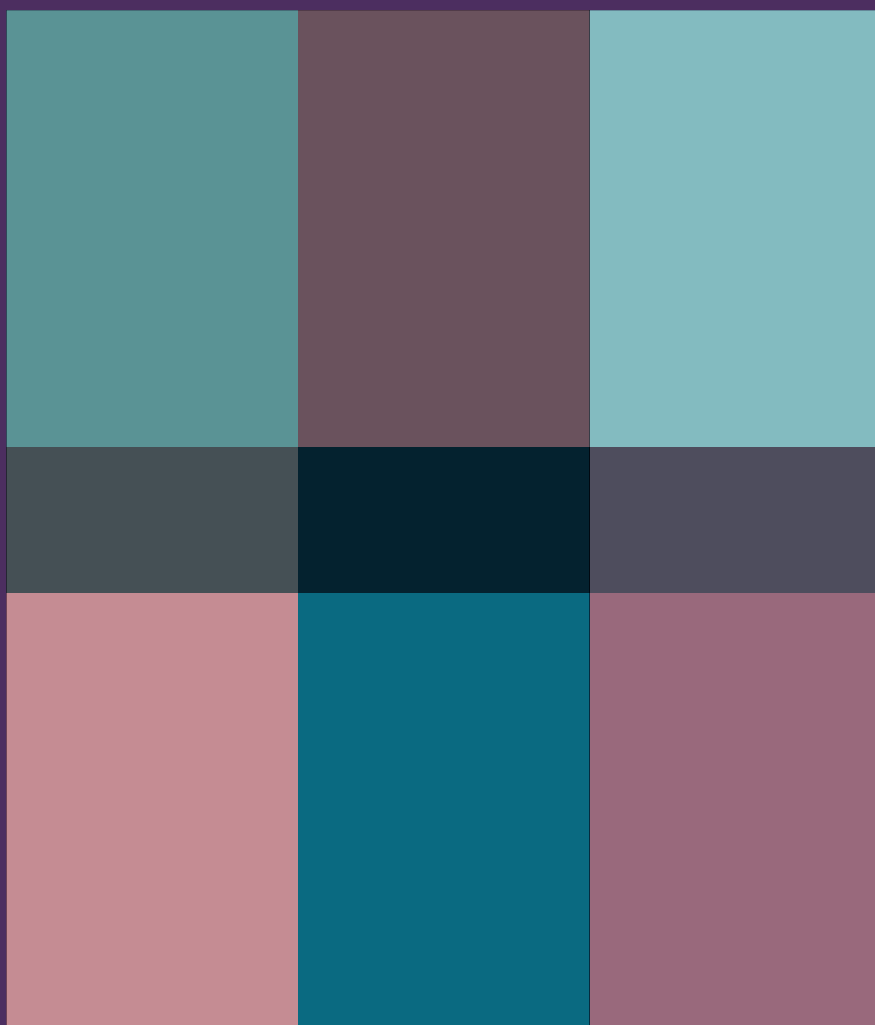


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The CEPS Journal is an open-access, peer-reviewed journal devoted to publishing research papers in different fields of education, including scientific.

Aims & Scope

The CEPS Journal is an international peer-reviewed journal with an international board. It publishes original empirical and theoretical studies from a wide variety of academic disciplines related to the field of Teacher Education and Educational Sciences; in particular, it will support comparative studies in the field. Regional context is stressed but the journal remains open to researchers and contributors across all European countries and worldwide. There are four issues per year. Issues are focused on specific areas but there is also space for non-focused articles and book reviews.

About the Publisher

The University of Ljubljana is one of the largest universities in the region (see www.uni-lj.si) and its Faculty of Education (see www.pef.uni-lj.si), established in 1947, has the leading role in teacher education and education sciences in Slovenia. It is well positioned in regional and European cooperation programmes in teaching and research. A publishing unit oversees the dissemination of research results and informs the interested public about new trends in the broad area of teacher education and education sciences; to date, numerous monographs and publications have been published, not just in Slovenian but also in English.

In 2001, the Centre for Educational Policy Studies (CEPS; see <http://ceps.pef.uni-lj.si>) was established within the Faculty of Education to build upon experience acquired in the broad reform of the

national educational system during the period of social transition in the 1990s, to upgrade expertise and to strengthen international cooperation. CEPS has established a number of fruitful contacts, both in the region – particularly with similar institutions in the countries of the Western Balkans – and with interested partners in EU member states and worldwide.

Revija Centra za študij edukacijskih strategij je mednarodno recenzirana revija, z mednarodnim uredniškim odborom in s prostim dostopom. Namenjena je objavljanju člankov s področja izobraževanja učiteljev in edukacijskih ved.

Cilji in namen

Revija je namenjena obravnavanju naslednjih področij: poučevanje, učenje, vzgoja in izobraževanje, socialna pedagogika, specialna in rehabilitacijska pedagogika, predšolska pedagogika, edukacijske politike, supervizija, poučevanje slovenskega jezika in književnosti, poučevanje matematike, računalništva, naravoslovja in tehnike, poučevanje družboslovja in humanistike, poučevanje na področju umetnosti, visokošolsko izobraževanje in izobraževanje odraslih. Poseben poudarek bo namenjen izobraževanju učiteljev in spodbujanju njihovega profesionalnega razvoja.

V reviji so objavljeni znanstveni prispevki, in sicer teoretični prispevki in prispevki, v katerih so predstavljeni rezultati kvantitativnih in kvalitativnih empiričnih raziskav. Še posebej poudarjen je pomen komparativnih raziskav.

Revija izide štirikrat letno. Številke so tematsko opredeljene, v njih pa je prostor tudi za netematske prispevke in predstavitve ter recenzije novih publikacij.

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Editorial

The purpose of the present issue of the *CEPS Journal* is to provide an insight into the current education policies in different European countries concerning the education of gifted learners and the implementation of these policies in practice. The main focus is on understanding of various intra- and intercontextual factors that have an impact on a particular national gifted education policy. A broad overview of this topic in recent years (e.g., EADSNE, 2009; Györi et al., 2011, 2012; Monks & Pfluger, 2005; Van Tassel-Baska, 2013) indicates, in addition to certain obstacles, a number of dynamic developments that could synergise through cooperation at the international level, building an infrastructure architecture that has not yet been – and perhaps could not be – fully achieved at the national level. The main aim of reflection is, therefore, to encourage critical discussion on the possibility and meaningfulness of developing a European policy on gifted education.

This can be understood as an important step towards the opinion of the European Economic and Social Committee *Unleashing the potential of children and young people with high intellectual abilities in the European Union* (released in 2013). From the national gifted education contexts presented in the articles of the present issue, it is possible to conclude that, in spite of particularities in conceptualisations and approaches in practice as well as differences in political and financial support and specificities in national networking, some general trends are gradually emerging in terms of paradigmatic change, e.g., from disabilities, needs and help to potentials, rights and a motivating learning environment in order to achieve learning excellence, thus integrating the topic of gifted education more and more into broader national education and sociocultural discourse. The same importance is evident in the second and the third parts of the present issue, which are dedicated to teacher education for teaching for excellence and to fostering research-based evidence, including comparative analysis, in order to gain clearer insights into the concepts of the programmes and the effectiveness of their implementation in practice.

This issue includes focus articles from Austria, Germany, Hungary, Scotland and Switzerland. These countries were carefully chosen to form a European umbrella, as they have different cultural roots and a different tradition of gifted education. In order to maintain the education policy orientation, the invited authors were asked to follow the same structural path : (1) a presentation of the national context and background underlying the main national motivations for the development of the national gifted education policy; (2) the basic structural elements, including goals and partners, as well as professional,

research, financial, etc. support; (3) the strengths, weaknesses, opportunities and threats of the particular national policy; and (4) a conclusion outlining the vision of the particular national policy presented, and perhaps also the mechanisms involved in sustaining, monitoring, optimising and evaluating its implementation in practice.

The first article, *National Policies and Strategies for the Support of the Gifted and Talented in Austria*, written by Claudia Resch, focuses on the recently published national document “The White Paper Promoting Talent and Excellence” (2010 in German and 2011 in English), which follows a contemporary systemic, holistic and inclusive national gifted education approach, including various horizontal and vertical coordination networks. In the article, the author outlines the main developments in theory and research in gifted education, as well as the broader sociocultural reasons that led to the new national gifted education strategy. In this context, it is meaningful to note the wider political support of the developments presented. For example, the Austrian Federal Ministry of Education, Culture and Science established a unit for the provision of the gifted and talented as early as in 1996, which continues to have a key impact on gifted education provision in Austria today. Furthermore, an inter-ministerial steering committee, known as the *Task Force*, was founded in 2008, with experts from the Ministry of Education and Women’s Affairs, the Ministry of Science, Research and Economy and the ÖZBF. This committee meets several times a year to develop and discuss strategies for gifted education and research on giftedness in Austria, and to determine ways for their implementation.

The second article, *Gifted Education and Talent Support in Germany* written by Christian Fischer and Kerstin Müller, discusses an analysis of the current gifted education strategies in Germany at the level of the 16 federal states, which vary in concepts and promotion principles, as well as in measures, provision and support. Due to very weak – or even non-existent – federal networking, Germany still lacks a common federal policy on gifted education. However, as the authors point out in their concluding remarks oriented towards the development of a national strategy, gifted education and talent support in Germany is increasingly becoming an integral part of discussions concerning national education, society and politics, and has recently also received increasing support from the Conference of Ministers of Education and Cultural Affairs.

The third article, *An Overview of the Current Status of Talent Care and Talent Support in Hungary* written by Csilla Fuszek, focuses on the national strategy of the National Talent Programme, which has a tradition of some 20 years, and provides an insight into the development of the very unique Hungarian talent support cooperation model. The author presents and analyses

the main strengths of various national efforts to support talent development through the last century, highlighting Hungary's traditionally exclusively public system of initiatives, which has gradually been enriched by various NGO activities as well by the involvement of gifted students in a range of competitions on the national and international levels. Since 2008, national talent support has been a long-term public issue recognised by the Hungarian Parliament.

The fourth article, *Ability as an Additional Support Need: Scotland's Inclusive Approach to Gifted Education* written by Margaret Sutherland and Niamh Stack, discusses how the Scottish approach to "gifted education" is influenced by historical, philosophical and political narratives that are firmly rooted in a belief that education is a right for all. The authors highlight the rights-based model of education in relation to high-ability students, defined as students with additional support needs in the Education Act from 2009. The establishment of provision through local authorities is overseen by the Scottish Government. The Curriculum for Excellence and the document GIRFEC are the basic national frameworks for providing an appropriate curriculum for individual learners, including highly able learners aged 3–18.

The fifth article, *Gifted Education in Switzerland: Widely Acknowledged, but Obstacles Still Exist in Implementation* written by Victor Mueller-Opplinger, stresses the fact that Switzerland is a nation whose economy relies on the knowledge, innovations, excellence and expertise of its population. There are still no mandatory national policies on gifted education, nor is there a national strategy; the author therefore focuses on the philosophy and other important aspects of the contemporary realisation of local- or regional-based integrated gifted education, which is related to supplementary arrangements for special needs.

The Varia section of this issue represents a "complement" to the first six articles by highlighting a practical view of dealing (indirectly) with the same problem, i.e., highly able students in mathematics. The research article reports on a three-year Finnish follow-up study on the development of the problem-solving skills of students from grades 3–5. Anu Laine, Liisa Näveri, Maija Ahtee and Erkki Pehkonen discuss their findings regarding the stability of the correlation between the students' ability to develop different solutions and their ability to solve a problem within the framework of teacher competencies to promote the students' understanding of the concepts being investigated.

The third part presents a review by Chuing Prudence Chou of the book *Comparative Education Research: Approaches and Methods, Second Edition*, edited by Bray, M., Adamson, B. and Mason, M. (2014, Hong Kong: Comparative Education Research Centre, University of Hong Kong and Dordrecht: Springer.

xvi + 453 p. ISBN: 978-988-17852-8-2). The reviewer summarises the text by highlighting the value of the book, concluding that it “...will be of great value not only to researchers of comparative education research but also to policy makers and students who wish to understand more thoroughly the array of methodological approaches available in comparative education research”.

Last but not least, we would like to express our sincere gratitude to the participating authors, as well as to the reviewers for their valuable and constructive comments, all of which helped to improve the quality of the present issue of the CEPS Journal.

PETER CSERMELY AND MOJCA JURIŠEVIČ

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National Policies and Strategies for the Support of the Gifted and Talented in Austria

CLAUDIA RESCH¹

∞ The approach to the support of gifted and talented children and youth has changed considerably in the past twenty years. While, until the 2000s, provision programmes predominantly focused on extracurricular activities for pupils, gifted education now follows a systemic and inclusive approach, including all (educational) institutions – kindergarten, school, college and university – as well as the family, the economy, the working world and the community. Furthermore, there have been considerable efforts to provide for gifted children within the regular classroom by way of differentiation and individualised learning.

