

Work in progress: building a systemic Talent Education Approach

Evaluation of the Erasmusplus Project

“The development of a program of identification, new teaching methods and a chain oriented approach to prevent underachievement of gifted and talented”

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“Self-evaluation to optimize Impact”



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Preface

This report concerns the evaluation of the entire Talent Education project. This project is based on a general question and includes five program lines.

The central question is: *How can talented be encouraged to use their talents during their school career to prevent underachievement and early school leaving and what is needed in the context of cooperation between educational sectors and other stakeholders, the skills of teachers and teaching materials.*

The program lines are designed to provide building blocks for appropriate answers to this question.

The original design of the program is based on the presentation of a number of separate reports to reflect these answers. During the project it came clear to the project team that it would be preferred to combine the reports and to integrate them into an "Evaluation" or "Impact Report". An exception has been made for a scientific study concerning a Research & Development program for Metacognitive Skills.

In addition the project team decided to develop for all educational program lines "toolkits" for teachers, along with brochures with a short overview of these toolkits.

The reason for choosing an integrated Impact evaluation is, on the one hand, that the program lines cannot essentially be separated from each other. They complement each other and form a package of building blocks for suitable education for Talent Education. On the other hand, right at the start of the project it was clear that the project was more served by a process of self-evaluation than by separate external evaluative measurements. With the choice for a self-evaluation trajectory, the focus has shifted to a development-oriented project that focuses on learning.

This report is structured as follows:

1. Chapter 1 presents the self-evaluation philosophy and methodology
2. Chapter 2 describes the project's aims and objectives, as represented in the Application and describes the actions that have been taken to develop answers and approaches. In particular attention is paid to the development process and the learning points from this. This chapter can also be regarded as an explanation for the choices we made and priorities we set.
3. In chapter 3 the results of the project are presented and compared with the critical success factors and quantitative and qualitative criteria as presented in the Application.
4. In chapter 4 conclusions are drawn and recommendations made.
5. Finally in the annexes the results of the project are compared with the original set quantitative and qualitative indicators.

I (Self-) Evaluation philosophy and learning methods

1.1. (Self)-Evaluation to optimize impact

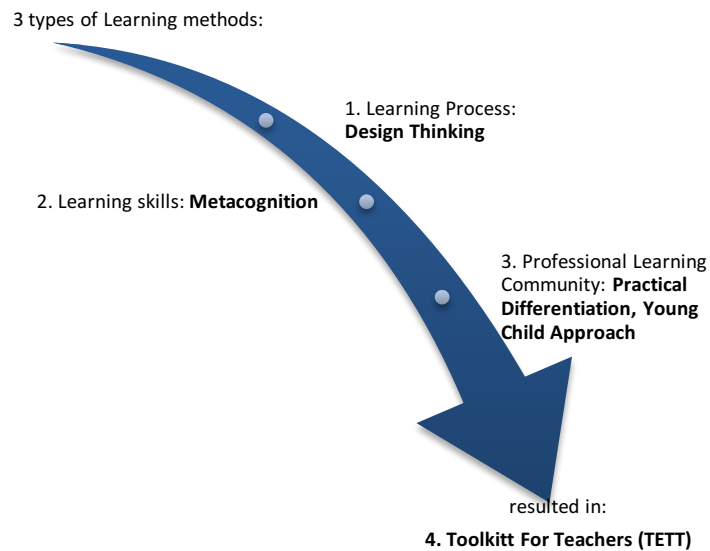
In the talent education project evaluation is an integral element. From the start it was clear that the kind of evaluation included in the project would be basically a self-evaluation. This implies that it concerns an evaluation that is self-initiated and self-regulated with the aim of continuous improvement of the project during its life span. A self-evaluation is meant to support the professional learning of partners involved. To facilitate this kind of learning process evaluation was made part of meetings, of pilots, and of the co-operation between partners. Self-evaluation itself in the envisaged way was considered as a trajectory of professionals learning. Throughout the years of the project the evaluation was supposed to move from a focus on sharing observations towards a more constructive approach of evaluation to support the actual implementation of pilots and mobilities, and eventually to the impact that the project intends to establish. It was decided that the evaluation would be focusing on optimizing the impact of the project from the start. In order to organize a self-evaluation with a focus on creating optimal impact a distinction was made between four kinds of impact:

1. **Longitudinal impact.** This means how long does the participation in the project show its results in the chain of learning process, learning outcomes, change behavior and effects of this improved behavior. An indicator of longitudinal impact is the extent to which partners have made plans to continue project activities beyond the funding period. This applies to all individuals affected by the partnership including students, teachers, school leaders and other facilitators.
2. **Transversal impact.** This refers to the number of subject areas or themes covered by the project. How widely does the changed approach pervade into t parts of the school's, or children centers program, of that of other member organizations. Here the focus is on widening the scope to other domains or subjects than the ones initially included in the project.
3. **Horizontal impact.** This refers to the number of people reached. How many people are affected by the project? Here the emphasis is on the number of people reached, the number of people influenced by the project.
4. **Vertical impact** refers to the level of power reached in influencing the school/ system. How high up have people and what is more have decision makers been affected by the project (at school level regional level, national level, international level). Innovations without support structures, without leadership back up and without other facilitating conditions tend to fade out after the project period. That is why the vertical impact is stressed in this project

1.2. Three types of learning methods

Since learning is the core them of the project itself as well as of its self-evaluation and tempt is made to choose an evaluation approach that matches the key ideas of the project. In the project three pillars may be distinguished as far as learning is concerned. Two of them relate to the learning of

students and the third to learning of teachers and students both.



1. Learning Process: Design thinking

One is design thinking, an approach to learning in which learners go through cyclic a step by step procedure.

2. Learning Skills: Metacognition.

Another pillar is formed by the idea that learning includes the development of metacognition. These metacognitive skills also emphasize the elements of anticipating, planning, designing, describing, dialogue and reflecting applied to one's own learning trajectory. The focus is not on the actual construction of the project products but on the meta level cognitive skills developed and how that turns participants into mores skillful learners. With its intention to make the self-evaluation a shared and reflective process aiming at professional development of the ones who take part the evaluation also shows congruence with this metacognitive learning model.

3. Professional Learning Community

The focus on learning, design thinking and metacognition is not limited to the learning processes of the pupils/students. In the Talent education project teachers and other professionals are involved in a similar process of learning. Actually they take part in a learning community in which learning is integrated at various levels. The first level as mentioned is referring to the learning of pupils/students. The second level refers to the teaching that is needed to promote the learning aimed at in this project. Thirdly a level is distinguished of the learning environment that is needed to promote both the desired learning and teaching, and fourthly we distinguish the level of professional learning teachers engage in, in order to prepare and manage their teaching and the learning environment of their students, and of themselves.

The levels mentioned here are all included in one learning community in which initiative, co-operation, dialogue, reflection and self-evaluation play a major role. The design of the self-evaluation with its focus on impact as established in the project is based on the same philosophy as the approach to learning. The self-evaluation of impact serves processes of professional learning in a

self-initiated, experiential, reflective, co-operative way. Learners at all levels are approached as self-responsible learners managing their own learning, and/or learning how to manage their own learning.

4. Toolkit for teachers

To be equipped to manage the learning processes the teachers established a toolkit that helps them to teach conform the philosophy of the project and to further elaborate and articulate this approach, and its application in school practice.














II Evaluation of the project objectives and activities

2.1. The survey method reconsidered

Originally the evaluation plan of the project included a survey to identify the situation at the beginning of the project. It was intended to repeat that survey towards the end of the project in order to compare the data, and identify progress. The first attempt to administer the survey was not successful. The response was very limited. In meetings in which we tried to promote this survey and its meaning within the project it appeared to be difficult to convince teachers and other partners to fill the forms. Apparently people felt reluctant to speak up in public, even when only in writing. This convince the project management that it might be better to focus on the internal dialogue among the teachers involved to get a real picture of what they felt the impact of their efforts was. That way we would get a more valid insight in the course of events than if we would impose a survey on them.

Another complication was that we discovered that the administering the survey twice would not involve the same group of students, so the possibility to ink progress to the teaching methodology would be almost none. This was another reason to put this idea of a survey aside and focus on group dialogues among teachers both nationally and in international meetings to gain insight into the learning processes at all intended levels including the pupils/students, teachers. School leaders/managers.

In retrospect we are happy with the decision to skip the survey and alter the course of action emphasizing the dialogue rather than the survey. This came much closer to the basic philosophy of the projects which values, co-operation, self-evaluation, reflection and dialogue. In our understanding we thus strengthened the inner consistency of the Talent education project and emphasized the idea of one approach for all.

	=	141	Teachers involved in training events Metacognition: 12; Design Thinking: 38; Practical Differentiation: 28; Young Children approach: 39; Besides app. 25 teachers additionally trained in Metacognition
	=	6	Transnational meetings 1 in 2015, 2 in 2016, 2 in 2017 and 1 in 2018
	=	292	Pupils included in mobility Pupils were involved in 8 programs accompanied by 30 teachers.
	=	1	Chain approach No separate instruction report for chain approach. Instead a scientific article about the Chain Approach in Leiden (De Leidse Aanpak) as a good practice and a report on the opportunities of a chain approach in Ljubljana ("Chain Approach Ljubljana)
	=	4	Number of manuals 4 brochures and 4 web-based manuals for teachers (Talent Education Toolkit for Teachers (TETT), including manuals and lesson-plans.
	=	2	Scientific reports 1 scientific report on the Research on improvement of Metacognitive Skills and 1 combined report on the Impact and Effects of all 4 program lines and chain-approach.
	=	8	Presentations at conferences Ljubljana (1), Portoroz (Slovenia):3 Brno: 2, Leiden: 2, Vienna: 1, Dublin: 1.
	=	1	Conference organized by the consortium Leiden 6st of June 2018: Focus On Talent (in cooperation with the Leidse Aanpak voor talent ontwikkeling (The Leiden Approach)
	=	1	IT tool: e-community 4 E-tools: Web-based Toolkit for Teachers, for all 4 subjects. Besides on the Project website an E-tool for sharing results and publishing lesson plans; www.talenteducation.eu/toolkitforteachers
	=	1	Project website www.talenteducation.eu
	=	2	Interim reports Published by Erasmusplus.
	=	1	Final report To be published by Erasmusplus
	=	4	Brochure European project we published 4 brochures based on the 4 program lines. We published no general brochure

2.2. Project objectives¹

The partners want to develop a sustainable and structural approach which supports top talent in the further development of their talent and thus preventing underachievement or dropouts. General question of the project:

How can talented students be encouraged to use their talents during their school career to prevent underachievement and early school leaving and what is needed in the context of cooperation between educational sectors and other stakeholders, the skills of teachers and teaching materials.

