading, writing- studying has been in general rewarding and good for self esteem. * We aim to read up on the theory widely and variedly. Surely our work must meet the requirements of the assignment and be contextually relevant. Therefore our products tend to swell to relatively large dimensions and in particular with this period the tightness of the schedule caused slight anxiety.
From affective to Cognitive	* I experienced a sensation of insight each time I started to work on a new paper; yet again I'd learned to think about things from another perspective. * We also felt positively about the relatively similar world of ideas. Questioning took place too, which produced contemplation and conceptual clarification.
From conative to cognitive	I anticipated especially Iris Aaltio's lectures with great interest, for earlier I'd gotten acquainted with her articles about female entrepreneurship. Ulla Suojanen's lecture on sustainable development in turn provided new learning, for she highlighted such perspectives I wasn't familiar with before.

Now looking at the relationships between three constructs, it becomes obvious that all of them are important in learning interventions. Cognitive related relationships cover 74 percent of transitions, conative related 61.3 and affective related 64.7 percent. The transitions between the three constructs take place in all directions. The most coded transition is from reflecting cognitive to conative content and the second-most coded transition is from affective to cognitive construct. It is a very common pattern within the data for the reflective writing sequences to initiate from recollection of having distinct emotions connected to different stages of the studying path and the related actions.This can be seen as an indication of how the catalyst nature of affective construct manifests itself also within reflection.

Selective coding: Now, as the selective coding assumes, we can select the core categories and relate them to other categories thus compiling a tentative model for further development. As Strauss and Corbin (1990, 116-142) express it "put the data back in new ways".

The open coding indicates that action orientated pedagogy stimulates reflections and meta-abilities. Collaboration seems to be the key element of the learning and meta-learning of entrepreneurial and enterprising readiness. The research design of this study enhanced entrepreneurial and enterprising learning process.

Axial coding shows how all three constructs; affective, conative and cognitive, are present and involved in the three construct dynamics, although metalevel affective reflections are missing. Conation orientation towards others and self are reflected the most which is presumably grounded on the fact that courses designed were based on the collaborative pedagogy.

All the results point out that affection seems to stimulate action in the cognitive construct, collaborative learning stimulates action and affection. Conative construct is stimulated by action. The meaningful element of learning is "significant others" (cf. Vygotski), which enhances reflection processes and the emergence of meta-abilities. The results highlight that affection is under-reflected which as consequence will give us an idea that the conative process for this reason is not present enough in learning entrepreneurial and enterprising readiness.

As a conclusion to the selective coding phase we can answer the research question of "how the dynamics of cognitive, conative and affective self-regulating abilities interplay in entrepreneurial and enterprising learning process?" as follows: the interplay between the dynamics of affective, conative and cognitive meta-abilities are present in entrepreneurial and enterprising learning process, especially if it is designed from the basis of collaborative learning. Moreover, meta-abilities are reflected but the differences between the reflections of these constructs indicate that for some reason we cannot advance the reflection of meta-affection which would empower the reflection of conation and which as a consequence would enhance entrepreneurial and enterprising behaviour.

Thus our tentative model as a suggestion for further studies to be developed towards theory is that: affection stimulates action in the cognitive construct and collaborative learning stimulates action and affection. Conative construct is stimulated by action.

Thus getting deeper access to meta-affective processes seems to be the key towards influencing on the conative construct which is the key of stimulating intentions and as Aizen (1991) suggests intentions best anticipate performance.

Conclusions and implications

These results indicate that all constructs emerged in these entrepreneurship education learning interventions as well and transitions between them. The study indicates how affective meta-abilities, affective, conative and cognitive, constructs determine our learning processes. Thus to take into account more this interplay might help to enhance entrepreneurship in general.

However the disappearance of affective construct in meta-level reflections might reflect our poor ability to enhance entrepreneurial attitudes and values both found important for example in research of intentions. Strengthening these underrepresented elements might enhance students' reflection and self-regulation processes and as a consequence empower entrepreneurial and enterprising learning. Such ideas encourage us to suggest that this stream of research should get more emphasis in entrepreneurship education research.

However, it should be noted that even the key concepts and their relationship are defined this research still is a very tentative and thus need a lot of efforts to reach the state of theory.

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