This new approach to talent support was first outlined in 2011 in the “White Paper Promoting Talent and Excellence”, which the Austrian Research and Support Centre for the Gifted and Talented published in cooperation with the interministerial Giftedness Research and Gifted Education Task Force.

The present article outlines the reasons that led to this new strategy, explains its main features and attempts an analysis of its strengths and weaknesses.

Keywords: Austria, gifted education, holistic, systemic, talent support

1 Austrian Research and Support Centre for the Gifted and Talented (Österreichisches Zentrum für Begabtenförderung und Begabungsforschung – ÖZBF), Salzburg, Austria; claudia.resch@oezbf.at

Nacionalne politike in strategije za podporo nadarjenim in talentiranim v Avstriji

CLAUDIA RESCH

∞ V zadnjih dvajsetih letih se je podpora nadarjenim in talentiranim otrokom ter mladim zelo spremenila. Medtem ko so bili do leta 2000 programi za učence večinoma usmerjeni v zunajkurikularne dejavnosti, je zdaj pristop pri izobraževanju nadarjenih sistematičen in inkluzivno usmerjen. Vanj so vključene vse (izobraževalne) ustanove – vrtci, šole, srednje šole in univerze – pa tudi družina, gospodarstvo, zaposlovanje in skupnost. Veliko dela je bilo vložnega v to, da se nadarjenim učencem zagotovi podpora v rednih razredih prek diferenciranega in individualiziranega učenja. Ta novi pristop podpore talentiranim je bil prvič poudarjen leta 2011 v »White Paper Promoting Talent and Excellence« [Bela knjiga o spodbujanju talentov in odličnosti], ki jo je avstrijski Center za raziskovanje in spodbujanje nadarjenih in talentiranih izdal v sodelovanju z medresorsko skupino »Giftedness Research and Gifted Education Task Force«. V prispevku so navedeni razlogi, ki so vodili do oblikovanja nove strategije, razložene so glavne značilnosti, predstavljena pa je tudi analiza prednosti in slabosti sistema.

Ključne besede: Avstrija, izobraževanje nadarjenih, celostna in sistematična podpora talentiranim

The development of gifted and talented provision in Austria – from separative measures to a holistic and systemic approach

Since the mid 1990s, the issue of gifted and talented provision² has become increasingly important in education policy in Austria. Especially over the past five years, politicians and other important stakeholders (economists, researchers, etc.) have focused on this topic, and the interest of the media has been growing. However, this has not always been the case. In the 1980s, gifted and talented education was still highly controversial in Austria. Three reasons can be assumed for this opposition:

1. Due to the Nazi regime, which propagated the training of an elite (in the worst sense possible), the term “elite” had a severely negative connotation. After World War II, gifted education was believed to support this elitist thinking, and was therefore strongly opposed (Ziegler & Stoeger, 2007).
2. A commonly held belief and prevailing view of the public was (and sometimes still is) that gifted children and adults do not need any further support measures, simply due to the fact that they are already gifted and able to perform well by themselves. The underlying assumption was that only pupils with learning difficulties need support.
3. Austria has a differentiated school system. While all children attend primary school from age 6 to 10, pupils have to choose between secondary modern school (“Hauptschule” or “Neue Mittelschule”) or grammar school (“Gymnasium”, aimed at higher-achieving pupils) at the age of 10.³ Until the 1990s, it was commonly believed – by representatives of both school types – that this early tracking of pupils would lead to the creation of two homogeneous learner groups, thus making a differentiated approach focused on special gifts and talents in schools redundant. However, since the 1980s, more and more pupils have chosen to attend grammar schools, and in some areas over 50% of all pupils nowadays go

2 For a definition of giftedness, see section The concept and terminology of giftedness.

3 “Hauptschule” or “Neue Mittelschule” (“Hauptschule” is currently being reformed and will be called “Neue Mittelschule” from 2015 onwards, but will aim at the same learner group) lasts four years, and children who attend this school have several options afterwards. They can continue schooling for one year and then start an apprenticeship, they can attend a so-called middle vocational school, taking three (sometimes four) years and then start work, or they can attend a school that finishes with “Matura” (A-levels). This school might either be a “Gymnasium” (four years until “Matura”) or a higher vocational school that takes five years until “Matura”. If pupils choose to attend a “Gymnasium” after primary school, they can either finish with their “Matura” after eight years of schooling, or change to one of the aforementioned higher vocational schools after grade 8, or even start an apprenticeship after their 9th year of compulsory schooling.

to these schools (Schwabe & Gumpoldsberger, 2008).

With more and more pupils attending grammar schools, and a correspondingly more diverse school population, it became increasingly clear that special provisions for gifted children were a necessity; not only for grammar schools, but also for primary and secondary modern schools.

The first measures (to be supported by legislative action, see section Legal framework) taken regarding gifted education were:

- In the mid 1980s, the first extracurricular talent courses for highly gifted pupils were offered in Salzburg, and soon afterwards in other Austrian regions as well.
- In 1988, one of the first large European conferences on the promotion of the highly gifted took place in Salzburg, which was attended by over 600 people from 23 countries. Although it was accompanied by massive protests in front of the venue, it nevertheless stimulated a broad discussion about the needs of gifted children and the necessity of gifted education (Rosner, 2004).
- In 1996, the former Federal Ministry of Education, Culture and Science established a unit for the provision of the gifted and talented. Consequently, the president of each provincial school board was asked to nominate consultants for gifted education in their province. These consultants now act as provincial coordinators (for a description of the coordinators' tasks, see section Coordination of gifted and talented support activities in Austria).
- In 1997, the province Upper Austria organised the first summer school for highly gifted pupils, and summer schools are now being organised in all of the nine provinces.
- In 1998, a special grammar school for highly gifted and talented children was established in Vienna, the Sir Karl Popper School. The establishment of the school was – like the aforementioned conference in 1998 – also accompanied by strong protests, showing that support for gifted education was still lacking in Austria.
- In 1999, the Austrian Research and Support Centre for the Gifted and Talented, or ÖZBF (Österreichisches Zentrum für Begabtenförderung und Begabungsforschung), was founded (Weilguny, Resch, Samhaber, & Hartel, 2013).

The original intention behind the establishment of the ÖZBF was to respond to the demands of parents and teachers for diagnostics and counselling,

as well as to initiate extracurricular provision measures for gifted children. Soon, the ÖZBF realised that these steps, as valuable and necessary as they were, would not lead to a fundamental change for gifted children, let alone the school system's approach to gifted education. The reasons for this were as follows:

- It was increasingly recognised that it was not enough to deal with the provision for gifted children only in schools, but that other educational institutions (or “fields”), such as the kindergarten, the university or the family, needed to focus on gifts and talents as well.
- The more counselling centres and special schools or classes for gifted children were being established, the less regular schools, or teachers in general, felt obligated to identify or provide for gifted children *within* the classroom.
- It became apparent that it was quite unsatisfactory for most children to receive challenging tuition in extracurricular activities (which usually took place once a week for two hours), while being bored and under-challenged for the remainder of the school week (Weilguny & Rosner, 2012).
- There was general discontent over the fact that separate provision measures were predominantly attended by pupils from a higher socio-economic background. Certain groups, such as children with migrant backgrounds, a lower socioeconomic status or learning difficulties, were usually not considered for these extracurricular activities. This, however, meant that a considerable proportion of the school population was not receiving the provision it needed.

As a consequence, the ÖZBF shifted its focus from separate measures for a few to a holistic and systemic approach including all (educational) institutions – kindergarten, school and university – as well as the family, the economy, the working world and the community. Since this shift, the ÖZBF has been working in the following areas in order to guarantee the continuous development of young peoples' gifts and talents:

- It develops educational strategies and concepts at national and regional levels.
- It supports school quality development.
- It trains teachers and educators of all educational institutions.
- It develops curricula for initial and inservice training in gifted education.
- It carries out research in the field of applied gifted education and processes the findings for practical use.

- It establishes networks and cooperation to support all of those engaged in gifted education and the promotion of excellence.
- It organises conferences to raise awareness and increase professionalisation.

In general, a special concern of the ÖZBF is to establish a positive approach towards gifted education and to promote excellence by providing information, thus creating an awareness for a talent-friendly and challenging environment.

The White Paper Promoting Talent and Excellence

In 2011, the ÖZBF published the “White Paper Promoting Talent and Excellence”⁴ in cooperation with the Giftedness Research and Gifted Education Task Force. The Task Force, which was founded in 2008, is an interministerial steering committee with experts from the Ministry of Education and Women’s Affairs, the Ministry of Science, Research and Economy, and the ÖZBF. It meets several times a year to develop and discuss strategies for gifted education and giftedness research in Austria, and to find ways for their implementation.

The White Paper calls for the promotion of talents and excellence in every (educational) institution (so-called “fields of action”), ranging from kindergartens, schools and universities to adult education facilities, communities and companies. It describes how the promotion of talents can be implemented in each of these fields of action. Furthermore, the White Paper discusses the importance of research, the creation of support and research networks, and the relevant training for teachers and counsellors.

In the continuation, some chapters of the White Paper will be presented in more detail, in order to outline the current situation of talent support in Austria.

The concept and terminology of giftedness

The White Paper is based on a multidimensional and dynamic conception of giftedness and talent, encompassing a person’s overall potential, which unfolds through lifelong learning and development. Hence, giftedness and talents are not statistical figures but processes, resulting from the interaction between people’s individual predispositions, their ability to shape their own development, and the influences of nurture (Weilguny, Resch, Samhaber, & Hartel, 2013).

4 German edition published in 2011, English edition published in 2013.

As the development of abilities results from the interaction of various factors, potential does not necessarily lead to extraordinary achievement. Even very high intelligence, in terms of outstanding reasoning and problem-solving abilities, is just one of many factors, and is therefore an insufficient predictor of high-level achievement. Besides cognitive abilities, the will to achieve, interest in relevant domains, work discipline, self-confidence, and self-monitoring skills are necessary prerequisites for a person to excel. Thus, the promotion of giftedness, talent and excellence focuses on a variety of factors (International Panel of Experts for Gifted Education, 2009).

The goal of *promoting talent* is to support the development of potentials in all children and youth in the best possible way. All children and youth, regardless of the level of their abilities, can benefit from gifted education, the underlying assumption being that they all possess potentials that are yet to be developed (Oswald & Weilguny, 2005). *Promoting the gifted and talented* is one aspect of general talent promotion; it usually focuses on children and youth who have already been identified as outstandingly able and motivated, i.e., people who are said to be blessed with giftedness.

Promoting excellence is less focused on potentials to be developed, and more on the perfection and elaboration of outstanding achievement in a given domain that has already become apparent. The promotion of excellence is therefore based on the successful promotion of talent (Weilguny, Resch, Samhaber, & Hartel, 2013).

Coordination of gifted and talented support activities in Austria

In Austria, talent support activities are coordinated on several levels. The Austrian Federal Ministry of Education and Women's Affairs and the Ministry of Science, Research and Economy are jointly in charge of the legal and financial foundations for gifted education. The federal Ministry of Education and Women's Affairs funds and supervises primary, secondary and, since 2000, also post-secondary education (teacher training colleges)⁵ while the federal Ministry of Science, Research, and Economy is responsible for promoting excellence at universities and initiating research on giftedness. Both ministries have established units for the provision of the gifted and talented, which cooperate with the institutions and individuals mentioned below.

The ÖZBF is the national institution for the further development of gifted education and the promotion of excellence in Austria. Financed by the

5 In Austria, primary and secondary school teachers are trained at teacher training colleges, while grammar school teachers are trained at universities.

two aforementioned ministries, it supports individuals, institutions and initiatives promoting young people's gifts and talents. Being financed by the state, and therefore having a federal mandate to initiate gifted education, the ÖZBF is unique in Europe.

On the state level, every province has a coordinator for talent support. These coordinators, as has already been mentioned, were appointed in 1996. They organise summer academies and other regional activities for the gifted and talented, they provide inservice training for teachers, and to some degree also act as counsellors for parents and teachers of gifted and talented children. The coordinators come from various professional backgrounds: most have worked as teachers (either in primary, secondary or grammar schools) and some are school psychologists. They often do not work full-time as coordinators, but instead tend to remain in their teaching or counselling jobs part-time. Although there are no specific requirements with regard to training and qualification, most coordinators either have an ECHA certificate or a similar qualification.