Given the general question the project consortium carried out three objectives that led to the following results:

1. Improving range of lessons

Additional education can be offered to students who need less time for the regular lessons. This can be in the form of additional courses such as philosophy and Spanish, students can also get additional assignments for example in the context of mathematics and lessons in the context of the development of metacognitive skills and design- or inquiry based learning.

In the secondary education the curriculum can be extended with subjects in the subjects of entrepreneurship. The possibility for taking further courses can be added in the third level of education.

Results

New education is created by

- implementing Design Thinking in Education on Primary and Secondary schools;
- making manuals for implementing Metacognitive Skills in learning tasks on primary schools;
- applying new methods for Differentiation based on 1) “the whole task first” 2) integration of personal and subject perspectives in differentiated teaching;
- creating new tools and protocols to identify talents by very young children (based on intelligences of Gardner and Bloom),
- creating new tools to challenge young children (toddlers and young pupils); adapting, further developing and elaborating existing tools for gifted and talented children.

All results and tools of this new education are available in the Toolkit for Teachers, developed in the Talent Education project www.talenteducation.eu/toolkitforteachers

2. Strengthening the skills of teachers

The quality of teacher education and the quality of the current teachers must be increased. Skills to cope with differences between students are central focus points. This is especially important for top talent. Specially for them is the ability of teachers to recognize talent early on and to adapt the education towards the needs for further development of top talent.

For optimizing talent development it is important that exceptional talents of a child are recognized from early age on and consequently being monitored. Teachers at the pre-school (and in the Dutch educational system in the first grades of the primary school) must be trained in the way they can use these instruments for detecting talent.

Results

¹ Text fragments derived from the application form of the project as submitted to the EC.

During the project on different occasions teachers from all partners are trained in a practical way. After instructed in methodology by scientists and experts teachers have been coached to develop their own lesson practice and to implement coaching on the job by applying methods in real practice. Teachers exchanged their practice using the TE IT-tool. Besides in the Netherlands (Leiden), supported by the Leidse Aanpak voor Talent Ontwikkeling (the Leiden Approach) Professional Learning Communities of teachers have been developed, in which practices are further developed. All materials, tools, manuals, lesson examples are available for teachers in English, Dutch and Czech language to strengthen the skills of teachers further. The toolkit is widely spread in Dutch, Czech and Slovenian schools, strongly supported by national institutes and/or big boards of schools.

3. Improving the co-operation

Improving the co-operation in and around education with system partners, with chain partners and transnationally. The Talent Education project is aimed at improving two levels of cooperation between stakeholders:

1. Cooperation between schools and all kind of organizations in society: Top talent can be more challenged with enrichment by practical or further development in certain subjects. Cooperation with other schools, higher education, sports and cultural organizations, parents, businesses and public institutions can help and challenge schools to inspire students and teachers
2. Cooperation in the chain: students who come from (PE) school have their own special level of knowledge and set of skills. Schools in secondary education must be informed of this to be able to connect to this. This also applies to the transfer between pre-school and primary education. Knowledge transformation to these top talents from pre-school to primary and to secondary education must be better focused on a subsequent individual learning route. Students with an advancement in intellectual development should be able to continue to work on their own development level.

Target groups of the project are the talented preschoolers (toddlers), school pupils in primary and secondary education and their parents and teachers. Schools and regional and local authorities are also part of the target group.

The project is implemented transnational, because transnational cooperation increases the effectiveness of integration and understanding of legal contexts in the chain approach (collaboration between different educational institutions and regional embedding). Furthermore, this type of cooperation facilitates better promotion of innovative activities and transfer of project results into policies and practice. Teachers can learn from each other and new methodologies can be developed once and now and trained and not separately in each region. In addition, transnational cooperation offers opportunities for exchange of students.

Results

The Talent Education project stimulated the chain oriented Leiden Approach of Talent Development strongly. About 50 organizations from pre-school to university, and from school organizations to talent centers, support centers and museums cooperate to encourage talent. The TE project functions as fly wheel by providing all kind of practical and theoretical tools and by organizing working platforms and courses.

In the Czech Republic cooperation with regional authorities has been developed. The Regional Authority of Pilsen (lead by the Deputy Governor) is planning to organize seminars on different subjects to strengthen skills of teachers in Kindergartens, primary and secondary schools, faculties of the Masaryk University in Brno organized in the eastern parts of the Czech Republic (Olomouc, Brno and elsewhere in South Moravia) seminars on Metacognitive Skills, the Czech National Institute of Further Education (NIVD (Czech) or NIFE (English)) is spreading the Toolkit or Teachers to schools in the Czech Republic, will organize seminars on Differentiation and Design Thinking. JCMM (the Center

of Youth Mobility in South Morava), plays an important role by translating the toolkit in Czech and by connecting different educational institutes in the program.

In Slovenia the National Educational Institute (NEI) promotes the Toolkit for Teachers on all Slovenian Primary and Secondary schools and will organize seminars on Differentiation. Appointments are made with the Faculty of Education of the University of Primorska (2nd largest university in Slovenia) to disseminate the Toolkit of Teachers widely in Slovenia. In Ljubljana contacts are made with the City Government are made to set up a City Center of Expertise for Talent Education. An (inter-)national Institute for Talent Education has just been founded, as a sustainable “spin-off”. The ZVIS organization created a network of app. 25 Kindergartens to implement and develop new approaches for young children.

Transnationally the project resulted in **8 exchange projects** in which students were encouraged and challenged in finding their abilities, in international cooperation and in using English as common language. Teachers of the involved countries had a good and practical cooperation exchanging their practices. Much emphasis is laid on (international) feedback.

2.3. Project activities²

Given the objectives different activities were carried out in the Talent Education project that led to the following results:

1. New education

New education will be developed including design thinking and metacognitive skills.

Results

A Talent Education Toolkit of (TETT) has been developed for all 4 subjects (not only for Design Thinking and Metacognition). The TETT consists in a website for every subject and a leaflet, with a summary of the content of the website. The leaflet Practical Differentiation can also be used as a manual for teachers separately from the website.

The Toolkit is the outcome of the learning process of the teachers during the years of the program, starting with the training courses in October 2015, and ending at the Conference “Focus on Talent” on which the Toolkit was presented. The Toolkit is composed in a close cooperation between the experts who inspired the learning processes (Prof Dr. Fred Janssen (University of Leiden ICLON for Practical Differentiation, Dr. Marcel Veenman for Metacognition, Drs. Lineke van Tricht for Design Thinking and Mag. Maruska Zeljeznov Senicar (MIB - Ljubljana) for Challenging Young Children. Teachers tested manuals and step action plans, and developed lesson plans or projects.

Originally we indicated to develop only new methodology for Design Thinking and Metacognition, but during the program Talent Education and arising from the general problem of the project it was soon obvious that it was most useful the develop new approaches on every topic and made available for teachers and educators directly applicable in their classrooms. With help of extra support of the involved partners the program could be expanded and be so productive.

2. Teachers’ skills

Teacher skills will be strengthened in the field of identification and approach of G&T 2-6 year and practical differentiation.

Results

² ²Text fragments derived from the application form of the project as submitted to the EC.

In addition to the expansion of the methodologies, described above, we chose for an approach to strengthen the skills of teachers *on all 4 subjects*. Cooperating in Professional Learning Communities (PLC's) teachers have been instructed and inspired by experts and developed together needed skills and tools. Manuals and tools have been developed in the form of step action plans in lessons, protocols or guide-books. All manuals and tools are presented in the 4 Toolkits. Overall, the following skills of teachers have been strengthened:

- *Personalized learning*. Based on new insights about the needs of *Differentiation* by teachers and students oriented on more *personalized learning* the method Teaching with Perspectives has been connected to “the Whole Task first” method, resulting for the first time in a unique integrated methodology for Differentiation in almost every subject in Secondary Education. This new methodology can be the way by which the apparently persistent dilemma person-oriented versus subject oriented can be solved. Thanks to Fred Janssen (ICLON) and the involved teachers the approach could be a very valuable contribution to challenge talented and gifted and present education beyond the written standards of the curriculum.
- *Identification*. With help of the Talent Education project pedagogical educators are firstly more aware and subsequently more empowered to identify all kind of signals in *very young children* who are ahead in development and give them a differentiated approach based on the insights of Bloom and Gardner (higher thinking intelligences and multiple intelligences). The learning courses in PLC's in Ljubljana and Leiden (“Week of the Young Child”) resulted not only in the development of new tools and protocols (presented in the Toolkit “Challenging Young Children”) but also in new Learning Courses for teachers and educators (Leiden e.g. training “Ambassadors” Talented Children for Pre-school). The Toolkit presents also protocols to recognize factors of underachievement in Young children from Pre-school to the first grades of Primary Education and pays also attention to skills to communicate on a more appropriate way with children with a lead in advancement (“talent whispering”). An additional value of the new approach is the holistic view on which the toolkit is based. This view is clearly explained in the toolkit.
- *Learning skills*. The toolkit *Metacognitive Skills* enables teachers in primary education to expand their teaching repertoire to perform learning tasks by pupils. Steps action plans, tips, do's and don'ts help them to guide their students to use more of their learning abilities. These skills are exercised and trained in both the learning activities of the project (in October Prague 2015) and in additional learning trajectories and PLC's in every partner-city (additional to the project). The results of these learning activities are presented in the Toolkit Metacognitive Skills which is available now for every teacher in Europe to support their education in learning skills.
- *Problem based learning*. Improving skills of teachers to challenge students finding their “ceiling” of learning abilities is the main objective of the method *Design Thinking*. Teachers are instructed and inspired to use this problem-based learning methodology in addition to more regular subject based methodologies. Just like in the other subjects the Talent Education focuses on 3 strategies:
 - a. to instruct and inspire teachers involved in the program first with insights and knowledge,
 - b. to give them opportunities to develop their teaching repertoire in PLC's both inside and outside the program;
 - c. to present the results in a Toolkit available for all teachers. Besides in this TE program-line teachers tested and evaluated the methodology in a range of student exchanges based on Design Thinking. These exchange activities functioned as laboratories for teachers. Best practices are presented in the Toolkit as ideas for projects. Guides for “coaching students in DT”, developed for these exchange projects, are also available in the Toolkit.

3. Developing a chain approach

In the description of the program the ambition is to establish a systemic chain oriented approach to develop talent in all in all involved cities.