At the local level, part-time county coordinators are currently being established. They will provide counselling for schools, teachers, parents and gifted and talented children. The goal is to establish a coordinator for the gifted and talented at each school, kindergarten and university. At present, however, there is only one province that has established school coordinators. They usually spend one to two hours per week on implementing measures and counselling parents, pupils and colleagues at their school (Weilguny, Resch, Samhaber, & Hartel, 2013).

Although the Ministry of Education and Women's Affairs is generally responsible for funding and supervising primary and secondary education, the nine provincial school boards have the possibility of allocating more resources to gifted education if they wish to do so. This has led to considerable differences between the respective provinces. Whereas some provinces have only one coordinator and none at the local level, other provinces invest hundreds of thousands of Euro in gifted education and pursue a very systematic approach regarding identification and provision in schools.

At the kindergarten and university level, there are at present hardly any coordinating initiatives.

Legal framework

The provision and identification of the gifted and talented has also been introduced into the educational law, not only on the school level but also with regard to kindergarten. The most important document for kindergarten is a

resolution between the Federal Republic and the Austrian provinces to establish a uniform educational framework for all Austrian elementary educational institutions. In autumn 2009, the “Supra-Regional Educational Framework for Elementary Educational Institutions in Austria” took effect, pointing out children’s different interests, abilities and needs, as well as their various expressions and competences (Charlotte Bühler Institut, 2009). Furthermore, the concept of talent appears in statements on differentiation, early learning and inclusive education.

At the school level, gifted education was mentioned for the first time as early as in 1974. Since 1974, the School Education Act has offered gifted and talented pupils the opportunity to skip grades. Subject to the suitability and potential of the individual child, pupils can skip grades up to three times during their school career. One criterion, however, is that nine years of compulsory schooling must be completed.

Electives as well as school clubs and societies were mentioned explicitly as ways of promoting interested and gifted pupils in a 1988 revision of the School Organisation Act.

Section 45 of the School Education Act states that staying away from school “for important reasons” can be authorised by the class teacher or principal. In a decree issued by the Federal Ministry in 1998, this section was interpreted in favour of promoting the gifted and talented. Since then, attending university courses has been deemed “an important reason” for gifted and talented pupils to stay away from school. Thus, pupils can attend university courses during class time, and the attendance of these courses can be credited to the respective university course after graduation.

The decree “Better Fostering”, which was issued to all schools in 2005, requires all pupils to be fostered individually, which represents a major prerequisite for the promotion of talent and excellence. Schools are called on to specify their principles of differentiation and individualisation in a general educational framework. This decree also mentions the promotion of particularly able pupils (Federal Ministry of Education, Science and Culture, 2005).

Since September 2006, statutory regulations concerning early school entry have been taking better account of the needs of gifted and talented children. The dispensation period for children who have not yet attained the age of compulsory schooling was extended, i.e., children whose development is significantly advanced may enter school if they complete their sixth year by March 1 (before 2006: December 31) of the following year.

The decree “Initiative 25+: Individualising Instruction” (2007) emphasises once more the importance of individualisation for managing heterogeneity

and diversity, placing pupils' individual personality and learning prerequisites at the heart of instruction (Federal Ministry of Education, Arts and Culture, 2007).

The "General Decree on the Promotion of Giftedness and Talent" (2009) is explicitly devoted to talent development. The decree describes giftedness and talent as potentials for outstanding achievement, which can only develop in interaction with personality and environmental factors. It is the duty of schools to foster these potentials. As basic principles for the promotion of giftedness and talent, the decree mentions focusing on strengths and interests, accepting and supporting giftedness in an unbiased way, using a variety of fostering measures, and integrating the promotion of giftedness and talent into the overall school culture. In-class fostering includes the identification of characteristics that are relevant to giftedness and talent, the application of concrete educational measures, and the provision performance feedback in a way that enhances motivation. Wherever possible, parents should be involved in fostering activities (Weilguny, Resch, Samhaber, & Hartel, 2013).

Table 1. *Legislative measures in schools and their impact on the fostering of gifted pupils*

Year	Measure	Impact
1974	Skipping grades is made possible for gifted pupils.	Although there are, unfortunately, no statistics on how many pupils have actually skipped grades since 1974, it seems to be the case that skipping grades, which was relatively unpopular and unknown in the 1970s and 1980s, has increasingly been used as a means to promote gifted pupils (especially in primary school).
1988	Electives, school clubs and societies were mentioned explicitly as ways of promoting interested and gifted pupils.	Electives have become extremely popular in Austrian schools. However, they tend to promote interests rather than gifts and talents.
1998	Pupils can officially "stay away from school for important reasons" to attend university courses.	Since the re-interpretation of this law, over 500 pupils have used this possibility to attend university courses through the programme "Pupils Attending University".
2005	"Better Fostering" Decree: schools have to specify their principles of differentiation and individualisation in a general educational framework, which should also specifically include gifted pupils.	Although this decree was a first important step towards the fostering of gifted pupils (by simply mentioning them as a group), budgetary cuts limited schools to using special courses for lower-achieving pupils.
2006	Early School Entry: children can enter school at the age of five (if they complete their sixth year by March 1 of the following year).	This is very similar to skipping grades: early school entry has been used increasingly as a means to promote gifted children in the past ten years.

2007	The Decree "Initiative 25+: Individualising Instruction": emphasises once more the importance of individualisation for managing heterogeneity and diversity.	Class size has been limited to 25 pupils (previously up to 30, sometimes 35 pupils), which should leave more time for individualisation.
2009	"General Decree on the Promotion of Giftedness and Talent": schools and teachers are requested to foster gifted pupils through individualisation, differentiation, acceleration and enrichment.	Although most requests in the decree are indeed requests or simply recommendations, which are not legally binding, the decree offers those teachers who want to foster gifted pupils the justification to do so.

Qualification of educators

If the promotion of giftedness and excellence is to be an integral part of all of the different fields of action, it is of utmost importance that all educators regard themselves as potential promoters of gifts and talents – within the regular system.

In the continuation, the situation for kindergarten and school educators and the reform of initial teacher training that is currently underway will be briefly described.

Kindergarten

In Austria, kindergarten educators are not trained at tertiary or post-secondary level but are qualified through the Training Institutes for Kindergarten Education, which end with the "Matura" (A-level exam). Although the basic teaching principles of these institutes state that, regarding internal differentiation, the children's individual abilities and interests must be taken into account (Curriculum of the Training Institute for Kindergarten Education, 2004), this principle has barely been considered in the respective curricula, where there is little mention of highly able children.

There has, however, recently been a paradigm shift in kindergartens, partly stemming from the aforementioned "Supra-Regional Educational Framework for Elementary Educational Institutions in Austria". This guideline focuses strongly on a strength-based approach, which has led to a reconsideration of talent support in kindergartens. Previously, promoting gifts and talents at the elementary level was strongly discouraged, as children "should be allowed to play and be children". Today, however, educators are increasingly realising that gifted and talented children need to be challenged at an early age (also, of course, through playing) in order for them to stay motivated. This certainly does not mean that four-year-old children should learn Chinese in special courses (in the sense of promoting excellence), but rather that each child is seen

holistically, in terms of his/her individual potential, and supported accordingly.

In the “White Paper Promoting Talent and Excellence”, the ÖZBF strongly propagated the promotion of gifts and talents in kindergartens, and has therefore also started a few initiatives in this field of action. All of these initiatives attract wide interest among kindergarten educators, which shows that talent support is finally entering kindergartens:

- In 2012, the ÖZBF started a year-long course on the promotion of gifts and talents in kindergarten (6 EC points), which was attended by over 40 educators. A second course began in February 2014.
- As a result of this course, the ÖZBF is currently working on a manual on how to prepare similar courses, which will then be made available to other institutions. Furthermore, a guideline for talent support in kindergarten has been published by two provincial kindergarten quality managers who participated in the course.
- The ÖZBF is also trying to raise awareness of the promotion of gifts and talents by providing further information, such as articles, posters or colloquia.

The Charlotte Bühler Institute for Practice-Oriented Early Childhood Research (Charlotte Bühler Institut für praxisorientierte Kleinkindforschung) also endeavours to alert kindergarten educators to the importance of talent support at an early age. In 2012, the institution published the so-called “Quality Programme on Talent Support at Elementary Educational Institutions”, in which it reviewed the current literature and made recommendations for implementation (Charlotte Bühler Institut, 2011).

As positive as these developments may be, a considerable problem still remains unsolved: kindergarten is not part of the school system, and therefore is unfortunately not considered to be an educational institution by many. This leads, on the one hand, to problems in the transition process from kindergarten to primary school and, on the other hand, to misleading conceptions about the necessary qualification of kindergarten educators. If, as those with a mistaken conception believe, kindergarten were simply an institution where children are looked after but not educated, then the qualification of kindergarten teachers at the secondary level would be justified, as would their lower salaries.

However, according to the OECD study “Starting Strong: Early Childhood Education and Care Policy” (OECD Directorate for Education, 2006), it is no longer justifiable to limit the training of elementary education experts to the secondary level. Studies have shown that higher qualification of experts leads to their providing higher-quality educational services to children (Sylva,

Melhuish, Sammons, Straj-Blatchford, & Taggart, 2004). Unfortunately, the opportunity to reform the training of kindergarten teachers within the scope of the current teacher training reform was not seized.

School

With regard to the qualification of school teachers, teacher training colleges and universities are currently not obliged to include the promotion of giftedness, talent and excellence in their curricula. Although a curriculum on gifted education has been proposed for the training of teachers working in compulsory education, giftedness and talent research and education is by no means an integral part of the curricula at teacher training colleges, let alone a part of university programmes, where prospective medium- and higher-track teachers at general and vocational secondary schools are trained.

In teachers' continued and advanced training, a great number of approaches to making the promotion of talent and excellence a matter of concern for teachers have been proposed; for instance, special courses on gifted and talented education at teacher training colleges, or diploma courses leading to a "Specialist in Gifted Education" degree awarded by the European Council for High Ability (ECHA). Some institutes even offer master's degree courses; for instance, the Danube University Krems or the Teacher Training Colleges of Upper Austria and Vienna (Weilguny, Resch, Samhaber, & Hartel, 2013).

Current teacher training reform

With the reform of initial teacher training, new opportunities arise for future teachers to put an increased emphasis on the promotion of gifts and talents within the classroom. The new teacher training in Austria places a strong emphasis on inclusive education, of which the promotion of gifts and talents is more or less considered an integral part. However, it remains to be seen which universities and teacher training colleges will focus on this topic in their new curricula in coming years. Recent developments have shown that this might not be the case in all institutions.

Notwithstanding, the ÖZBF still strongly advocates the integration of talent support into the curricula, and has therefore described contents and competencies on talent support and the promotion of excellence in accordance with the Bologna Declaration. These materials should form a sound basis for universities and teacher training colleges to design curricula and detailed modules for teacher training.

Research

On behalf of the Federal Ministry of Science and Research, a survey of giftedness and talent research activities in Austria was undertaken in 2009. The aim of the project was to provide a detailed record and documentation of Austrian research activities in intellectual giftedness and talent in children and youth, focusing on the period between 1990 and 2009 (Preckel, Gräf, Lanig, & Valerius, 2009).

In summary, the results show that current research activities in giftedness and talent in Austria are sufficient neither in quantity nor quality. Although educational science and teaching methodology are engaged in a host of individual projects and research activities, educational and methodological research is dominated by a few individuals and is barely institutionalised. Universities and teacher training colleges often do not focus explicitly on giftedness and talent research.

Up to now, hardly any research on the concepts of gifted education has been proposed that focuses on the overall school system. Moreover, further action is required regarding “the development and evaluation of programmes for intellectually gifted preschoolers and elementary school children as well as for gifted children from culturally or economically disadvantaged backgrounds” (Preckel, Gräf, Lanig, & Valerius, 2009, p. 28).

Compared to the number of existing fostering programmes, too little evaluation research is being conducted. “If evaluation studies are conducted, they are mostly done by educational researchers.

Here, stronger cooperation between educational science and psychology would be warranted. The same is true for teacher training” (Preckel, Gräf, Lanig, & Valerius, 2009).

With regard to research, new initiatives are certainly expected from a new chair of giftedness research and support at the University of Graz, which will be installed in autumn 2014. This new chair is supposed to function as a bridge between psychology and education research, and will also participate in initial teacher training.

Strengths, weaknesses, opportunities and threats involved in the proposed strategy

When evaluating the strengths, weaknesses, opportunities and threats involved in the Austrian policies and strategies for the support of the gifted and talented, the following positive and negative factors can be established.