Results

Looking back at TE project, we can distinguish several aspects in the development of a chain approach:

- a. Problem awareness the *prevention of underachievement*.

It turned out very quickly that the start situation in the four cities was different on many ways:

- First the *awareness of the problem statement* must be mentioned. Not all partners were convinced that *underachievement* in education related to the gifted and talented is a real factor of risk in their schools. School directors and teachers of all partners are indeed consciously working to get the best out of students. They are eager to contribute at development of the very talented. But it turns out that involved schools in the Czech Republic schools focus their policy very much on “proven” talent. While in the Czech Republic the strategy is oriented on competitions (Olympics, Kangaroo contests), an institutional school reform (e.g. 8 years gymnasium and selection of students before Gymnasium and a strictly formulated new curriculum for schools (exclusive approach), in Slovenia talented are widely diagnosed on factors of talent early on Primary Schools. This is result of the policy of the National Educational Institute (NEI). This doesn’t automatically result however in a systematic transfer of data between sectors or exchange of knowledge within sectors.

The cooperation between schools in “De Leidse Aanpak” is more oriented on the issue of prevention of underachievement. It was originally a part of the mission statement (see below). All schools of Primary and Secondary Education involved in the project work from that premise. However not all teachers are fully aware of the problem statement, and/or feel themselves fully capable for differentiated and effective actions. Schools with an explicit formulated “talent-policy” gather systematically information about signs of giftedness (e.g. using the SIDI- 3 diagnostic tools in primary schools³) but improvements could be made for transfer of data. Up to now the national government stimulates actions for “proven” talents (e.g. acceleration of or within the curriculum, benefits for proven talent to studies), but is not able to establish actions to “potential” talents – that’s part of the school. Nevertheless the educational policy on national level offers much space for an adaptive approach in schools. National educational institutes promote that. The Leidse Aanpak uses this space to stimulate schools to go ahead in their approach towards identification and prevention of underachievement.

- If we focus on the *needs of schools and teachers* to work systematically on (new) approaches for talent education we saw also different images. In schools in Brno e.g. directors and teachers in Secondary Schools indicated at the start of the project that schools offer high standard education, based on the skills of highly trained professionals and oriented on students of proven talents (by selection and competition). The focus in a program of Talent Education in their vision should lie on exchange of practices and organizing attractive programs to get in touch with other situations and practices. From the start of the Talent Education program it seemed to be an important challenge to “seduce” teachers with new approaches and methods in order to discover that these give opportunities to get still more out of their students, or by using these they could be still more effective. In Ljubljana most involved teachers showed their eagerness to explore new methods, apparently because of their need for more capabilities to handle underachievement. The same was the situation in most of the Leiden teachers.

Apart from the educational needs of teachers the question is whether teachers are in the position to function as “change agents” (John Hattie) in adapting their didactic and pedagogic repertoire, or the scope of their lessons by differentiation. This concerns on one hand the idea of teacher leadership (a teacher should be in charge to shape the learning process) and the other the space teachers have within the limits of the “fixed” curriculum. The outcome of the

³ The SiDi 3 protocol is a (dutch) signaling and diagnosis protocol for pupils in all grades PE, presented in steps. It contains tools to chart the developmental advantage among pupils and the degree of high giftedness.

discussion about this issue was rather different between cities or schools. Still given the apparently rather strict prescriptions of the new Czech curriculum in relation to those of Slovenia and the Netherlands the conviction in all partners grew that there is enough space for adapting new approaches and learn from the project be still more effective in talent education. This turned out to be the result of the learning process of the Talent Education project.

b. Networks and existing chain elements

A chain oriented approach must be funded on existing networks to be successful. The start situation in the cities was very varying:

- A strong network existed already in **Leiden** in the Leiden Approach (de Leidse Aanpak) with opportunities for transfer of knowledge, the organization of PLC's or other knowledge sharing of teachers and educators, stimulating interventions in all stages of the chain of education from pre-school to university. The Leidse Aanpak is strongly supported by the Municipality of Leiden. The participation of almost all schools in primary and secondary education, most of pre-school organizations, institutes of higher education (Leiden University, Leiden University of Applied Studies), educational departments of cultural institutes (e.g. museums), and support centers is an excellent condition of an integrated chain oriented approach. Still the network itself is not a guarantee of that approach. This is dependent of the question whether and how participants are committed to chain oriented actions in talent education c.q. prevention of underachievement. An issue for instance is the systematical identification of talent and consequently the risks of underachievement by diagnostic "tools" in primary and secondary education, the setting up of tutorial support-systems in schools based on a systematical identification strategy, the transfer of data gathered by this strategy.
Networks like the Leidse Aanpak don't exist in Brno, Ljubljana or Pilsen, nor do they in other cities in the Netherlands. The question is if this model is transferable to other situations, and if it would be wise to make attempts to that. Other chain elements are certainly visible in the other partner-cities.
- In **Brno (CZ)** chain oriented elements in education are developed between schools, companies and universities. They are based on "mobility" of students and teachers, JCMM is in charge to organize all kind of exchanges. It is not especially oriented on gifted and talented or prevention of risks of underachievement, but certainly offers opportunities to explore talents. That is the reason partner schools in Brno (as do schools in Pilsen) look for international exchange programs of high standards. JCMM also organizes different programs which stimulates talent education, like the promotion of scientific research on secondary schools, program for gifted students to develop themselves in peer groups coached by buddy's, programs oriented on competitions. Most of the programs are focused on students to support their development, less on educators. The Talent Education program is a welcome addition in this palette of projects since it is oriented on educators.
For Brno or the Region of South Moravia we didn't found a role of local authorities in organizing network activities for talent education. We certainly saw opportunities and actions of the Faculty of Social Studies of the Masaryk University to connect schools to the Metacognition program. The organization of Dalton Schools, the University, JCMM organize conferences on Talent Education or special issues concerning development of Talent.
- In **Pilsen** the cooperation between the Gymnasium Ludka Pika and Laboratories of the University benefits talent education, the school is engaged in international networks based on cultural and language exchange (e.g. Spanish). Radovanek maintains a network of leisure centers to promote creative and cultural talent development. It steers also a network of Kindergartens, in which programs of talent education (oriented for instance on children with an advancement in development) could be developed.

In Pilsen the Regional Authority of Pilsen maintains connections with all primary and secondary schools and institutes of higher education and promotes educational programs or stimulates excellency of teachers. The RA organizes seminars on educational issues and competitions for students. This network could be beneficiary for a talent education program. The Pedagogical Faculty of the University of Pilsen maintains connections with schools of mainly secondary education and is involved in organizing after-school programs of teachers on didactical issues. The Faculty could be interested for the program lines of the Talent Education. In every city of regional importance a branch of the National Institute for Further Education (in Czech: NIVD) is active. The NIVD has developed a national program for the gifted and talented, is involved in the setting up of this Talent Education program, and could offer possibilities for dissemination, knowledge sharing or organizing seminars of teachers.

- In **Ljubljana** secondary schools organize programs in which companies and schools cooperate. The Vegova Gymnasium can be considered as a technasium (electro-technique and computer science as focus points) and organizes many practical exchanges with companies in which talent can flourish.

ZVIS maintains good connections with schools and Kindergartens on city level (Ljubljana), is able to provide and promote educational programs for the needs of these schools and Kindergartens and functions as a center of knowledge and expertise in talent education. It maintains an international and national network on gifted and talented children and can organize seminars and conferences on talent education. ZVIS is however a private organization and works on the level of recognized expertise and knowledge. Its opportunities depend on support and subsidies of other local or national authorities of institutes and own space for activities.

c. *Used strategy to develop a chain approach*

- *Strategy of the process.* To develop the Talent Education program in relation to its goals six Transnational Project Meetings has been organized. Most attention is paid to the subjects Chain Approach and Impact. To stimulate the discussion and the progress a continuous Survey of the Project has been developed, to complete further on each TPM. The project partners agreed to work out 6 topics: the 4 educational lines, chain approach and impact. On each topic a SWOT has been set up for each city – partnership and goals were set. Each TPM discussed the state of art of the progress and appointments were made to fulfill the program as much as possible.
- *Strategy of the content.* Soon the participants concluded that the realization of a systemic chain approach for Talent development in all cities is not realistic. The situation in Leiden for talent development the situation in Leiden shows the most characteristics of a system approach considering factors as the collaboration of almost all educational partners, the stimulating empowerment of the City Council and the structure of an already existing network organization. Important factor in Leiden too is the overall awareness by teachers of the need of a challenging Talent Development program. However, even in Leiden there are some hindering factors for a system approach such as gaps between educational sectors hindering “transfer” between educational sectors, different policies of boards of schools, lack of money to set up programs in schools, and most important lack of time to involve systematically teachers in programs, in relation to other educational programs.
- *Definition of talent development.* The existing definition was increasingly assessed as too much connected with cognitive talent and giftedness and considered as too much exclusive. This was especially the case in discussions in Leiden about the orientation of talent education. The critic of the educational partners arose that the existing definition doesn’t take in account other talents as creative and social intelligences. The result is a new formulation of the mission statement of the Leiden Approach: *Everybody has got talent, but unless it is noticed and used, it will not flourish.* Consequently the paradigm now shifts from the question ‘Who are the talents?’ to ‘What talents does this particular child have?’ As a result a new definition of talent development

has been developed recently, more inclusive, and useful for more characteristics of talent: *Talent flourishes = talent + behavior + context + meaning*. For the chain approach of talent education it means that not the system should be the focus point, but all the elements or building stones education and educators could offer based on the recognition of the talent of each individual.

Finally the strategies we used in the Talent Education project to develop a chain approach turned out to be useful for all other partners and cities in the project. The goal of the project switched from: *how can we develop system elements in each city for a chain oriented approach for talent education in order to prevent underachievement*, to: ***how can we inspire partners, sub-partners, related organizations, local and regional authorities, educational institutes and whoever involved in education to organize building stones for talent development, with tools, means and knowledge developed by and available in the project, and using as much as possible existing networks.***

As a results the partners in the Talent Education program decide to focus on *concrete results and products developed in the Talent Education Program* and to make it *easily available for educators* in Europe and b. on the *dissemination of these results and products* in networks in the involved cities and countries. Chain approach? Yes, but seen as chain of all educational sectors and as a holistic approach with a variety of inspiring tools starting with identification of talent, and empowering educators to let talent flourish with challenging approaches.

III Evaluation of the projects' critical success factors

In the text fragments derived from the application form of the project as submitted to the EC, we distinguish between eight critical success factors that must lead to the following results:

1. Teachers have developed further in education to talented and have spread this knowledge through learning groups in the region

Results

- The Design Thinking method is developed further by PLC's of teachers, within (Learning Activities in Prague and Brno) and outside the project. The results are spread by the publication of the Toolkit Design Thinking and by different workshops in seminars of the Leidse Aanpak and on the International conference "Focus on Talent". More actions will follow soon (e.g. workshops on "The Night of the Teacher (5th of October 2018)
In Leiden Design Thinking is included now in the curriculums of schools: The Stedelijk Gymnasium has integrated the method in the subject "Research" for all 4th grade students. The SCOL schools (Bonaventuracollege and Visser't Hooft Lyceum) integrate it in projects for 3rd graders and connect it to the Profielwerkstuk (thesis). In Primary Schools of PROO-Leiden (e.g. Woutertje Pieterse) and SCOL (Bernardus, Joseph, Pacelli, De Schakel)) Design Thinking is often used for societal projects. Design Thinking is one of the main topics for the program "Peeking at the neighbors" (Gluren bij de burenen) in which teachers of primary education are attending lessons of colleagues on other schools.
In Pilsen and Ljubljana teachers presented the method to colleagues in school seminars. (More information: see "Dissemination" in this report)
- For Practical Differentiation teachers from all cities developed lesson plans, which are published in the Toolkit Practical Differentiation. Teachers in Leiden are active in local PLC's working on this method. Teachers from Pilsen and Brno developed lesson plans on STEM subjects and from Ljubljana on Language. Teachers from Leiden on a variety of subjects: societal, STEM, languages, and sing different perspectives. Five teachers in Leiden wanted to develop more practices and

expertise and applied with success to a national stipendium (teacher scholarship). They all started from the TE project.

- The Step Action plans of Metacognitive Skills (developed in the TE project) are systematically applied on at least 7 schools in the Czech Republic, 1 school in Ljubljana and 8 schools in Leiden. The results are remarkable: in the Region Pilsen the teacher Jana Šopejstalová practiced the method in her school and reported that her pupils achieved excellent results in national and regional Mathematics Kangaroo Competitions and Competitions in Informatics. Pupils of the Pacelli school in Leiden are reported to perform very well on CITO tests applying the method. Teachers from the Anne Frank School Leiden (PROO-Leiden) in cooperation with developed the Toolkit Metacognitive Skills, by which the method easily can be applied by all teachers. Recently a new project has been started supported by the city government of Leiden and the Leidse Aanpak to expand the method to secondary schools in Leiden for improving learning skills of the talented and gifted students.
- The same success for spreading and sharing knowledge and practices can be reported for the approach to young children. After workshops in Ljubljana (2016) and Leiden (2017) protocols and approaches for identification of talents are developed by PLC's of teachers and so called "thinkers keys"⁴ applied in Kindergartens in Slovenia (also outside Ljubljana), Pilsen and Leiden. In Leiden a training for "ambassadors" has been set up, in order to train pedagogical employees on the spot for challenging young children. The results of the work of teachers and educators are gathered in the Toolkit Challenging Young Children and directly available for practice.

2. Pupils experience education as more challenging by participating in the exchange program and following the new curriculum

Results

We gathered information about the satisfaction of participants in the training sessions and have reports from self-evaluation. We have also a scientific analysis about the outcome of learning Metacognitive skills. On line evaluations show that a considerable majority in most exchanges feels inspired and challenged by the DT method and consider it very valuable for integrating in regular education.



⁴ The concept "Thinker Keys" is developed in Queensland (Au) by Tony Ryan: http://www.tonyryan.com.au/blog/wp-content/uploads/Thinkers_Keys_Version1.pdf

Some representative remarks of students about the DT method:

“It opens up your vision when looking for possible solutions to problems” (Enid, Leiden)

“You are forced to think out of the box” (Sébastien, Pilsen)

“ I appreciate the space I get for working on own solutions” (Vojtěch, Pilsen)

“It is great that you are encouraged to learn from mistakes” (Saskia, Leiden)

“DT inspires me because of the collaboration with other students in a (n international) group (It challenges me too in the way I discover different methods of thinking and I should find out which is the most efficient way. And I found! “(Victor (Brno)

“I discovered yesterday that Design Thinking is very interesting. It is quite different from normal school, because you have to think by yourself. Normally it is the teacher who let you think or it are his ideas, but now you have to do it by your own. It is a big difference. Usually you get one idea or one way of thinking, and by DT you consider more and is you who thinks “(Lucas, Brno)

“DT is good for cooperation. Is stimulates to work hard.

It inspires apparently all members of our group, everybody is involved. It should be integrated in normal schoolactivities. It is challenging because you are forced to think a lot and I discovered it is not scary to think together with others and exchange ideas “ (Jana, Pilsen)

“What is very different in DT form normal schoolwork that you get much more space to think about subjects, problems and solutions. It is a kind of frame, in which you can do your own things. Normally you get one frame from your teacher. Than you have to do it in a certain way. DT gives you so much more freedom to work out how you want do something (Jan, Pilsen)

“DT is a new method and you look at a different way to problems and it is new way to make a thesis (profielwerkstuk) (Femke, Leiden)

“I find it very inspiring that you look at solutions.. At school we normally don't do that. That's in my opinion what research is about, that you find solution” (Irene, Leiden).

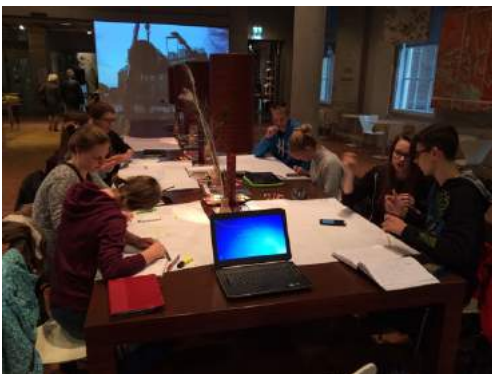
Is DT challenging? Yes! It encourages you to never say “no” to things and gives you a lot of different options to find out what is the best (Femke, Leiden)

A teacher from a Czech school:

“I use some of the Design Thinking principles nowadays. You can actually see children learn to communicate, think critically and consider their own decisions and the opinions of their classmates.” I am convinced that this method fits the education curriculum in the Czech Republic like a glove”. “The Results? Pupils learn the core competences that are essential pillars of education already at an early stage”.

Looking at the long-term impact the project had on individual students we illustrate some personal stories below:

- *“ Nejc was there all the time and his part in project work was enormous - he designed, programmed and realized web pages to present the group work. He was very successful, his work was not only well designed, but also worked well. On the last presentation he had for teachers in our school, he said with a bitter voice – “here I presented a lot of knowledge, but at the end I have negative grade for the subject where this knowledge is veriflicated. Where is the problem? I can say it's an approach. Design thinking helps!”*
- *For Michael (with Asperger syndrome) the teacher insisted that he should join the Talent Education exchange of Design Thinking. Despite a dispute with school's advisory service he attended the program. At the end, he was so happy and grateful he had an opportunity to participate in this project. His work was decisive for success of their group's task. His attitude towards school changed a lot after - in positive way. Later on they found a micro tumor in pituitary gland which affects hormonal balance in the body - and that was the main reason for his sometimes strange behavior. He changed the school and is very successful in study.*
- *“In the first exchange (Ljubljana) a young student at school participated. He is accelerating the curriculum. At school he was very focused on performance, particularly good at calculating and logical thinking. Participating in this project was very exciting and confronting for him. He had an aversion to tinkering and artistic /creative assignments (can even get into tears), but learned in the DT project that creativity is mainly about creative / divergent thinking. He opted for the elaboration of his prototype for a linguistic presentation and has experienced that working with teammates who are artistic /creative helps him to better express his ideas. The DT experience has also taught him that he himself is creative, while he previously thought he could not handle creative tasks”.*



- *“One of my students in the DT project was a pupil with a disharmonious intelligence profile and due to his slow processing his school results were much lower than his general development / talents / interests / verbal abilities would assume. Participating in the DT trajectory may not have helped him with school achievements, but certainly gave him the opportunity to use his talents fully and in this way to increase his self-confidence and so it stimulates him to choose path to gymnasium”.*
- *“In the exchange program for Leiden, a student participated who is very intelligent (not assessed), but underperforms and who exhibits “challenging” behavior. She also showed herself in this way during the DT process, but for her, cooperating using English language and having intensive contact with older students (14/15) proved to be a huge stimulus. During the project, she demonstrated sometimes her usual behavioral features (as in the regular class), but she flourished through contact with peers in development.*

3. Talented students learn how to learn through metacognitive skills

Results

- Students of 11/12 years of 8 schools in Leiden, 7 schools in the Czech Republic and 1 school in Slovenia have been consistently instructed in Metacognitive Skills. Scientific research on 256 of them, 125 in experimental-and 131 in control group, shows a significant improvement of metacognitive skills. The students applied their skills on other subjects than in which they were trained. For the scientific basis: see the “Final Report TALENTEDUCATION – Metacognition” .



- Students from the Holoubkov Elementary school have been reported to perform extraordinary well on three levels of competitions: local, regional and even national, winning different prizes. He all have been trained in Metacognitive Skills and implemented the 8-steps action plans.
- In Leiden reports came from the Pacelli school, after students after training Metacognitive Skills performed well in CITO End test in questions about World Orientation (History, Geology, Knowledge of Nature).

4. Students who’s teachers apply the differentiation methods feel more understood and challenged.

Results

In the project we had no capacity for a representative evaluation of the Differentiation method among pupils. The original idea was to integrate this in the survey method. We explained above (p. 6) that we skipped this survey method and focused on the dialogue between teachers, and between teachers and students.

In order to describe the impact of the Differentiation approach we have to base on what teachers in the project report about their competences. The Differentiation approach has been tested by teachers in their own classes but also after a training week in Brno in classes at the Gymnasium Jaroše in Brno. For some representative remarks see the window in this page.

**Evaluation of Teachers after PLC
Brno (Oct. 2017)**

“I learned to deepen the concept of differentiation and experience in detail when and whether it works or not, and in what situations it could be implied”

“It is very useful that we discussed several “perspectives of learning”, a.o. building on existing knowledge, the (un) importance of performing repetitive exercises, and the social aspects such as presenting, convincing each other, working together. And last but not least, what do you, as a student, like about this subject or part

A scientific explorative design research about the differentiation methodology executed on another group of (Dutch) teachers and students provides more data about the impact of the methodology⁵. Relating to the question to what extent the teachers perceive the approach as practical and suitable for challenging (excellent) students and to what extent the students experience the approach as attuned to their learning needs the results of this study are positive. The teachers who participated (19 student teachers and 41 experienced teachers) experienced the practical usefulness as positive. Experienced teachers particularly valued the items high with regard to differentiation on level (3.6 on scale of 5), good for excellent learning (4.0), motivating for pupils (4.0), challenging for pupils (4.2), increasing own job satisfaction (3,9), forces us to think about content and didactics (3,9). Tested twice (pre- and posttest) students (n=165) showed significant results on items “interest”, “appropriate”. “sufficient adaptive support”, “understood and valued”, “more freedom of choice”.