Strengths

- *A systemic approach:* Austria now strongly follows a systemic approach. “Systemic” means that taking isolated steps in the respective fields of action, e.g., elementary educational institutions, schools or universities, will not suffice. Instead, all of the institutions concerned must join in a coordinated effort so that, in agreement on common objectives and a common vision, they can fulfil their duty of developing talent and excellence.
- *A holistic concept of giftedness:* In Austria, a multidimensional and dynamic conception of giftedness is prevalent, encompassing the individual’s overall potential, which unfolds through lifelong learning and development. This means that educators and parents can focus on a variety of factors when fostering gifted and talented children and youth. The holistic concept of giftedness has led to a stronger focus on talent support rather than diagnostics. There is a growing awareness that a high IQ score does not necessarily lead to high achievement, and that non-cognitive personality traits such as motivation or a positive self-concept, as well as a talent-friendly and challenging learning environment, have an even greater influence on talent development than a high IQ.
- *From separative measures for a few, to a holistic and inclusive approach for all:* In Austria, gifted education has long been considered a supplementary measure to regular schooling. Provided as extracurricular supplements, it was accessible to only a few pupils. However, the promotion of giftedness and talent limited to separative interventions is not enough. In the regular classroom, gifted and talented pupils cannot fully develop their abilities unless teaching and learning offers match their high abilities, as well as their specific needs and interests. When giftedness and talent are promoted only through separation, a great deal of potential of talented and motivated pupils who, for various reasons, do not have access to extracurricular programmes, is lost. Giftedness and talent promotion should therefore be made available in every field of action (Weilguny, Resch, Samhaber, & Hartel, 2013).
The shift from a separative to an inclusive approach is also reflected in terminology. In Austria, the term “highly gifted” has been unpopular for quite some time, in an effort to avoid labelling. Usually, the more generic terms “gifted” or “talented” are used (Weyringer, 2013).

Weaknesses

- *Legislation:* Although legislation devoted to the promotion of giftedness and talent is enacted in Austria, talent support is not mandatory. The General Decree on the Promotion of Giftedness and Talent issued by the Federal Ministry and the White Paper published by the ÖZBF can only be seen as recommendations.
- *Tertiary level:* At present, there are hardly any initiatives on the promotion of gifted and excellent students at university level. In the tertiary sector, three key aspects of talent and excellence promotion require further attention: (1) more targeted actions are needed to identify particular abilities, (2) more specific programmes should be initiated to promote excellence, and (3) academic instruction should take greater account of the needs of talented and highly motivated university students.
- *Counselling:* There is a serious lack of school psychologists to diagnose and counsel gifted pupils. At present, one school psychologist is responsible for up to 10,000 pupils in Austria, handling tasks ranging from career counselling, motivational problems and dyslexia, to eating disorders, AD(H)D, violent behaviour and so on. In the kindergarten and the university sectors, there are currently no counselling and support structures at all.
- *Research:* At present, current research activities in giftedness and talent in Austria are sufficient neither in quantity nor quality.

Opportunities

- *Zeitgeist:* Given the current zeitgeist, the promotion of giftedness and excellence is an important subject of discussion. The significance of gifted education is emphasised in many fields and by many institutions and individuals, e.g., the Federal Ministry, the Federation of Austrian Industries, the Austrian Economic Chambers, researchers, bestselling authors, etc. This general trend also accounts for the fact that the terms “giftedness” and “talent” are used more regularly nowadays.
- *A combination of top-down and bottom-up processes:* One opportunity of Austrian policies and strategies for the support of the gifted and talented is definitely the immanent combination of top-down and bottom-up processes. On the one hand, legislative amendments, funding, motivation and incentives for personnel are provided on the ministerial level. This also includes the establishment and funding of the ÖZBF, which

acts as a national centre for quality assurance and new initiatives. On the other hand, numerous initiatives on the provincial and local level contribute to the overall picture, such as support programmes at schools and kindergartens, parents' councils, teacher training seminars, psychologists who increasingly offer diagnostics and counselling for the gifted and, last but not least, individual educators who try to provide for gifted children every day.

- *The new government programme:* In December 2013, the newly elected Austrian Federal Government issued its work programme 2013–2018. The importance of talent support is mentioned in several objectives, highlighting the aforementioned zeitgeist. One of the objectives is to “discover and support all gifted pupils and talents” (Austrian Federal Chancellery, 2013, p. 44). Planned measures include the improvement of talent identification and talent promotion, the strengthening of applied research as well as existing networks and cooperation, and the ongoing development of initial and further teacher training. Other objectives in the programme are the strengthening of high-quality childcare and elementary education to support the talents of all children from the earliest possible age, educational and professional career guidance with a focus on personal strengths, talents and interests, and the promotion of excellence and talent in outstanding young researchers.
- *Two ministries are responsible for talent and excellence support:* In Austria, not only the Ministry of Education and Women's Affairs but also the Ministry of Science, Research and Economy deal with the topic of talent and excellence support, thus creating a multi-perspective and broad approach. In order to widen this approach even more, it would be desirable to convince other ministries to include talent support in their agenda, most notably the Ministry of Family and Youth, the Ministry of Innovation, and the Ministry of Integration.
- *Various school initiatives:* Comprehensive school development is a prerequisite for inclusive and integrated talent and excellence promotion in Austria, as it ensures the provision of all pupils with adequate training and fostering. “SQA – Schulqualität Allgemeinbildung” (School Quality in General Education) is an initiative of the Ministry of Education and Women's Affairs to develop and assure quality in current school development programmes. Every school sets up two development plans on two special topics, one of which can be talent support. For those schools interested, the ÖZBF has designed an exemplary SQA development plan for specific support of giftedness and development of excellence.

“QIBB – Qualitätsinitiative Berufsbildung” (Quality Initiative in Vocational Education) is another policy of the Ministry of Education and Women’s Affairs with the aim of introducing a comprehensive quality management system in Austrian vocational schools. Some topics, e.g. transparent assessment and individualisation in teaching, have been emphasised nationwide.

Another school initiative worth mentioning is the introduction of a modular course system (instead of a fixed curriculum) in all upper secondary schools, which also allows acceleration measures for gifted pupils.

School development initiatives like these enable the integration of the promotion of giftedness and the development of excellence so that gifted education is no longer regarded as supplementary but is instead understood as an integral part of school, thus constituting a systematic approach.

- *Teacher training reform:* The reform of teacher training in Austria could definitely lead to an implementation of gifted education in the new curricula, thus making prospective teachers aware of the fact that the promotion of giftedness and excellence is a core element of teaching (see section Current teacher training reform).
- *New chair of giftedness research and support:* The appointment of a chair in giftedness research and support at the University of Graz in autumn 2014 will bring about new research initiatives related to giftedness and excellence.

Threats

- *Ideology:* Education generally revolves around inclusion, i.e., the inclusion of children with different abilities, ranging from low learning abilities to above-average abilities. However, current ideology in Austria purports that supporting less gifted or “weaker” pupils is more important.
- *Zeitgeist:* Due to the aforementioned zeitgeist, which propagates the promotion of giftedness and excellence, a myriad of various initiatives have been sprouting in the past few years. Although this is, of course, a positive development, these initiatives do not always follow the holistic and systemic approach of the “White Paper Promoting Talent and Excellence”.
- *Federalist system:* Austria is a federation consisting of nine quasi-autonomous federal provinces. Executive power is exercised by the federal government as well as by provincial governments. In education, the power of the provinces is relatively strong, giving them the discretion

to determine the number of personnel they want to allocate to talent support. A national strategy in this regard, as proposed by the White Paper, is thus rather difficult to enforce.

Austria's federalist system also creates a difficult situation in kindergartens: while every province has its own kindergarten laws, kindergarten teachers are employed and paid by municipalities, who have no interest in kindergarten educators being qualified at universities, as they would then demand higher salaries. Kindergarten is not seen as an educational institution, and is therefore not explicitly part of the federal agenda. In short, the system is too federalist and the individual institutions – kindergartens, primary schools, secondary schools, grammar schools and universities – do not work together, thus creating problems at the transitions.

- *Standardisation:* At the moment, the education sector is concentrating on standardisation. A standardised, skills-based school-leaving certificate has been established, and standards at grades 4 and 8 are examined to ensure that every school teaches the necessary and basic skills in certain subjects to a high level of quality. Although the idea behind standardisation per se is praiseworthy, there is an inherent problem: teaching to the test is starting to creep into tuition, while individualisation is neglected.
- *Finance and money:* Like most European countries, Austria is currently struggling with a growing budget deficit, making severe budget cuts in all spheres of life (schools, kindergartens, etc.) a necessity.
- *Excessive demands on educational institutions:* Schools and kindergartens are overburdened, as there is a severe lack of support structures (e.g., social workers, psychologists). Teachers are forced to take on more and more functions and do not feel they have enough time and strength to concentrate on the support of gifted and talented pupils.

Conclusion – an optimistic outlook

Austria has introduced and implemented a variety of effective strategies and measures for talent promotion and gifted education over the past decades. Several laws have been passed to facilitate the promotion of giftedness and excellence. Initiatives and activities such as summer academies, talent courses and further training courses are offered in every province. School quality initiatives such as SQA and QIBB provide an opportunity for the continuous promotion of gifts and talents.

The ministries have taken a significant step forward with the establishment of an interministerial Giftedness Research and Gifted Education Task Force for the provision of the gifted and talented, the implementation of coordinating centres in every Austrian province and the foundation of the Austrian Research and Support Centre for the Gifted and Talented (ÖZBF) as a national institution. The current governmental programme explicitly mentions gifted education as an important objective. Finally, an aspect of paramount importance: many Austrian educators have committed themselves to the promotion of gifted and talented children and youth in their daily work, and they contribute greatly to the development of potentials.

On the whole, public awareness – and acceptance – of related governmental initiatives is growing, and the promotion of giftedness and excellence is increasingly regarded as a natural element in teaching, as every child has potentials that simply need fostering.

It will predominantly be the responsibility of the Task Force and the ÖZBF to sustain and optimise these positive developments and to ensure their continual monitoring and evaluation, while it will be the responsibility of every promoter of giftedness and excellence to continue their endeavours, and of every potential promoter to initiate new endeavours.

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Biographical note

CLAUDIA RESCH, MMag. Dr., is executive manager of the Austrian Research and Support Centre for the Gifted and Talented (ÖZBF). She is also executive manager of the International Panel of Experts for Gifted Education and a member of the Giftedness Research and Gifted Education Task Force, an interministerial steering committee. She studied History and English (teacher accreditation program) at the University of Salzburg. In 2007 she obtained her Ph.D. in History.

Gifted Education and Talent Support in Germany¹

CHRISTIAN FISCHER*² AND KERSTIN MÜLLER³

⋈ While the focus in Germany was initially on disabled children only, the promotion of gifted and talented children has become increasingly important. Different organisations and institutions, ranging from parents' associations to foundations, offer a large variety of measures catering for the special demands of gifted and talented children, enabling the exchange of information on giftedness and the cooperation of different institutions. Talented children are also provided with access to scholarships as well as to special academies and competitions on different topics. Furthermore, educators and researchers involved in the promotion of giftedness can attend conferences as well as gaining qualifications as specialists in gifted education and talent support. In addition to these nationwide, extracurricular measures, the individual federal states offer various acceleration and enrichment activities for children with high abilities at school. Overall, this leads to a diverse system of gifted education and talent support in Germany. It does, however, mean that Germany lacks a common national strategy of gifted education and talent support due to the lack of networking of the individual federal states. By exchanging ideas and information on their applied concepts of ability promotion, the federal states could benefit from each other's expertise and experiences. Further improvement could be achieved if concepts of gifted education and talent support were to become an integral part of various discussions, such as those on inclusive education or on the results of international comparative studies (e.g., PISA, PIRLS or TIMSS).

Keywords: gifted education, talent support, Germany, federal states, foundations, associations, enrichment, acceleration

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2 *Corresponding Author. International Centre for the Study of Giftedness, Universität Münster, Germany; ch.fischer@uni-muenster.de

3 International Centre for the Study of Giftedness, Universität Münster, Germany

Izobraževanje nadarjenih in spodbujanje talentiranih v Nemčiji

CHRISTIAN FISCHER* IN KERSTIN MÜLLER

∞ V Nemčiji so bili v začetku osredinjeni predvsem na otroke s posebnimi potrebami, zdaj pa je vedno pomembnejše tudi področje spodbujanja nadarjenih in talentiranih otrok. Različne organizacije in ustanove – od združenj staršev do različnih fundacij – ponujajo različne dejavnosti za posebne zahteve nadarjenih in talentiranih otrok. Poleg tega med njimi potekajo izmenjava informacij o nadarjenosti in različne vrste sodelovanj. Talentirani otroci imajo tudi možnost pridobiti različne štipendije, imajo dostop do posebnih akademij, zanje so organizirana tekmovanja na različnih področjih. Poleg tega se učitelji in raziskovalci, povezani s promoviranjem nadarjenosti, lahko udeležujejo konferenc ter pridobijo specializacijo na področju izobraževanja nadarjenih in podpore talentiranim. Poleg teh nacionalnih zunajkurikularnih ukrepov posamezne zvezne države ponujajo veliko obogatitvenih dejavnosti za sposobnejše otroke tudi v šoli. To vodi v raznolikost sistema izobraževanja nadarjenih in spodbujanja talentov v Nemčiji. V Nemčiji tako manjka skupna nacionalna strategija izobraževanja nadarjenih in spodbujanja talentov, tudi zaradi pomanjkanja mreženja med posameznimi zveznimi državami. Z izmenjavo informacij o implementiranih konceptih promoviranja nadarjenih bi zvezne države lahko pridobile ustrezne izkušnje in strokovna znanja. Izboljšanje bi lahko dosegli tudi s tem, da bi se o tematiki razpravljalo na različnih strokovnih področjih, kot na primer inkluzivno izobraževanje ali rezultati mednarodnih primerjalnih študij (npr. PISA, PIRLS, TIMSS).