5. Transfers between the various educational sectors operate better or continuous learning will be created and the personalized education (chain approach)

Results

- As described above the realization of a systemic chain approach in all involved cities was a too ambitious aim. Nevertheless during the project and as a result of the project we saw a growing cooperation between sectors, and many results of the effort of teachers involved in the project which are now available for all sectors, thanks to the Toolkit for Teachers. The TETT can be

⁵ De impact van een praktische aanpak voor gedifferentieerd uitdagend onderwijs, Janssen et al (2018, in review)

considered as the connective factor for teachers in continuous learning. Every teacher could learn from all program lines and adapt tools in own lesson practice.

- In the Leiden situation sectors of pre-school and primary schools cooperate on the subject identification of talents, and approaching young children with adaptive tools to prevent underachievement (using for instance the instruments based on Gardner and Bloom). The same situation occurs with teachers from primary schools and secondary schools, exchanging their views and approaches in combined PLC's (see also the project "Gluren bij de buren"). The Digital Transfer Dossier (DOD or Digitaal Overdracht Dossier) in which the most important data regarding learning skills are documented (a.o. based on data form the SIDI-3 reports) has been adapted for information about talent development and risks of underachievement.
- An interesting and profitable outcome for almost all partners in the project results from the cooperation of teachers on the subject Design Thinking. A transfer of knowledge which benefits continuous learning is in all cities in all schools sprout forth thanks to the strategy of the project: involving different ages of students and their teachers in the subject. Design Thinking can now be considered as an important vehicle of challenging students in all sectors and types of education.

6. Talented children are identified and guided between 2 and 6 years



Results

Teachers and educators in Kindergartens developed protocols for identification. These are published in the TETT – Challenging Young Children.

7. The involvement of stakeholders such as parents, industry and cultural institutions has increased in the regions

Results

We mentioned above already the cooperation in the project by teachers for developing methodology, projects and step action plans for Design Thinking. Other examples of the enlargement of involvement are:

- An increasing group of teachers in Kindergartens throughout Slovenia working on identification of giftedness and new approaches for challenging young children
- The training of ambassadors of talent education in Pre-school institutes in Leiden
- The involvement of Institutes of the Leiden University, the Leiden University Medical Center, Museums in Leiden, the Space Center in Noordwijk, the Wetenschapsknooppunt in Design Thinking projects,

- The involvement of social institutes like recycle companies and refuse treatment business in Ljubljana in Design Things projects, Water supply institutes in Pilsen, Scientific Laboratories, departments of the Masaryk University in Design Thinking and Metacognition
- Parents have been involved in different Information Meetings in all cities.
- The City Government of Leiden played a major role in creating podiums for all activities, support for publication
- National and Regional Institutes of Education (Czech Republic and Slovenia) or Political Bodies (Pilsen) are involved for disseminating outcome of the project and/or promoting talent education
- Congresses of the European Council of High Ability in Vienna and Dublin offered a platform for promoting talent education in general and the results of the project in particular
- The Leidse Aanpak (Leiden Approach) has been expanded during the project to more than 50 Organizations, including parent organizations, museums, cultural organizations, support organizations besides all pre-schools, schools and institutes for higher education.
- For Design Thinking challenges in the Netherlands cooperation has been set up with Shell (Bright Ideas Challenge), Nemo, Technolab and ESA. Juries has been installed to assess products of students in Design Thinking.

8. The project has contributed to the development of new methods to improve education for talented

Results

Lesson plans, new methods, adapted or expanded methods, steps action plans and a multitude of examples of projects and lessons have been developed and are available in the Talent Education Toolkit for Teachers (<http://www.talenteducation.eu/cs/toolkitforteachers/>)

Talent Education



Choose your toolkit



IV Conclusion and recommendations

General Objective: *“The partners want to develop a sustainable and structural approach which supports top talent in the further development of their talent and thus preventing underachievement or dropouts. Personalized learning and continuous learning (Dutch: doorlopende leerlijn) and cooperation with other organizations than educational institutions are important principles”*.

The influence of the Talent Education project can be represented as a **"flywheel effect"**. The project stimulated the further development of Talent Development among all partners, contributed to further awareness of the need to stimulate potential talent and combat the risks of underperformance, mobilized hundreds of professionals in various capacities, from educational staff to politicians, contributed a new, more inclusive focus on talent development (Leiden Approach) and stimulated local and national organizations to set up comprehensive projects and development lines.

The impact model of PLATO (University of Leiden) proved to be very useful. The choice for this model implicates also that the partners focus more on the enhancement of impact for the different stakeholders in the project than on measurement of concrete data, more on self-evaluation than on output evaluation. Our conclusions and recommendations are structured by the four types of impact:

1. Longitudinal Impact

This means how long does the participation in the project show its results in the chain of learning process, learning outcomes, change behavior and effects of this improved behavior. An indicator of longitudinal impact is the extent to which partners have made plans to continue project activities beyond the funding period. This applies to all individuals affected by the partnership including students, teachers, school leaders and other facilitators.

Conclusions

It is too early yet of course to measure this impact with concrete data. Nevertheless we can describe our efforts and results to promote favorable conditions for sustaining impact:

- The project delivered concrete tools to use directly in education, available for every teacher in the chain of education, in line with his or her needs. These tools are real time accessible. The website for this is hosted by de Leiden Approach for Talent Education and maintained and expanded by experts from educational institutes.
- National Institutes of Education (or/and Regional Authorities) in the Czech Republic, Slovenia and the Netherlands have been involved for disseminating the tools and for organizing activities (seminars, presentations on conferences) regarding the tools. In our dissemination activities we also involve all kind of online platforms, boards of schools, magazines, to draw the attention of schools, institutes and their teachers or educators for the approaches (see dissemination).
- The Leiden Approach is a chain-oriented organization of almost all education in Leiden, including educational departments of museums, centers of support a.o. All partners and the Municipality agreed to continue the Leiden Approach for at least 3 years. The agreement (covenant) is signed at 31 of October 2018. The Leiden Approach will function as a vehicle for expanding the results, approaches, insights of the Talent Education project and will benefit of the amount of teachers who are educated by the project.

- In Slovenia a new Educational institute for Talent Education has been established in October 2017 involving all layers of education in Slovenia and making use of international expertise: the International Talent Education Institute. Mission: promotion of knowledge and insights for giftedness and talent; aims: to connect partners on the city level of Ljubljana (and expanding to other cities in Slovenia), to develop and spread programs for talent development, to connect school administrations, to support (counseling and education) city partners, to support partners for developing activities and programs. The Slovenian program committee consists in representatives of university (University of Primorska, National Educational Institute, Primary School organization, the Municipality of Ljubljana).
- In each program line of the TE project we can discern concrete actions for sustainability of the Approach:
 - A new project just started this year for instructing teachers in Metacognitive Skills, now expanded to the first grades of Secondary Education in Leiden (Marecollege and Stedelijk Gymnasium).
 - In most of the involved schools Design Thinking has become a part of the curriculum (i.e. Stedelijk Gymnasium Leiden integrated in subject Research Skills – 4 VWO). SCOL started with subsidy of the Ministry of Education (OCW) a new through going line of Design Thinking and Talent Education from Primary to Secondary Education.
 - Teams of teachers guided by ICLON develop new practices for subjects for Differentiation, now more specifically oriented on different perspectives (both subject and personal perspectives) which will contribute to more personalized learning. The new developed practices will be available in the TETT Practical Differentiation. This Tool, already rich with lesson examples and instructions for a range of subjects in Primary and Secondary Education will be expanded considerably. In the last 3 years the amount of teachers in the Netherland (both PE and SE) who got acquainted with the method grew to 9200. This offers a tremendous opportunity for expanding the new methods in the Netherlands. The NEI in Slovenia and the NIFE (NIVD) in the Czech Republic will contribute to expansion it among teachers in their country.
 - Organized by the Leiden Approach “ambassadors” in pre-school organizations (SPL and Small Steps) have been trained for identification/signaling giftedness and talented and using new approaches for creativity skills of toddlers. They developed protocols for transfer which will be used in the chain. Their role is also to instruct pedagogic employees in their teams and by doing this they provoke a “slick effect”. In Slovenia the protocol has been developed as well in an adaptive for Slovenia appropriate way. This is also part of the TETT Challenging Young Children. The protocol (with step actions plans) is shared in the large network of Kindergartens.



Recommendations:

- To correctly implement new elements of a talent education program, it is important to “seduce” school directors to be sufficiently informed in order to interest their teachers to get in touch with the subject. The cooperation between (teams of) teachers and school management is a critical factor of success for sustained development.
- Cooperative learning is a favorable condition for developing new lessons. In PLC’s professional learning methods could be applied as action-research, intervision and feedback sessions, co-teaching, collegiate visitation.
- It is important to pay attention to secure new methodology in school curriculums. It could be done on different ways: a. to make space for personalized actions in subjects, or inter-curricular, b. to integrate new methods in the curriculum, e.g. Design Thinking in a subject Research Based Learning, or in planning DT projects in a year curriculum, Metacognition in the curriculum of Primary or (adapted) Secondary Education). In the TETT for each program protocols are presented for implementation.
- We recommend to embed and connect the new approaches and methods in new projects on local, national or International (European) level.
- Local initiatives for (projects) Design Thinking, further development of metacognitive skills (expanding to secondary education for instance), laboratories. Differentiation in both primary and secondary schools, for developing identification practices and all kind of approaches, games, plays for young children should be encouraged as spin off this program.
- Management of schools should scaffold it or institutionalize (“giving it a blow”), as soon as the effectiveness is obvious.
- Interest teachers by appropriate information and by practice in workshops. Experienced teachers should feel the responsibility to share insights with colleagues and promote approaches in their own work floor. We described the “teacher factor” as decisive for change in education.
- Connect the new challenging methods with projects internationalization (e.g. ELOS, VIOS) or integrate it, since both elements (new challenging methods for talent education and projects internationalization) could contribute to transformative education. They can reinforce each other.
- The Talent Education consisted of a number of different parts that **complement each other**: inspiration meetings of experts, cooperation in PLC’s, coaching on the job, exchange of students on learning processes, which functioned as laboratory. That **combination** proved to be very productive and could be used as a model for other projects.