Ključne besede: izobraževanje nadarjenih, podpora talentom, Nemčija, zvezne države, fundacije, združenja, obogatitvene dejavnosti, hitrejša napredovanje

Introduction

The promotion of gifted and talented children is becoming increasingly important in Germany. Originally, the focus was on disabled children, as it was assumed that talented children can easily deal with their learning process and thus would not need extra support. Following the principle of equal opportunities, the school system therefore catered for disabled children. In some cases, this issue can still be found in the current debate on inclusion. While the idea of inclusion as stated in the Salamanca Statement and Framework for Action on Special Needs Education (1994) covers all children regardless of their abilities, some concepts of inclusion use a narrow understanding of inclusion, such as Klemm's study "Inklusion in Deutschland" (2013), which was published by the Bertelsmann Foundation. In these cases, the main focus is on children with special educational needs. With regard to the promotion and support of talented children, organisations and institutions outside the school context were the first to cater for the specific demands of highly able children. The reason why non-state institutions, such as parents' associations, deal with the promotion of giftedness is that, on the individual level, it is parents who, being in close contact with their children, were the first to notice their special needs for additional challenges. On the societal level, foundations (usually associated with industrial companies) discovered the advantages of gifted children for Germany's economic development. In recent years, however, the identification and promotion of special abilities have been given greater attention by schools and preschools. This development of increased engagement – especially of primary schools, but also of secondary schools in German-speaking countries – was mainly evidenced by the inventory on "Gifted Education in 21 European Countries" by Mönks and Pflüger (2005), which noted a growing number of schools in which adequate first steps were taken to identify talents and to provide appropriate talent support facilities, often in "regular" classes. Still, Germany's results in international comparative studies on education, such as PISA (e.g., Prenzel et al., 2014; Klieme et al., 2010) or PIRLS and TIMSS (e.g., Bos et al., 2012), reveal a noticeable backlog demand for the identification and individual promotion of high abilities and learning competences, particularly with regard to adequate classroom-related promotion offers, which are especially required in secondary schools. This issue is closely related to the need to distinguish between performance and potential, and it intensifies the discussion on talent support and the promotion of gifted children, as it shows that there is a need to support higher achieving students.

In order to comprehend the situation of gifted education and talent support in Germany, a general understanding of the complexity of Germany’s school system, and of the relationship between the federal states and the Federal Government, is necessary. A short overview of the main aspects of the education and legislative system will therefore be provided first. In Germany, the principle of federalism forms an important constituent for education legislation, as the individual federal states dispose of “cultural sovereignty”, meaning that each federal state is responsible for its own education and cultural policy. Therefore, the federal states can individually decide on educational issues, as long as their decisions are in accordance with the Federal Government. This leads to diverse measures with regard to the education and school system. However, the institution of the “Conference of the Ministers of Education and Cultural Affairs” enables federal states to cooperate with each other (KMK, 2013). While there are derivations in some federal states, the following diagram provides an overview of the German education system:

		<i>Qualification of vocational further education</i>		<i>Higher Education entrance qualification</i>	University University of Applied Sciences	
	Tertiary Education	Technical College	Evening School			
		<i>Qualification for a profession</i>		<i>Entrance qualification for the university of applied sciences</i>	<i>Higher education entrance qualification</i>	
13	Secondary Education Level II	Vocational School		Sixth Form		19
12						18
11						17
10						16
						15

		<i>Secondary Modern School Qualification</i>		<i>Middle School Certificate</i>						
10	Secondary Education Level I	10 th Grade	Middle School	Grammar School	16					
9		Secondary Modern School			Middle School	Grammar School	15			
8							14			
7							13			
							12			
6							Orientation Phase	Orientation Phase	Orientation Phase	11
5										10
4	Primary Education	Primary School (obligatory)	Primary School (obligatory)	Primary School (obligatory)	9					
3					8					
2					7					
1					6					
	Preschool Education	Nursery School (optional)	Nursery School (optional)	Nursery School (optional)	5					
					4					
					3					
Grade					Age					

Figure 1. Germany's Educational System (KMK, 2013)

In Germany, children have to go to school from the year in which they turn six until they have completed at least nine (in some federal states ten) years of schooling. Children attend primary school for four (sometimes six) years before they move on to a secondary school. The choice of the secondary school is subject to the child's performance in primary school. Depending on the form of secondary school, children are able to achieve different qualifications determining their further education (KMK, 2013).

The continuation presents a survey of general concepts of (high) ability in Germany, followed by a discussion of special talent-support activities in Germany and its different federal states. The conclusion includes a summary of the strengths, weaknesses, opportunities and threats of gifted education in Germany and its federal states based on a "SWOT analysis".

General Measures of Gifted Education and Talent Support in Germany

Ability is understood to denote an individual's aptitude for certain achievements, whereas high ability refers to an individual's aptitude potential for outstanding achievements (Heller, 2000). Weinert (2000) considers learning the decisive mechanism in the transformation of high ability into excellent achievements, with personality factors as well as environmental influences having a significant bearing on the learning process. These factors also have an impact on learning and developmental processes, and must therefore be taken into account when dealing with gifted and talented children with excellent achievements, as well as with those with learning difficulties. In concrete terms, these impact factors, which form the foundations for outstanding achievements but may also be possible causes for underachievement, are of prime importance. They arise from both positive and negative characteristics and from the interactions of factors inherent in the child, as well as from external environmental factors, which are also described in the various theories of ability. "The Munich Model of Giftedness" (Heller et al., 2005), which was originally developed in Bavaria but now applies to all federal states, may serve as an example. It comprises non-cognitive personality characteristics (e.g., achievement motivation, working attitude) as well as environmental factors (e.g., school climate, quality of instruction).

Despite the differences within the group of highly able children, they share certain characteristics, i.e., high speed of learning, great depth and complexity of understanding, intelligent organisation of knowledge, high metacognitive competences and, to some extent, remarkable creative abilities (Weinert, 2000). Individual adjustment of these characteristics forms the basis of self-regulated lifelong learning, which is confirmed by checklists on the characteristics of highly able children (BMBF, 2003). Apart from the characteristics of learning and thinking, self-regulated lifelong learning covers aspects such as working attitude, interests, and features of social behaviour. In particular, the characteristics of working attitude and interests reveal high motivational-volitional competences for achievement motivation and special metacognitive competences for self-regulation as decisive conditions for self-regulated learning in ability promotion. This applies first and foremost to talented children with excellent achievements, whereas high-ability children with learning difficulties are primarily in need of special instruction in adequate strategies of self-regulated learning in order to become capable of using special forms of self-regulated learning efficiently. This underlines the need for essential learning resources of the learner and appropriate educational resources of the

environment according to the “Actiotope Model of Giftedness” (Ziegler, 2005).

Regarding the models of gifted education and talent support, it is common to draw a distinction between forms of acceleration (i.e., accelerated learning) and enrichment (i.e., in-depth learning). These can primarily be derived directly from the characteristics of highly able children, because accelerated forms of learning require a fast processing speed, whereas in-depth learning requires a high processing capacity. These two basic concepts are, however, closely related, particularly since forms of acceleration are likely to create space for the development of enrichment (Hany & Heller, 1996). Combinations of the two promotion principles will, above all, often be employed in the classroom because of the special requirements of the promotion of gifted and talented children. Such combinations are, therefore, frequently described as an independent promotion category for highly able children (BMBF, 2009). In general, forms of acceleration allow the regular curriculum to start and finish earlier, or to be completed faster (i.e., curriculum compacting), which, in most cases, entails a shortened time of schooling. Using the principle of enrichment, on the other hand, makes it possible to make additions and extensions to the regular curriculum (i.e., parallel curriculum), or to delve deeper into the curriculum without reducing the overall time of schooling.

Table 1. *Models of Gifted Education and Talent Support in Germany (BMBF, 2009)*

<i>Acceleration</i>	<i>Enrichment</i>	<i>Mixed Forms (Acceleration/Enrichment)</i>
○ Early School Entrance	○ Individualisation	○ Intensive Courses
○ Mixed Age Groups and Flexible School Entrance	○ Extracurricular Workshops	○ Accelerated Classes (“Schnellläufer” or “D-Zug-Klassen”)
○ Grade-Skipping (individually or in groups)	○ Additional (Advanced) Courses	○ Schools with Bilingual Classes
○ Participation in Classes of Higher Grades	○ Nationwide Academies & Competitions	○ Schools/Classes for Gifted and Talented Learners
	○ Cooperation with Universities and Business Companies	○ Participation in University Courses (Junior Studies)
	○ Student Exchange Programmes	

With regard to the question of whether and how gifted education can be put into practice on the basis of a classroom that aims to identify competences, specific concepts in the area of talent support have not yet been developed. Against this background, the “Schoolwide Enrichment Model” (SEM) or the

“Autonomous Learner Model” (ALM), which originate from the USA but are increasingly employed in Germany, are frequently mentioned as instruments of gifted education. These concepts share the feature that they primarily make use of forms of self-regulated lifelong learning (e.g., individualised free and project-based work) for talent support in schools. This appears to be appropriate because self-regulated forms of research-based learning require enhanced (meta) cognitive competences, in which highly able learners excel (Weinert, 2000).

In connection with forms of self-regulated lifelong learning in gifted education and talent support, the “Schoolwide Enrichment Model” (Renzulli & Reis, 1997) is very common in Germany. Its “Type-I Enrichment” enables learners to gain access to their own individual interests via general exploratory activities. Its “Type-II Enrichment” conveys group training activities, e.g., for self-regulated lifelong learning, and in its “Type-III Enrichment” children carry out individual and small group investigations of real problems (i.e., via pull-out). The “Autonomous Learner Model” (Betts & Kercher, 1999) employs a similar concept in federal states. Its graded activities aim to ultimately lead to self-regulated and thus lifelong learning. Within this model, “Dimension I: Orienting” comprises the basics of the ability concept and the programme design, followed by “Dimension II: Individual Development”, which imparts the competences of self-regulated learning. “Dimension III: Enrichment” comprises extracurricular content with possibilities of differentiation for the learner. In “Dimension IV: Seminars”, the learners investigate, present and evaluate different topics cooperatively, whereas in “Dimension V: In-Depth Studies” the learners devote themselves, alone or in small groups, to independent long-term projects selected from their areas of interest (i.e., via grouping).

The continuation of this section presents various aspects and measures of gifted education and talent support in Germany that apply cross-border to all federal states.

Associations

Various associations show a huge commitment throughout Germany with regard to advising and promoting gifted and talented children. Here, the Karg-Foundation and the “Association for Education and Giftedness” (“Bildung & Begabung”) are highlighted. Both associations promote support for gifted persons and the exchange of information on giftedness, as well as encouraging cooperation between different institutions. In addition, various parents’ associations exist, such as the “German Association for Gifted Children” (“Deutsche Gesellschaft für das hochbegabte Kind”), the “Society for Gifted Education” (“Hochbegabtenförderung e.V.”), the “Association for Talent Research and

Gifted Education” (“Arbeitskreis Begabungsforschung und Begabtenförderung e.V.”), “Supporting the Gifted” (“Hochbegabtenförderung e.V.”), and the network “Mensa in Germany” (“Mind – Mensa in Deutschland e.V.”). There are also several associations focusing on different forms of talent, such as the “International Academy of Music for Supporting the Gifted in Germany” (“Internationale Musikakademie zur Förderung Hochbegabter in Deutschland”), which supports musically talented individuals.

Foundations

In addition to the major associations of gifted education and talent support in Germany mentioned above, perspectives of talent discovery in Germany are evident beyond the borders of the federal states (Heller & Ziegler, 2007). These include foundations that support highly able children. Apart from the contributions of the “Karg-Foundation for Gifted Education” (“Karg-Stiftung für Hochbegabtenförderung”) and the “Association of Foundations for Sciences in Germany” (Stifterverband für die Deutsche Wissenschaft), there is a large number of other institutions. Among these are various political foundations, foundations of the Catholic (“Cusanuswerk”) and Protestant Churches (“Evangelisches Studienwerk Villigst”), as well as of the government (“Deutschlandstipendium”), which generally support talented university students, although a number of scholarships for pupils can also be found. The “German Scholarship for Pupils” (“Deutsches Schülerstipendium”) of the Roland-Berger-Foundation is particularly noteworthy, as it supports highly able students from underprivileged families. Furthermore, the “Joachim Herz Foundation” (“Joachim Herz Stiftung”) and the “Robert Bosch Foundation” (“Robert Bosch Stiftung”) support the pupils’ scholarship “Intelligence Wins” (“Grips gewinnt”), which is also awarded to talented pupils from underprivileged backgrounds.

Academies and Contests

Ability promotion beyond the borders of the German federal states is further comprised of federal school competitions and academies for talent support. The “Association for Education and Giftedness” (“Bildung & Begabung”) organises a large number of different contests covering maths or foreign languages. In addition, various academies are offered, such as the “German Pupils Academy” (“Deutsche SchülerAkademie”), the “German Junior Academies” (“Deutsche JuniorAkademien”), the “Talent Academy”, and the “Role Model Academy” (“VorbilderAkademie”). The “German Pupils Academy” is constituted of a summer camp where talented pupils work cooperatively on various academic projects. This format serves as a role model for other forms of support

offered by the Association for Education and Giftedness. A further contest is the “German Contest for Young Scientists”, which is aimed at pupils gifted in maths, science and information technologies. Children aged 4–21 are eligible to participate in this contest and to conduct a research project focusing on a research question of their interest (Jugend forscht, 2014). The “Kangaroo Contest” (“Känguruh Wettbewerb”) challenges pupils’ mathematical abilities and aims to arouse their interest in maths (Känguru der Mathematik, 2014). In addition to the contests and academies presented above, there are many other competitions covering all subject areas. As well as special contests and academies, the majority of German universities offer courses of study for talented children, who are able to attend classes and take exams that can be credited to a later degree.

Conferences

Various conferences on gifted education and talent support are of significance beyond the borders of federal states. Here, “Münster’s Congress of Education” (“Münsterscher Bildungskongress”) on talent research and gifted education, hosted by the International Centre for the Study of Giftedness, is particularly important. This congress takes place every three years and was linked to the 13th ECHA Conference in 2012. In addition, there is the annual ECHA-Day (“ECHA-Tag”), which facilitates exchange and networking opportunities for teachers.

Qualifications for Educators

With regard to teacher education, there are a number of special further training programmes of note. Firstly, the European Council for High Ability (ECHA) offers a variety of courses focusing on different target groups in cooperation with the International Centre for the Study of Giftedness at the University of Münster. The ECHA Diploma “Specialist in Gifted Education” is aimed at teachers, while the ECHA Certificate “Specialist in Preschool Gifted Education” covers preschool teachers, and the qualification “Specialist in Coaching the Gifted” appeals to voluntary counsellors. Another form of special education can be found at the University of Education Karlsruhe, which offers an extra occupational master’s degree in “The Integrative Support of Giftedness and the Gifted” (“Integrative Begabungs- und Begabtenförderung”). This degree is taught in cooperation with the University of Applied Sciences and Arts Northwestern Switzerland, and is aimed at teachers, educators and those responsible for supporting talents. The University of Leipzig also teaches a master’s degree in “Studies in Abilities and Development of Competences”, which enables graduates to work in counselling centres and institutions supporting giftedness. In addition, preschool teachers

and educators can qualify as an “Educator for the Gifted” (“Begabtenpädagoge”) after completing a further education course offered by the University of Applied Sciences for Social Work, Education and Nursing Dresden and by the University of Rostock. An additional special education programme can be found at the institute for further education “eVOCATION”. Following the approach of accepting and supporting each student’s individual abilities, educators are qualified to identify, individually support and accompany students with high abilities (Karg-Stiftung, 2014b). In terms of special further training, one more cooperation should be mentioned. In January 2014, the “Department for Giftedness” was established at the Psychologische Hochschule Berlin in cooperation with the Karg-Foundation. Aiming at offering further education programmes for promoting abilities, the department cooperates with independently operating institutions throughout Germany (Psychologische Hochschule Berlin, 2014).

Special Means of Gifted Education and Talent Support in German Federal States

The Education Act and the Teacher Training Act

Table 3 (below) shows which German federal states explicitly include ability promotion in their education and teacher training acts (Fischer, 2014). The table indicates that nearly all German federal states explicitly include gifted education in their education acts, whereas almost no federal states include talent support in their teacher training acts.

Table 2. *Talent Support in Germany’s Education and Teacher Training Acts (Fischer, 2014)*

German Federal State	Education Act	Teacher Training Act
1. Baden-Württemberg	Yes	Yes
2. Bavaria	No	No
3. Berlin	Yes	No
4. Brandenburg	Yes	No
5. Bremen	No	No
6. Hamburg	Yes	No
7. Hesse	Yes	No
8. Mecklenburg-Western Pomerania	Yes	No
9. Lower Saxony	Yes	No
10. North-Rhine Westphalia	Yes	No
11. Rhineland-Palatinate	No	Yes
12. Saarland	No	No
13. Saxony	Yes	No
14. Saxony-Anhalt	Yes	No
15. Schleswig-Holstein	Yes	No
16. Thuringia	Yes	No

With regard to the comparison of the individual federal states, the “Report on Talent Promotion in German Schools” (Holling et al., 2004) provides important evidence of the large-scale realisation of the talent discovery and promotion models outlined above. This is complemented by a description of the current models of ability promotion in the federal states. The information is generally retrieved from *Bildung & Begabung* (2014) and Karg-Stiftung (2014a, 2008), with the use other sources being specifically indicated.

Table 3. *Special Activities of Talent Support and Gifted Education in Germany’s Federal States*

German Federal States	Special Activities
1. Baden-Württemberg	Special Schools & Classes, Counselling & Research Centres, Teacher Training
2. Bavaria	Special Classes, Counselling & Research Centres
3. Berlin	Accelerated Classes, School Network, Special Schools
4. Brandenburg	Special Schools & Classes, Teacher Training
5. Bremen	Ability Grouping, Counselling Centres
6. Hamburg	School Network, Counselling Centre, School Award, Special Classes
7. Hesse	Special School, School Award, Counselling & Research Centres
8. Mecklenburg-Western Pomerania	Special Schools & Classes, Study Days
9. Lower-Saxony	Special Classes, School Network
10. North-Rhine Westphalia	Special Classes, Counselling & Research Centres, Teacher Trainings, School Award, School Network
11. Rhineland-Palatinate	Special Schools & Classes, Grouping Activities, Counselling & Research Centres
12. Saarland	Counselling Centre, Study Days
13. Saxony	Special Schools, Counselling Centre, Teacher Training, School Network
14. Saxony-Anhalt	Special Schools, Grouping Activities, School Networks, Counselling Centre
15. Schleswig-Holstein	Grouping, School Network, Counselling & Research Centre
16. Thuringia	Special Schools & Classes, Camps, Counselling Centres

Baden-Württemberg

With regard to gifted education and talent support, Baden-Württemberg offers two special schools, one of which is a state school and the other a private school. At the “State Boarding Schools for Gifted Children Schwäbisch Gmünd” (“Landesgymnasium für Hochbegabte Schwäbisch Gmünd”) highly able children enter school either in year 7 or year 10. This school also comprises a counselling centre. The private “Leonardo da Vinci-Gymnasium Neckargemünd”

has a particular focus on science classes; therefore, children attend additional classes in biology, chemistry and physics from year 5 to 10. In addition, the subject computer science is also taught. There are also 15 grammar schools that offer special classes for highly able children in Baden-Württemberg. Following the principle of acceleration, learning takes place at a higher pace in order to offer additional learning opportunities (enrichment) without increasing the overall number of lessons per week. These lessons are usually offered in cooperation with universities and companies. An evaluation of this programme, as well as a similar programme in Bavaria (“PULSS-Studie”), revealed that these lessons lead to higher learning efficiency and a positive social and academic self-concept, as well as increased enjoyment in thinking (Preckel et al., 2012).

Bavaria

In Bavaria, gifted and talented children are able to attend special classes, which are provided at eight different schools and which allow the children to participate in additional lessons supporting content knowledge as well as cognitive, emotional and social skills. Talent classes are also offered at some middle schools, which can only be found in Bavaria (e.g., Deutschhaus Gymnasium Würzburg, Maria Theresia Gymnasium München). Here, the children’s abilities are challenged and supported, and additional classes as well as special language exams are established. Research and counselling centres are affiliated to various universities (e.g., Julius-Maximilians-University Würzburg, Ludwig-Maximilians-University Munich and University Nuremberg-Erlangen) (Bayerisches Staatsministerium für Bildung und Kultus, Wissenschaft und Kunst, 2014).

Berlin

There are various approaches to gifted education and talent support in Berlin. At primary school level, a network of 13 primary schools offers additional lessons and special classes. A number of secondary schools (13 grammar schools overall) provide special classes that skip year 8, so that the overall time at school is reduced. Furthermore, accelerated lessons can be found at some schools, which save six weeks of lessons per year in order to facilitate additional lessons and special projects. There are also special schools that focus on and support specific talents such as sport, music or languages. Several schools further establish special classes focusing on supporting and challenging mathematically talented children (e.g., Herder-Gymnasium Charlottenburg and Heinrich-Hertz-Gymnasium Friedrichshain). Finally, regional groups of gifted children (“Regionale Begabtengruppen”), which consist of one grammar school and a number of primary schools, offer enrichment programmes covering

methodological aspects and learning strategies in homogeneous groups (Sensverwaltung für Bildung, Jugend und Wissenschaft, 2014).

Brandenburg

Brandenburg's gifted education and talent support consists of 35 secondary schools providing so-called "Performance and Talent Classes" ("Leistungs- und Begabungsklassen - LuBK"), which focus on various subjects (e.g., languages, music, maths) or different forms of talent. In addition, it is possible to leave primary school after four instead of six years in order to attend these special classes. Some schools also offer a so-called "revolving door model" following the Schoolwide Enrichment Model, which allows children to participate in individual lessons at a higher level.

Bremen

Bremen offers gifted education and talent support in various ways. At primary school level, talented children are able to attend "special projects" for which they are allowed to leave their regular lessons. Each project group consists of 12 children who collaboratively work on a particular topic and achieve self-regulated learning strategies. Apart from that, Bremen usually attempts to support different talents in an inclusive setting. Therefore, a pilot project has been developed that involves the cooperation of a primary and a secondary school. Individual talents are diagnosed and supported in order to achieve optimal results in performance. This project is supported by the University of Bremen and the Karg-Foundation (Pfälzer Weg, 2012). There are a number of regional counselling and support centres in Bremen as well (e.g., ReBUZ). Projects provided by external institutions are a further characteristic of gifted education in Bremen. Apart from regular opportunities to study at the universities of Bremen, the German Aerospace Centre and the Centre for Marine Environmental Science both offer special projects for talented children. Here, children are able to participate in experiments and conduct research projects on their own.

Hamburg

Gifted education and talent support in Hamburg are covered by a network called "Butterflies" ("Schmetterlinge"), which is a cooperation of primary schools developing talents. From 2004 to 2007 and from 2010 to 2012, schools participated in this project and qualified as schools competent to diagnose and support gifted children. These schools acquire a seal of quality. Secondary schools are also involved in this network, which is coordinated by the

counselling centre “BbB” (“Beratungsstelle besondere Begabungen”). In addition, several schools in Hamburg offer special classes for talented children. In some cases, so-called “skipping classes” (“Springerklassen”) can also be found. Highly able children can also attend additional classes on particular topics (enrichment projects), either as part of a revolving door model (parallel to regular lessons) or in addition to their regular lessons. It is also possible to participate in lessons of particular subjects at a higher level (acceleration). Finally, some primary schools focus specifically on particular aspects (e.g., bilingual and immersion schools or sport classes).