2. Horizontal Impact

This refers to the number of people reached. How many people are affected by the project? Here the emphasis is on the number of people reached, the number of people influenced by the project directly.

Conclusions:

- 292 students were involved: participants in DT exchanges, testing the DT methodology, the DT learning cycle, using 21st century skills including writing and speaking Foreign Languages, intensive (international and intercultural) cooperation, research, presentation
- 141 teachers were involved; cooperating in PLC’s, learning, developing and testing new methods and tools, learning by intervision and co-teaching
- 21 Schoolmasters and other school leaders were involved; actively participating by attending TPM, organizing activities in their schools, attending congresses, promotion of the project;

- 34 Representatives from scientific institutions were involved (university, research centers, support centers): including experts from university, scientific research centers, companies who cooperated in Design Thinking projects and got acquainted with the methodology and scientists for Metacognition, who are interested to integrate the approach in courses (CZ and the Netherlands)
- Policy makers, politicians; amount difficult to count: representatives from municipalities (including Major and Vice Major of Leiden, from regional authorities (including vice governor, and deputies of the Regional Authority of Pilsen) , from pedagogical institutes, or national educational institutes, from Boards of Big school organisations; some of them attended the conference Focus on Talent, or other conferences, other are involved in the Leiden Approach or were partner in meetings about chain approach or dissemination of the project.

Recommendations:

- We recommend to organize mobility activities like exchange of students and teachers and in addition exchange of good practices, provided the activities will be connected with the development of new approaches and skills. Cooperation in international groups, discussions in foreign languages, learning to express yourself in different backgrounds and environments, learning from different cultures and views: this contributes highly to transformative education and is an excellent way for developing 21st century skills.
- Results and practices from the Talent Education project should be published anywhere in the involved countries and further in Europe. The Toolkit for Teachers is an excellent vehicle for that. We recommend additional activities (workshops, presentations, pilots) organized by schools, organisations of schools, regional and national educational organisations to benefit from revenues of the project.
- Teachers and students, involved in the project are convinced of the value of the methods. Use their inspiration and expertise and use them as change agents (In own schools, in regional or local settings, internationally by European networks).

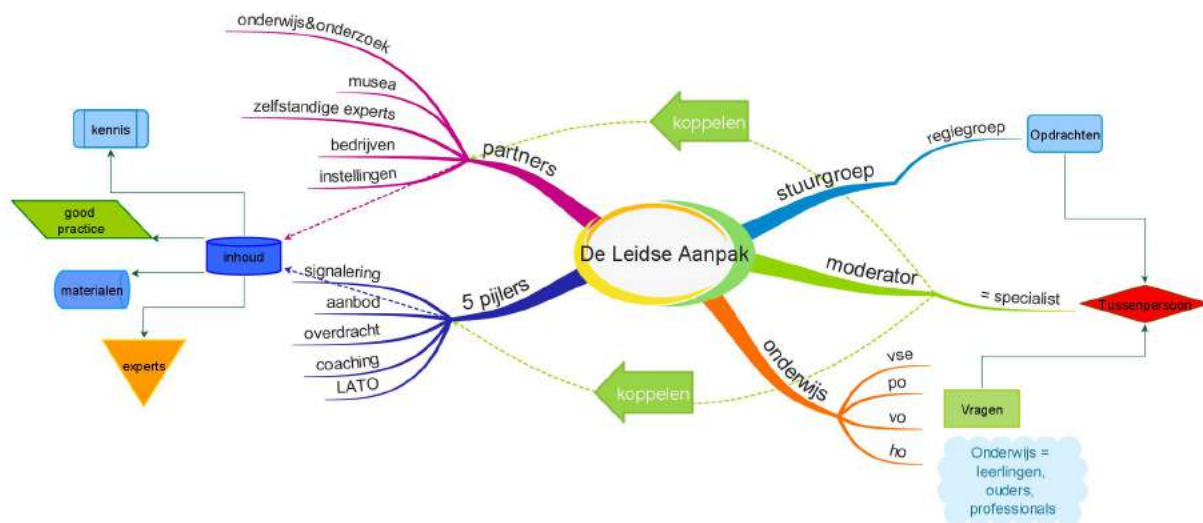
3. Vertical Impact

This refers to the level of power reached in influencing the school/ system. How high up have people and what is more decision makers been affected by the project (at school level regional level, national level, international level). Innovations without support structures, without leadership back up and without other facilitating conditions tend to fade out after the project period. That is why the vertical impact is stressed in this project

Conclusions:

- We can observe some interesting effects of the program inside schools. The Stedelijk Gymnasium Leiden integrates the Design Thinking method into the curriculum as a building stone for research based leaning. The same do schools of the Bonaventuracollege (BC) and the Visser 't Hooft Lyceum (VHL. SCOL schools, including the BC and VHL started this year a new project for continuing lines Design Thinking from Primary schools to Secondary schools oriented on gifted children for extra challenge. In some Czech schools “training metacognitive skills” is now part of the curriculum. Dalton schools are studying to do the same and to integrate identification tools and protocols in the first grades of their curriculums. In some schools, like the Chalabalova school in Brno and the Primary School of Holoubkov DT is integrated in the curriculum as basic method for projects.
- We can also observe impact in the way policy makers are stimulated to organize activities for teachers and schools to implement the methods and disseminate the TETT. In the Region Pilsen

the Regional Authority strives to involve teachers from “formal” education in training new methods of talent education by train-the-trainer sessions organized by a newly founded special training session. Besides the Deputy Governor announced to set up action plans for exchange of information about talent education between the different levels of education.



- The Leidse Aanpak is a good example for impact of the Talent Education program on the level of Policy makers, Boards of Schools Organisations. Many activities are carried out to promote all kind activities for Talent Education; Training of “ambassadors” for identification approaches of very toddlers (a *teach the teacher* training), organization of workshops for teachers, organization of continuing lines in education, programs for promoting awareness and knowledge, new projects metacognition, new education about motivation and creativity, a.o. The close cooperation with the Samenwerkingsverbanden Passend Onderwijs (Foundations for Adaptive Education) using the circles of teachers, counselors and schoolmasters, guarantees the development of new educational lines at schools.
- Recently at the TE Conference “Focus on Talent” a new concept of Talent Education has been launched with more emphasis on inclusion and involving more students with potential from more societal layers. The official agreement (Convenant) will be undersigned at the 31st of October. All international partners are involved in the discussion and stimulated to follow.

Recommendations:

- We find that local, regional and also national organizations with key positions in educational processes and that can influence other stakeholders in those processes are convinced of the need for Talent Education and the prevention of underperformance. The emphasis here is on various parts of the education chain. Some organizations see opportunities in programs for pre-school education, others in the transition of talent education from "informal" to "regular" education, or in organizing activities of teachers. For the coming years it is necessary to transfer this interest and these plans into actual policy and take concrete encouraging steps. We advice to supplement existing policy documents on educational development with insights and plans based on the TE project.
- We recommend that the partners in the project take their role by encouraging and supporting the local and regional authorities and offering mediation for the deployment of expertise and experience experts.
- Spin - off in the educational field is now important and can be stimulated practically with the Toolkit for Teachers. Both partners from the project and local, regional and national

organisations should play an active role in this. We recommend to make a dissemination plan per region and to place this plan with an educational organization for implementation.

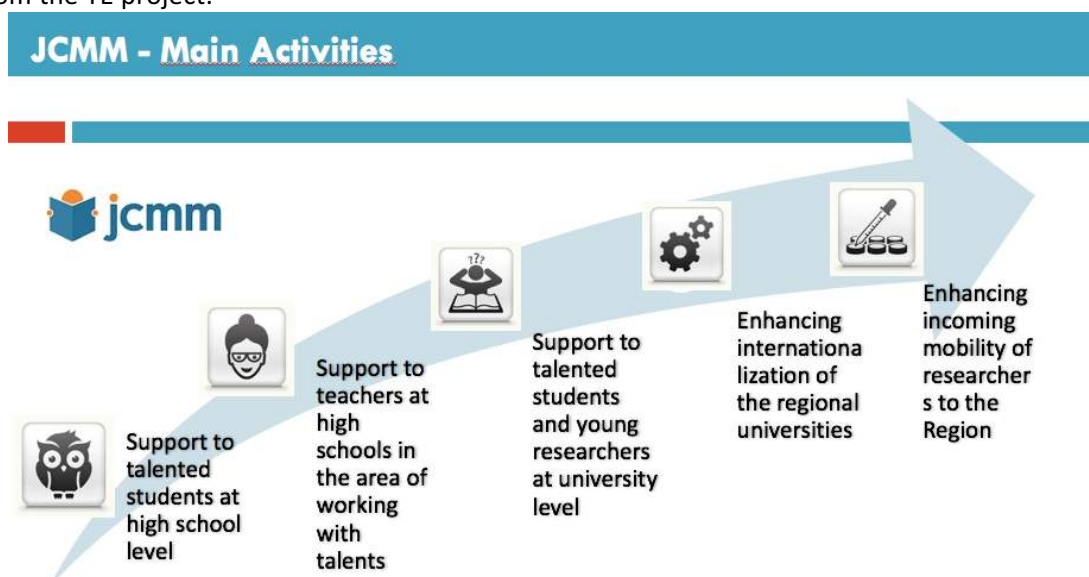
- Organizations or individuals (teachers) who play an active role in the dissemination of new methods and approaches can be rewarded by local or regional organizations.

4. Transversal Impact

This refers to the number of subject areas or themes covered by the project. How widely does the changed approach pervade into parts of the school's, or children center's program, or that of other member organizations. Here the focus is on widening the scope to other domains or subjects than the ones initially included in the project.

Conclusions:

- By and large the project functioned as a strong “flywheel” for the Leiden Approach of Talent Development, and offers all kind of tools, insights and knowledge to inspire and support talent education in all cities and beyond. The building stones of the chain oriented network of the Leidse Aanpak proved to be an inspiration for other cities to find building stones for own approaches. The same can be said about the strong elements of chain approach in mobility of Brno to other cities, or the efforts of the National Authority in Pilsen, the National Institute of Further Education in the Czech Republic, the National Educational Institute of Slovenia by organizing seminars for teachers based on products of the Talent Education program. The tools, knowledge and insights developed in the network of Slovenian Kindergartens forms a treasure for inspiration and practices in Pre-school organizations.
- In Brno is “Identification of Talent” more on the agenda of schools and university. A congress has been held In October 2017 by the Faculty of Social Sciences of the Masaryk University, as spin-off from the TE project.