Hesse

There are a number of aspects to Hesse’s approach to gifted education and talent support. The federal state awards a so-called “Seal of Quality Giftedness” (“Gütesiegelschulen”) to those schools whose school programmes focus on promoting gifted children, diagnosing talents and counselling parents. The intention in Hesse is that highly able children stay and learn in their regular classes. There is only one special grammar school (i.e., Boarding School Schloss Hansenberg), which is supported by the federal state as well as by individual companies. Schloss Hansenberg supports scientifically, mathematically and politically talented children. Moreover, there are various counselling centres as well as school psychologists. The special counselling and research centre “BRAIN”, which focuses exclusively on giftedness, is affiliated to the Marburg University. In addition, the centre for giftedness in Frankfurt/Main serves as a counselling centre and offers different extracurricular classes (e.g., chess, art, maths, research projects, etc.). Finally, the foundation “Houses of Little Researchers” (Stiftung “Haus der kleinen Forscher”) should also be mentioned. It establishes further education programmes for teachers in order to develop and support children’s interest in science and technology, and to generally kindle their interest in conducting research. Here, programmes start as early as at nursery school and are continued in primary school.

Mecklenburg-Western Pomerania

In Mecklenburg-Western Pomerania, the model for supporting gifted and talented children covers participation in “study days”. Highly able children have an opportunity to attend courses of their choice on one day every two weeks. These days are organised by school boards. At secondary school level, special classes are installed (one in each district) that support giftedness by offering special courses in maths, science and foreign languages. The participating schools also serve as centres for diagnosing and counselling giftedness. There

are also special schools, such as sport or music schools, while some schools focus exclusively on high ability (e.g., CJD Christopherusschule Rostock and Boarding School Schloss Torgelow).

Lower-Saxony

Regarding gifted education and talent support, Lower-Saxony includes school networks for accompanying and guiding highly able children. These networks consist of nursery as well as primary and secondary schools, and strengthen the cooperation and exchange of information between the different types of school. Special classes for gifted children can only be found at the “CJD Christopherusschule Braunschweig”. In addition, a number of schools offer the option of attending individual classes in particular subjects at a higher level (acceleration).

North Rhine-Westphalia

There are various approaches to ability promotion in North Rhine-Westphalia. One component is the quality seal (former “Quality Seal Individual Support”, now “Network Future Schools North Rhine-Westphalia”), which is awarded to schools that focus on supporting highly able children by offering special training for their teachers, and by applying differentiating teaching methods. The award is connected to a network that promotes giftedness in North Rhine-Westphalia. This network qualifies schools for supporting gifted children, sets goals for supporting the gifted in the process of school development, and builds regional networks for cooperation in the process of supporting giftedness. In addition, the “Foundation for Education to Promote the Gifted” (“Stiftung Bildung zur Förderung Hochbegabter”) awards the “School Prize for Gifted Education” to those schools diagnosing, supporting and counselling highly able children. Furthermore, there are various research and counselling centres (the International Centre for the Study of Giftedness, Hochbegabtenzentrum Rheinland and the Competence Centre Begabtenförderung Düsseldorf). The International Centre for the Study of Giftedness is a cooperation facility of the Universities of Münster, Nijmegen and Osnabrück. It also cooperates with the Statewide Competence Centre for Individual Support, which is promoted by the federal state. Based on the “Schoolwide Enrichment Model” and the “Autonomous Learner Model”, this centre has developed the so-called “Challenge and Support Project”, which (primary and secondary) schools often realise for independent projects of small learner groups or advanced studies in self-determined projects, which are included in and systematically employed as a means of teaching self-regulated and research-based learning (Fischer &

Fischer-Ontrup, 2012). While it is generally intended that highly able children are taught in integrative or inclusive settings and in the regular classroom (particularly in primary schools), the CJD Chistopherusschule Königswinter provides special classes that support gifted children.

Rhineland-Palatinate

Rhineland-Palatinate offers early support for gifted and talented children and covers the cooperation of nursery and primary schools. Here, gifted children are able to participate in an inter-year project once a week, which is not limited to a particular subject. Working on a topic of the children's choice represents a second constituent of this "research day". The tasks studied in the project are taken into regular classes in order to ensure a connection between the project and regular lessons. In addition, special classes ("BEGYS-classes") at grammar schools are offered. These allow highly motivated and gifted children to reduce their overall time at school, as the whole class skips year 9. There are also some schools that focus on particular subjects (e.g., bilingual classes, music education, etc.). In addition, four special schools for supporting highly able children have been affiliated to secondary schools (Max von Laue-Gymnasium Koblenz, Auguste-Viktoria-Gymnasium Trier, Heinrich Heine-Gymnasium Kaiserslautern and Otto-Schott-Gymnasium Mainz-Gonsenheim). Rhineland-Palatinate also includes the "Children College" ("Kinder-College") in Neuwied, which is an extracurricular institution offering classes on all subject areas on the weekends. It is funded by the federal state as well as by donations and fees for the classes. The International Centre for the Study of Giftedness has evaluated this college and confirmed its quality and efficiency (Kinder-College, 2014). Finally, there are various competence centres for giftedness incorporated into three school psychological counselling centres, as well as one counselling centre that cooperates with the CJD Trier.

Saarland

In Saarland, highly able children can attend additional classes on interdisciplinary topics in parallel or in addition to their regular classes. This programme aims at adding content to the regular curriculum, while the focus is mainly on achieving learning strategies and social competences. There is also a counselling centre ("IQ XXL Beratungsstelle Hochbegabung") that organises different projects, as well as offering diagnosis, counselling and support to high-ability children and their parents.

Saxony

In terms of gifted education and talent support, Saxony has two special schools for gifted children: one primary school (Grundschule Josephine Dresden) and one secondary school (Sächsisches Landesgymnasium Sankt Afra). These schools offer individual learning contracts, contests and additional projects for highly able children. At Sankt Afra, children take three advanced courses (Leistungskurse), study three foreign languages, and write an academic paper. Apart from the special schools that support talented children in general, some schools (“§4 Gymnasium”) focus on particular talents (e.g., science, languages, music, art and sport). Several primary schools offer particular projects for supporting gifted children, who can attend individualised lessons and are enabled to apply their talents and to cooperate with their classmates. In Saxony, there are also a number of networks of different schools. The network “GIFted” covers integrative support by offering individualised learning opportunities and projects at 22 different secondary schools. This cooperation also includes an exchange between teachers. It is supported by the University of Leipzig and affiliates a counselling centre, while a second counselling centre for giftedness (BzB) is installed and supported by the federal state.

Saxony-Anhalt

In Saxony-Anhalt, ten different boarding schools focusing on a range of talents (sport, maths and science, language, arts and music) can be found. Here, additional lessons on the promoted subject are provided, while other lessons also relate to it. Moreover, there are extracurricular projects offered that allow highly able children to deepen and broaden their content knowledge of particular subjects. Saxony-Anhalt is further characterised by its networking schools, consisting of six primary and eight secondary schools, which are awarded a seal of quality for participating. These collaborations develop differentiating and supportive lesson concepts as well as counselling parents, teachers and students. Saxony-Anhalt’s counselling centre “LISA’s Supporting Giftedness” (“Hochbegabungsförderung” des LISA) coordinates this network.

Schleswig-Holstein

In Schleswig-Holstein, a number of different approaches to gifted education and talent support can be found. One constituent is school networks organising additional classes for gifted children to conduct projects of explorative learning. Highly able students are also offered individual learning schedules from primary school onwards, which enables continuity in support and diagnosis. The counselling centre “MIND” (“Motivations- and Intelligenzdiagnostik”)

is affiliated to the University of Kiel. In addition, individual teachers provide counselling services in cooperation with the government. Another characteristic of ability promotion in Schleswig-Holstein is the mentor project “Peer to Peer”. Older gifted children (from the age of 14) serve as mentors for younger highly able children, with the mentors attending a special training on aspects of giftedness. This project is offered at eleven secondary schools, which also serve as competence centres (“Competence Centres for Supporting the Gifted in Secondary Schools”), as they have developed various concepts for supporting gifted children, as well as providing advice and guidance to other schools. There are also five competence centres at nursery and primary school level. Finally, schools that offer particular projects for supporting giftedness are classified as “Schools Including Support of Giftedness” (“SH i B – Schule inklusive Begabtenförderung”).

Thuringia

Gifted education and talent support in Thuringia are covered by a range of extracurricular courses for primary school children. The classes, which are organised as camps lasting for a couple of days, take place parallel to regular lessons, from which the participating children are allowed to be absent. At secondary school level, some schools offer special classes on different subjects (maths and science, music, language and sport). Another form of ability promotion in Thuringia is a group of schools of mathematics (Jena, Erfurt and Ilmenau), which also include a regional counselling centre.

Overall, the presentation above shows that Germany embraces a diverse system of talent support, including quite different forms of measures. While some activities, such as various enrichment projects, can be found in several states, there are also means that are specific to one particular state. Concerning special activities in gifted education and talent support (Table 4), it can be said that south and east German federal states usually include schools for highly able children, whereas north and west German federal states rely exclusively on regular schools and classes. This can often be traced back to the ruling political party in the individual states. Furthermore, throughout Germany, talented children are able to start school before the regular school age, as well as having the possibility to skip a class. The large range of measures offers abundant opportunities for the future of supporting talents in Germany. By evaluating the concepts applied and by networking more closely, the states could benefit from each other, which could lead to the development of a general national strategy of talent support.

Conclusion

In summary, Germany and its federal state structure has advantages as well as disadvantages with regard to gifted education and talent support. The present paper concludes with a “SWOT analysis” covering the strengths, weaknesses, opportunities and threats of the German activities. In a second step, aspects of the SWOT analysis are combined in order to evaluate which aspects can serve to improve gifted education and talent support in Germany. All of the aspects mentioned serve the purpose of systematising; however, it should be remembered that strengths can easily turn into weaknesses and vice versa.

Table 4. *SWOT Analysis of Gifted Education and Talent Support in Germany*

SWOT Analysis	Strengths	Weaknesses
Opportunities	The diverse systems of gifted education and talent support represent a noteworthy strength. They include a range of contests and academies, a complex system of foundations (e.g., the Karg-Foundation focusing explicitly on giftedness and offering different forms of support) and counselling centres, some of which are affiliated to research centres. In addition, Germany is an economically strong country with many resources available.	The large number of various measures related to gifted education in the different federal states is a disadvantage, as there is a lack of a common national strategy of talent support, which is also due to a lack of networking. Furthermore, the measurements depend strongly on the ruling political party in the individual states. Another significant weakness is that giftedness still does not form an integral part of various discussions, such as the debate on inclusion or on the results of comparative studies such as PISA (2012, 2014), PIRLS (2012) or TIMSS (2012).
Threats	The German concept of gifted education has numerous opportunities for further improving its models. The states can benefit from each other's experiences and expertise by networking and exchanging ideas and information on their applied concepts of ability promotion. Moreover, focusing not only on less able but also on highly able children is a promising aspect.	The threats that the German system faces include the fact that potentials are not diagnosed and that there is too much focus on deficits. Particularly with regard to the concept of inclusion, there is a danger of labelling, and of the term inclusion only being associated with less able children.

Table 5. *SWOT Analysis II of Gifted Education and Talent Support in Germany*

SWOT Analysis II	Strengths	Weaknesses
Opportunities	Germany's economic strengths should be used to invest in supporting gifted education and talent support. This could cover all forms of supporting gifts and talents. It could also be used to concentrate on potentials rather than on deficits.	The diversity of models could be used for building a national strategy of gifted education and talent support in Germany. This would require more networking of the federal states as well as their counselling and research centres. Furthermore, the focus on less able children and their deficits needs to be replaced by focusing more attention on potentials.
Threats	The threats of potentials not being fully exploited can be avoided by using Germany's economic strengths to invest in new and diverse approaches to gifted education and talent support. These should apply to the individual as well as to society as a whole.	Due to the lack of systematic diagnostics, it is necessary to improve the qualifications for identifying potentials. This would diminish the risk of failing to diagnose abilities and potentials. With regard to the discussion on inclusion, ways of including highly able children should also be considered, in order to avoid putting too much emphasis on the less able and their deficits.

Overall, gifted education and talent support increasingly form a more integral part of educational, societal and political discussions in Germany. New insights gained through special research on giftedness and talent, as well as the large variety of measures for supporting gifted and talented children, lead to an improved understanding and appropriate concepts of ability promotion. Still, there are opportunities for further improvement, such as the need to distinguish between performance and potential. However, the Conference of the Ministers of Education and Cultural Affairs has recently launched an initiative that deals with this issue. By incorporating different associations and foundations, as well as research and politics, this initiative aims at developing a national strategy of gifted education and talent support in Germany.

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Biographical note

CHRISTIAN FISCHER, PhD is full professor for Educational Sciences with a focus on School Research: Gifted Education and Individual Promotion at the University of Münster, Germany. He is academic director of the International Centre for the Study of Giftedness (ICBF) from the Universities of Münster, Osnabrück and Nijmegen (the Netherlands). He also is vice president of the European Council for High Ability (ECHA) and Program Director of the European Advanced Diploma in Educating the Gifted. He is member of the editorial board of the Austrian journal for gifted education and his publications focus on gifted education, individual promotion, learning difficulties and self-regulated learning.