- In the Region Pilsen the RA is involving schools to make programs for talent education. The RA wants to transfer the attention for Talent Education from informal institutes (parents organizations, leisure institutes) to for “formal” education. (interview Deputy Governor Ivana Bartosova.⁶)
- In all cities we discern a growing awareness for a broader approach to Talent Education and for prevention risks of Underachievement. We already mentioned the lately established

⁶ In: “The Leiden Approach passes its pioneering phase”, article published by the Leiden Approach, Talent Education project and the Municipality of Leiden

(inter)national education institute for Talent Education, and the plans of the City Government of Ljubljana to establish an Center of Expertise for Talent Development.

- Discussion within the Leiden Approach about the outcome of Talent Development programs led to a renewed orientation of the program of the Leiden Approach. The paradigm shift from the question “*who are the talents*” to “*what talents does the particular child have?*” This specifically involves a wider range of human qualities, than mere intellectual. On the Congress “Focus on Talent” this new orientation was a main subject on a debate with all the partners in this program and the discussion about it will be continued in all partner cities.
- Outside of the participating organizations which were the project's target groups and other relevant stakeholders? What was the project's impact on them and how did the results reach them?
- *Teachers of other schools.* We try to interest them for the new approaches and tools directly applicable in their daily practice. We also try to provoke awareness for the issues identification of talent and prevention of underachievement We did this in workshops on congresses (like the Congress of the VO-Raad, ECHA Vienna 2016 and ECHA Dublin 2018), in workshops in the Night of the Teacher (Oktober 4th 2017 and 2018), the Leids Onderwijs festival (in 2016 and 2017), in workshops in the program of the Leiden Approach, on the Congress Focus on Talent (June 2018), and in conferences in Brno and seminars in the Pilsen region. The National Educational Institute of Slovenia plans workshops in seminars in November and March, so does the University of Primorska. For more information of involving teachers.
- *City Councils and Regional Authorities:* for a chain-oriented approach we involved the City Government of Ljubljana, the Regional Authority of Pilsen. The City Government of Ljubljana is ready to organize activities to promote talent education, i.e. by setting up the center of expertise, but is still studying more about the Leiden Approach. e. A delegation of the RA attended the conference “Focus on Talent”, took part in discussions and had meetings with several stakeholders in the Leiden Approach. The RA of Pilsen is now actively working a program of Talent Education, as we described above.
- *Other Organizations:* We consider educational institutes as important institutions for further development, sharing and spreading of the ideas and products of Talent Education. We involved the National Institute of Further Education (NIFE or NIVD) of the Czech Republic and the National Educational Institute of Slovenia (NEI) and the VO-Raad, the SLO (Netherlands), the VO-Raad en PO-Raad, the Universities of Leiden, Pilsen, the Masaryk University of Brno and the University of Primorska directly in our program. Most of them attended the conference “Focus on Talent”. We presented, as already described, the Talent Education approach on ECHA conferences as good integrated practice for Talent Development.

Results and key success factors of the Leiden Approach to Talent Development

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Since 2015 many different organisations in the city of Leiden have been cooperating for the benefit of gifted and talented students, in a network organisation called the Leiden Approach to Talent Development. Fifty very diverse partners cooperate in the Leiden Approach: educational institutions ranging from pre-schools to universities, the city council, youth care providers, museums, and various experts in gifted education. Together, they aim to discover and develop the talents of children and students aged 0 to 24 years old.

In the first three years of its existence, the Leiden Approach has organised and stimulated many different activities and developments, aimed at students but mostly at their schools and teachers. Several developments will be shown in separate contributions to this conference. Some were developed in close cooperation with European partners in Brno, Plzen (Czech Republic) and Ljubljana (Slovenia).

Activities and results of the Leiden Approach are many and wide-ranging: ambassadors for gifted toddlers in day-care and pre-schools, a method for practical differentiation in the classroom, a network for the professional development of gifted primary education teachers, metacognition, design thinking, management of intrinsic motivation, mindset and twice-exceptional. Also: young parent academy, pre-university programs, formative assessment, locus of control, student research in local museums and many others. A few notable examples will be presented.

Recommendations:

- We recommend to discuss in relevant settings (local or regional politics, educational level) the model of the Leiden Approach to Talent Development and especially activities that took place under the banner of the Leiden Approach and in the context of the Talent Education program⁷. Building blocks of the approach, together with already developed building blocks in own city or region, can be tested for usability for a **systemic approach** to talent development. It could be made possible through the organization of symposiums, round table discussions, presentations at educational conferences, etc. Representatives of LA stakeholders are certainly ready to provide experiences and expertise.
- We recommend to include Talent Identification in school programs in Kindergartens, as well as PE and SE. The identification should shift from "proven" talent to "potential" talent and factors of giftedness. The "tools" of Betts & Neihart (6 profiles)⁸ could be of great value. Approaches from the Talent Education program (available in the TETT) can be useful for a practical strategy for young children.
- We recommend taking a follow-up step in Talent Education aimed at *assessing and monitoring talent* development in students. An approach aimed at the prevention of underachievement includes a new form of "assessment" in which the focus lies mainly on productive (21st century) skills and creative abilities and less on reproductive abilities. A new European project could scaffold this development.

⁷ For this purpose the article "The Leiden Approach passes its pioneering phase" has been published and is available.

⁸ George T. Betts and Maureen Neihart (1988). Profiles of the gifted and talented. *Gifted Child Quarterly*, 32(2), 248-253. George T. Betts and Maureen Neihart (2010). Revised profiles of the gifted and talented.

- We recommend schools to bring the Practical Differentiation method to the attention of teachers and to pay attention to a broad dissemination that covers all subjects. The method is also useful in the PE. He can serve as a basis for more personalized didactics. The Toolkit offers handles and examples for all subjects.
- We recommend to include the Design Thinking method in the instructions for educational projects and (larger) assignments. Attention will be shifted to 21st century skills and the initiatives and creativity of students themselves. We recommend training more teachers in coaching their pupils.
- We recommend that school management makes their teachers aware of their role as "change agents", inspiring and coaching their students to develop themselves to their potential abilities.
- We recommend that school directors draw all their teachers to the Talent Education Toolkit for Teachers and its practical value. Some teachers trained in the TE program can explain examples. Experts can be approached directly by the Toolkit for advice and assistance.
- We recommend that the national educational organizations, such as the NIVD (NIFE) in the Czech Republic, the NEI in Slovenia, the VO Council, the PO Council, Curriculum.nu in the Netherlands, draw the attention of their schools on the TETT and involve it in symposia, seminars and conferences with activities around TE.

Appendix 1. Quantitative Indicators

1. Number of teachers involved in training events (141)

Result of the project: Total number: 141 (Metacognition: 12; Design Thinking: 38; Practical Differentiation: 28; Young Children approach: 39;
Besides app. 25 teachers are additionally trained in Metacognition to carry out the research & development project

2. Number of transnational meetings 6 (including 1 e-conference)

Result of the project: 6 Transnational Meetings: 1 in 2015, 2 in 2016, 2 in 2017 and 1 in 2018.

3. Number of pupils included in mobility (292)

Result of the project: 292 students were involved in 8 programs accompanied by 30 teachers

4. Number of manuals (4: design thinking; metacognitive skills; signaling talent and approach of the very young children; practical differentiation)

Result of the project: 4 brochures and 4 web-based manuals for teachers (Talent Education Toolkit for Teachers (TETT), including manuals and lesson-plans.

5. Number of scientific reports (3: on the effects of design thinking; of metacognitive skills and of practical differentiation)

Result of the project: 1 scientific report on the Research on improvement of Metacognitive Skills and 1 combined report on the Impact and Effects of all 4 program lines and chain-approach

6. Number of instruction reports for chain approach (1)

Result of the project: No separate instruction report for chain approach. Instead a scientific article "The Leiden Approach passes its pioneering phase" about the Chain Approach in Leiden (De Leidse Aanpak) as a good practice and a report on the opportunities of a chain approach in Ljubljana ("Chain Approach Ljubljana)

7. Presentations at conferences: (Ljubljana; Brno and Leiden)

Besides the Final Conference of the consortium (see below) the project has been presented on 8 conferences:

- Ljubljana : Conference for Talent education in Pre school education (January 2016)
- Portoroz (Slovenia): III. International Conference Talent Education (October 2017)
- Brno: International Conference "Talents: We know how to support" (September 2016) them!" International conference "KORONA 2017" (Conference about development of giftedness) – September 2017 (organized by Masaryk University); International conference "Dalton Ready for 21st century", (organized by City of Brno); (October 2017) National Dalton conference in Brno" (for Czech and Slovak teachers) (May 2018)
- Leiden: Leids Onderwijs Festival, March 2016 and October 2017,
- Vienna: ECHA Conference (European Council of High Ability) in August 2016.
- Dublin: ECHA Conference (European Council of High Ability) in August 2018. Presentation of the Toolkit or Teachers.

8. Number of conference organized by the consortium (1)

Leiden 6st of June 2018: Focus On Talent (in cooperation with the Leidse Aanpak voor talent ontwikkeling (The Leiden Approach)

9. IT tool: e-community (1)

Result of the project: 4 E-tools: Web-based Toolkit for Teachers, for all 4 subjects. Besides on the Project website an E-tool for sharing results and publishing lesson plans;
www.talenteducation.eu/toolkitforteachers

10. Project website (1) : www.talenteducation.eu

11. Interim reports (2) Done. Published by Erasmusplus.

12. Final report (1) Done. To be published by Erasmusplus

13. Brochure European project: 2 (at beginning and end)

Result of the project: we published 4 brochures based on the 4 program lines. We published no general brochure

Appendix 2 Qualitative indicators

The impact evaluation as a process of self-evaluation is not common in education. Teachers like to instruct or to practice, but are not used to self-evaluation processes. The Design Thinking Method however is basically founded on such cyclic reflection and teachers must coach that. And cooperating in PLC's is founded on working in a cyclic process based on action research. In this way the approach is coherent. In the program much effort is done to support the self-evaluation process by instruction and providing all kind of tools (see below in this report)

In the selected impact oriented self-evaluation the project seeks to establish a culture of professional learning through systematic analyses of the impact challenges of the project, the target groups aimed at, and the actions to be taken to optimize impact among those groups.

Throughout the project the partners have analyzed and discussed the needs of the distinct target groups, pupils and students, educators and teachers, and others. They identified problems in the field of diagnosing talent at an early age; in teaching them in a contextualized motivating constructivist way according the steps of design thinking, in making them aware of, and more skillful in metacognitive thinking. Among teachers and educators training needs were identified, and training courses designed (ideated, developed, piloted and tested). This process was paralleled by sessions devoted to reflection upon one's own learning and development as developer, teacher, or educators and on top of that also as a partner in this self-evaluation. The learning process of all people involved in the evaluation shows identical phases and features as the learning processes of teachers and students the projects targeting at are involved in.

Self evaluation as a learning process

Year one (2016)

In the first year of the project it appeared that the ideas on how to evaluate were accepted on face value but turning them into actual evaluative action proved to be difficult. The approach to evaluation met quite some resistance among some of the partners. Pragmatic solutions had to be found in order to get the self-evaluation going. Among the project partners at that stage an insufficient base of trust, ownership and experience in self-evaluation had been established. Responses appeared to be low. During meetings the importance of evaluation had to be stressed but attempts to do so weren't always successful.

The pupils who participated in the Design Thinking Exchanged in 2016 filled in an online evaluation form prior and after the exchange week (See Annex 1 for the Evaluation form for students). The pupil's questions were asked about: the expert, the topic, method and the group. See scheme below where we used this tool to collect qualitative data:

Use of online Questionnaire		
Topic	Date	Place
Student exchange DT 16/17 year (part 1)	17/9 – 22/9 – 2017	Brno - JCOMM

The pupils questions were asked about: the expert, the topic, method and the group.

Below one example of the summary outcomes of the questionnaire by topic.

Example 1 Biodiversity

The expert within this was Marco Roos. DT coach was Iva Kubistova (Brno, Tsjechie). The students were working in the Van Steenis Building.

Summary of evaluation outcomes

Expert	The questions about the expert were answered positively. On a scale from 1 to 5 (were 1 is negative and 5 is positive), there was only 5 times given a 3/5. The rest of the answers about the expert were 4/5 of 5/5; very positive!
Topic	Not everyone was happy about his/her choice of the topic. The most of the students were inspired by the topic. The 2 students who say they are less happy about their choice of topic, also say they had chosen another topic if they had known. The most of the students say they were prepared on their topic, and do not wish to be more prepared on the topic. 5 out of 6 of students say it was good to be surprised by the topic. Only 1 student did not agree with this.
Method	Most of the students say they have learned a lot about the DT method. But when we ask them whether they think they can apply the DT method themselves, they are a bit less enthusiastic, but still quite positive (3/5). Most of them say the DT method could bring them further into the subject. And they say they got more insights in the subject through the method.
Group	One student from Leiden is very negative about the group. The others are quite positive.

Example 2 Political Science

The expert was Maria Spirova. The DT coach Ivo Klap (Bona, Leiden). The students worked on the Faculty for Social Science.

The evaluation is filled in by 6 out of 8 students; 2 from Leiden, 2 from Ljubljana, 1 from Pilsen and 1 from Brno.

Summary of evaluation outcomes

Expert	The students were positive about their expert.
Topic	The students say they were inspired by their topic.
Method	The students say they have learned a lot about the DT method. And they say they are capable to adjust the method. Also the students are positive about the insights the method gives them on the topic.
Group	They are positive about the group dynamic.

Year two (2017)

In the second year of the project more common ground had been found by sharing the key ideas on learning and talent education on which the project was based. In the slipstream of that also the attitude towards evaluating the project improved. Evaluative sessions turned more productive and constructive. This was also supported by the decision to appoint moderators per partner institution who served as contacts and co-decision makers. This new organizational formula improved the sense of partnership and ownership among all institutes and participants.

Year three (2018)

In the third year of the partnership the evaluation approach became a more integral part of the activities, the processes of project work and professional development became more naturally linked and during meetings evaluative activities were on the agenda's.

a. *Daily Bulls Eye Evaluation (pupils)*

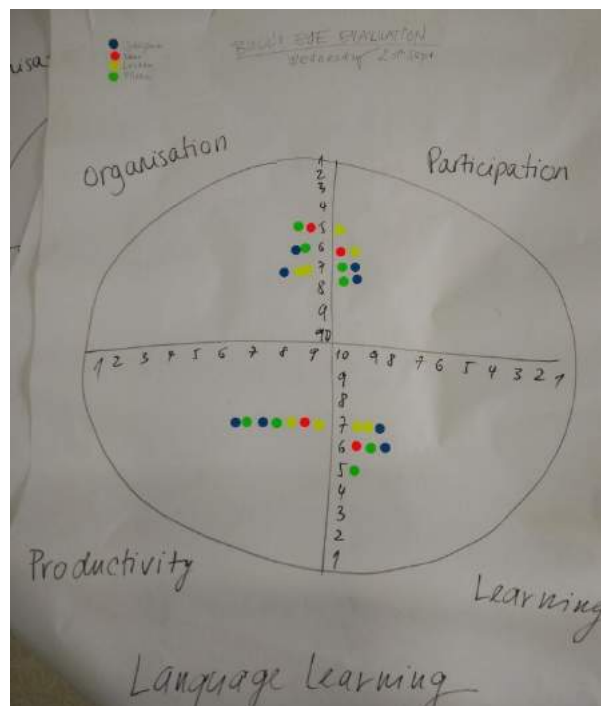
The pupils who participated in the Design Thinking Exchanged in 2017 and 2018 have had a daily bull's eye evaluation. The reason to use this tool instead of an online questionnaire (which we used in 2016) is that the Bulls eye combines evaluation and reflection at the same time. Also this method shows how the exchange weeks developed on different levels (learning, cooperation, productivity,) because it is used after each project day.

See scheme below where we used this tool to collect qualitative data:

Use of Bull's Eye during exchanges		
Topic	Date	Place
Teacher activities Practical Differentiation	17/9 – 21/9 – 2017	Brno - JCMM
Teacher activities Design Thinking	17/9 – 21/9 – 2017	Brno - JCMM
Student exchange DT 16/17 year (part 1)	17/9 – 22/9 – 2017	Brno - JCMM
Week of the Young Child	25/9 – 29/9 – 2017	Leiden : PROO, SCOL and SPL
Student exchange DT 11/12 + 14/15 (part 1)	2/10 – 6/10 – 2017	Pilsen – L.Pika school + Holoubkov
Student exchange DT 11/12 + 14/15 (Part 2)	22/4 – 27/4 2018	Leiden - SCOL
Student exchange DT 16/17 (part2)	15/4 – 22/4 or 22/4 – 27/4 2018 to be decided	Ljubljana – Vegova

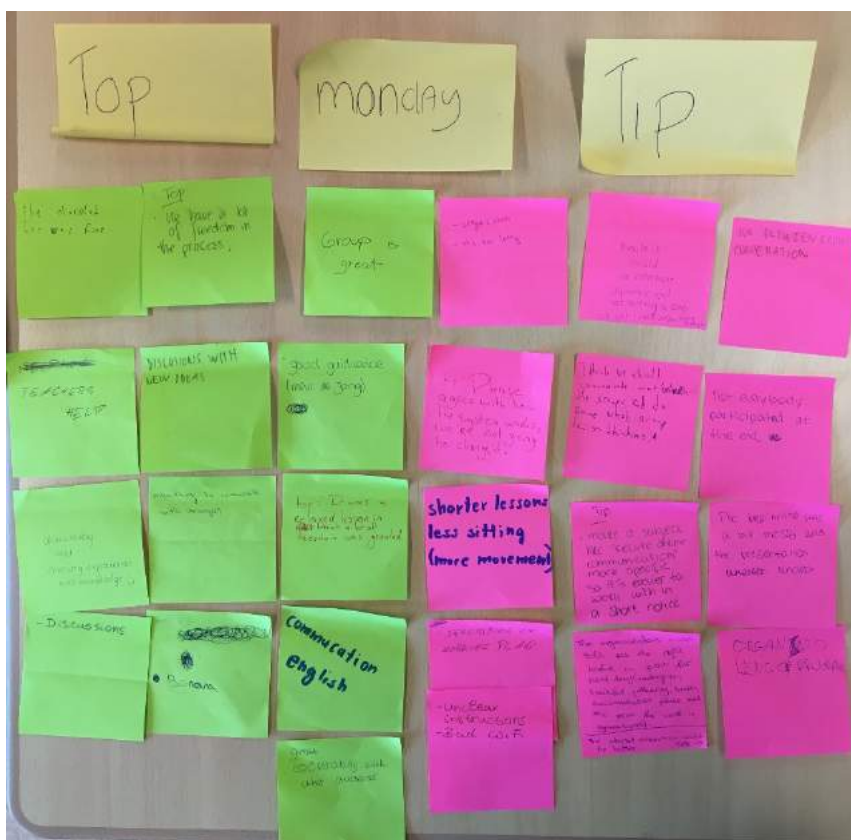
The main goal of the Bulls eye evaluation was to evaluate and discuss the experience they have had during each exchange day. How it worked:

1. Pupils we invited to mark or sticker four dots in the bull's eye to indicate how one values the project day. Each of the questions posed in the sectors of the circle. The middle is the highest score (10) the edge is the lowest (0).



Results of marking dots in Brno of one projectgroup, 20th september 2018

- After the dots had been placed, students were asked to write three post its: 1 top (what went well?), 1 tip (what needs to improve?).



Results of tip-top session in Brno of one projectgroup, 17th september 2018

- The teachers then made a picture and the evaluation data are processed and have a talk about the meaning of the scores and post its.

By using the bulls eye evaluation on a daily basis the teachers were able to understand the pupils better or to change his or her approach to the pupils. The pupils themselves were able to express their feelings about the exchange on different levels. During each exchange week you can see a shift in the way the pupils valued the exchange weeks. For example: at first the pupils tended to complain about the language difficulties and cooperation between the countries. As the week continued you can see from the bull's eye evaluation how the pupils valued the cooperation between different countries. Once they had overcome their insecurities of speaking English, the pupils didn't stick to their own country.

The success of the Talent Education Program has been measured by evaluating different qualitative indicators of the program. During every exchange activity in the past three years there have been several evaluation moments with teachers, students and management. We have outlined the instruments we used during all exchanges below. It was our aim to collect the evaluation information in the same manner as much as possible. However, as the project developed, the methods and instruments developed as well. Nevertheless the main goal of collecting qualitative data remained the same:

'The positive and negative, intended and unintended, direct and indirect, primary and secondary effects produced by an intervention for challenging students to prevent underachievement.'

We have distinguished between two types of indicators: 1. Satisfaction and the level of teaching by the new methods 2. More co-operation between educational sectors and with other stakeholders.

Partnership Talent Education Program

TALENT education



This project is funded by the European Union