KERSTIN MÜLLER graduated from the University of Münster in summer 2013, where she earned a Master of Education in English and Religious Education. She also holds a Master of Arts in Teaching English to Speakers of Other Languages from Durham University, UK. In October 2013 she started her PhD on 'Religious Education in the US' at the University of Marburg. Since 2013 she has also been working for the International Centre for the Study of Giftedness in Münster.

An Overview of the Current Status of Talent Care and Talent Support in Hungary

CSILLA FUSZEK¹

After a short historical introduction, the article provides an overview of the current talent support trends in Hungary. It gives an insight into the legislation, guidelines and institutional system associated with the national talent support strategy, and presents the main NGO initiatives present in the early 21st century, in particular the organisations brought to life by the Hungarian Talent Support Council and their effect on current education policy. At the same time, the article seeks to present the strengths and weaknesses of the national talent support strategy and the Hungarian talent support cooperation model.

Keywords: education, talent support strategy, networking, cooperation model

¹ European Talent Centre Budapest, Budapest, Hungary; csilla.fuszek@talentcentrebudapest.eu

Pregled stanja o trenutni skrbi in podpori za talentirane na Madžarskem

CSILLA FUSZEK

☞ Po kratkem zgodovinskem pregledu je v prispevku predstavljen pregled smernic na področju podpore talentiranim na Madžarskem. Podrobneje so predstavljeni zakonodaja, smernice in institucionalni sistem, povezan z nacionalno strategijo podpore talentiranim. Povzeti so glavne nevladne iniciative v začetku 21. stoletja, še posebej organizacij, katerih nastanek je bil podprt v okviru Madžarskega sveta za podporo talentiranim (Hungarian Talent Support Council), ter njihov vpliv na trenutno izobraževalno politiko. Hkrati skuša prispevek predstaviti prednosti in slabosti nacionalnega sistema podpore nadarjenim in madžarski sodelovalni model podpore nadarjenim.

Ključne besede: izobraževanje, strategija podpore nadarjenim, mreženje, sodelovalni model

Historical antecedents

In order to understand the current achievements of Hungarian talent support and the relevant national strategy, the *National Talent Programme*, let us first briefly review its historical achievements and milestones and, in particular, public education traditions dating from the 20th century, as well as recent NGO initiatives.

The beginnings of institutional talent support

József Martinkó's work on the history of the Hungarian Talent Support Society reviews the milestones of Hungarian talent support and shows how institutionalised talent support emerged in Hungary the 19th century. At that time, the Reform Age² intelligentsia defined the importance of talent support in a way similar to the current approach, which is when the idea that Hungary can only occupy the position that is worthy of it in the European cultural arena by appreciating those with exceptional talents – “educated minds” – emerged (Martinkó, 2006).

The achievements of the first decades of the 20th century are mostly associated with certain renowned personalities. In 1918, psychologist Géza Révész³ published what was a unique paper in the international context under the title *Topical Problems of Talent* in the journal *Magyar Pedagógia*. The 1st *Talent Protection Congress*, organised in 1926 under the ministership of Kúnó Klebersberg,⁴ was undoubtedly a landmark event in the history of Hungarian talent support. The 1935–1947 period saw the launch of several pre-war talent support programmes, and this period has, with good reason, been called the golden age of state-supported talent care. This was the time of the first organised efforts to rescue talent, culminating in the National Programme to Save Hungarian Talent in Villages, encompassing 72 general secondary schools. The first ministry decree on public talent support was released in 1941 (Martinkó, 2006).

In 1948, a new era commenced. It was dominated by the idea that the introduction of compulsory schooling and eight-year primary school had made any special programme to support underprivileged pupils redundant. From that time until the end of the 1970s, talent support could only exist in the form of undercurrents (Martinkó, 2006). Nevertheless, some initiatives of international

2 Reform Age (1825-1848).

3 Géza Révész (1878-1955).

4 Minister of Religion and Public Education (1922-1931).

relevance also appeared during this period, such as primary schools specialised in music and singing, which were initiated in 1956 to promote talent selection. The later establishment of primary-level art schools was a consequence of this initiative. The scientific students' movement, a real "Hungaricum" that now involves thousands of university graduates annually, also dates from this time.⁵

The 1980s and developments since the system change⁶

Hungarian talent support, which boasts remarkable traditions in the identification and development of gifted children, gained new momentum from the early 1980s on. The first milestone was the formation of the *Hungarian Talent Support Society*, which was initiated in 1989 by 84 enthusiastic psychologists, lawyers, economists, bankers and entrepreneurs in order to provide an extensive social basis for bringing professional expertise and political will together, thus revitalising Hungarian talent support (Hungarian Talent Support Society, 2014).

The system change and the years following it brought major developments in the legislative environment as well. The concept of talent support reappeared in the legislature. Act LXXIX of 1993 on public education declared that "*Children and students shall have the right to receive education and teaching in conformity with their abilities and interests, to pursue further studies, in accordance with their abilities and to receive primary art education in order to discover and develop their artistic talents*". The Act codified the still existing primary-level art school system (regular art schools in the afternoon, mainly financed by a normative budget contribution), through which hundreds of thousands of pupils can test their limits annually and unfold their artistic talents.

Government Decree No. 111/1997 on teacher qualification requirements was also exemplary in Europe, as it was the first decree declaring that talent support should be included in mandatory teacher training. This was followed by a series of government decrees regulating the further training of teachers.⁷ In 1999, the "talent and its development" special educational programme was launched. In the wake of the pioneering work of the Debrecen University, this programme is currently accessible at five locations in the country: Eötvös Loránd University, the Western Hungarian University, Szent István University

5 1952.

6 1989-90.

7 Government Decree No. 277/1997 regulated the further training system of teachers; Decree No. 29/1997 MKM of the Minister of Economic Affairs and Communications covered relevant further training in talent development; and Decree No. 41/1999 OM of the Minister of Education introduced a special talent development examination programme.

and Eszterházy Károly College, with the latter offering an MA programme for would-be talent support specialist teachers. More than a thousand Hungarian teachers have obtained a talent development specialist degree in recent years, which is a substantial number in European terms as well.

As reflected by the relevant decrees, a positive shift has occurred in the legislative environment of talent support in recent decades and, in parallel, both public and civil society initiatives in talent support increased rapidly in the 1990s. Amongst the latter, the *National Youth Scientific and Innovation Contest*, organised and led by János Pakucs and László Antos, excelled. It was announced by the Hungarian Innovation Society for the first time in 1991 and was modelled on similar EU initiatives. Anyone could apply with an idea targeting the scientific solution to a particular problem, or with a proposition in the field of the natural sciences (biology, physics, chemistry and geography), environmental protection, IT, telecommunications, computer science and technical sciences or mathematics. With the 1st National Youth Innovation Contest, Hungary became the first East Central Europe country to join the EU contest series.

Representing a novel type of initiative, the *Association of Researcher Students* commenced in 1996 under the leadership of Péter Csermely. This programme offers research opportunities for secondary school students with excellent abilities at the best Hungarian research sites, with the assistance of a mentor network comprising outstanding scientists. In 2004, it won the EU Descartes Prize, and the idea has since been adapted in several countries (*Association of Researcher Students*, 2014). In 2005, the *Association of Researcher Teachers*, another unique civil society initiative, was launched as well (*Association of Researcher Teachers*, 2014).

These recent NGO activities, of which we have only mentioned the most significant, are organically integrated into the traditionally exclusively public system of Hungarian talent support. Besides subject-specific talent support classes in elementary and secondary school, the traditions have been marked by the *Academic Competition of Secondary School Students in Hungary* (OKTV), which already has a history of several decades, while Hungarian students have also excelled for decades at the international Student Olympics, in which Hungary is in the vanguard in Europe. The competition-centred approach is most typical of traditional Hungarian talent support, as witnessed by the fact that, in a country with a population of around 10 million, there are currently approximately 300 quality competitions for students in public education, with the number of mathematics and natural sciences contests being particularly high.

Traditional talent support in higher education is based on the activity of scientific students' associations, with a history of more than 60 years. Their

biannual *National Conference of Scientific Students' Associations* provides an opportunity for the best university and high school students to present their scientific results to an evaluation committee made up of renowned professionals, professors and members of the Academy. The scientific students' movement, which mobilises tens of thousands of people, also plays a major role in talent identification, and it has been provided with public support since its establishment in 1952 (Scientific Students' Associations, 2014).

At the beginning of the present millennium, not only civil society, but also public talent support was renewed. In 2000, the Ministry of Education announced the *Arany János Talent Support Programme*, which has to date involved more than ten thousand children and is designed to enhance the opportunities for disadvantaged children living in small settlements to continue their education, in order to promote social mobility and reinforce the intelligentsia in rural areas. Realised through the cooperation of 23 general secondary schools and student hostels with considerable talent support traditions, the programme was the first complex national talent support programme associated with many reforms that have altered previous talent support concepts. This secondary school programme introduced the teaching of learning strategies, and its self-knowledge programme provides effective assistance to talented students, helping them to improve their self-assessment. Its student hostel programmes have increased the amount of time students spend in guided learning. The results of the programme have shown that, with adequate assistance, talented students suffering from multiple disadvantages can produce the same results as their peers coming from middleclass or upper middleclass families. The numerous domestic and foreign presentations of the programme have earned it fame and recognition from the leading authorities in the field (*Arany János Talent Support Programme*, 2014).

The *Complex Talent Support Network Programme of the Borsod-Abaúj-Zemplén County*, another programme enjoying public (county) support, went live in 2003. Its aims are to gather together, assist and financially support individual initiatives in the county, to deploy a county network of talent identification, and to support and establish the technical and financial conditions for operation. Its activity was transformed from 2010 on, with its gradual merger into the Talent Point network system established by the Genius Programme, of which it was a model example. While in operation, the programme was studied by numerous Hungarian and European professionals, who propagated this best practice outside Europe as well (Kormos, 2014).

The National Talent Support Council, 2006

As demonstrated by the aforementioned projects, there were several substantial public and civil society initiatives in the last two decades of the 20th century and in the early 21st century. These initiatives supplemented and reformed the content and structure of the traditional approaches. In 2006, these talent support activities were brought under an umbrella organisation, a network, thanks mainly to the activity of Professor Péter Csermely. The *National Talent Support Council* (hereinafter, the Council) started its work with 6 member organisations, mainly NGOs, and currently has 44 members, both domestic and cross-border. It currently has more than 100 partner organisations, and this figure continues to rise. The eight years since the formation of the Council have demonstrated that the creation of an umbrella organisation, based on a civil society initiative, was actually a historical feat, another milestone along the way to the typical Hungarian talent strategy of today. An investigation of the goals of the Council reveals that the members had quite definite ideas right from the start regarding talent support in Hungary and across the borders. Let us sum up in broad strokes – without aiming at completeness – the concepts of the Council that have been realised to date:

- One goal was to create an opportunity for Hungarian and cross-border talent support NGOs to reconcile their standpoints, and to promote and shape the further development of the Hungarian talent support system by studying domestic and foreign examples, organising professional fora, acquiring support options, considering new forms and announcing tenders;
- Pursuant to Government Decree No. 1043/2006 (IV. 19.), the Council now offers a permanent and organised forum for dialogue between member organisations and the administration, enabling member organisations to express their demands and communicate their opinions on the talent-support-related plans of the administration, and to exercise social control over the administration's activity in this regard;
- The Council offers member organisations an opportunity to publish information about themselves on their common website (www.tehetsegpont.hu), in publications, at regional information points (Talent Points), at regional fora and in the media.

Not long after its establishment, the Council felt the need to have a legal personality to pursue its operative activities, and hence the *Hungarian Association of Talent Support Organisations (MATEHETSZ)* was formed from its

members and registered on 18 October 2006 (Association of Hungarian Talent Support Organisation, 2014).

Formulation of the National Strategy – 2008

By early 2008, under the management and coordination of Professor Péter Csermely, the members of the Council managed to jointly compile the so-called *Genius Integrated Talent Support Programme*, serving as a professional basis for the national talent strategy planned for 20 years.

At the 1st *National Conference on Hungarian Talent Support*, organised in Budapest on 22 February 2008, the Council was already in a position to share the good news that extensive cooperation had been established to identify and nurture talent. Talent support became a national issue, and the *National Talent Programme (NTP)*, prepared on the basis of *Genius*, was soon ready to be submitted to Parliament, thanks especially to the devoted work of Professor Péter Csermely, who worded the programme and designed the relevant national strategy, and MP Dénes Kormos, who had a decisive role in ensuring that the bill on the 20-year strategy was passed in Parliament in December 2008 with almost no negative votes.⁸ During 2009, Parliament also passed decrees on the institution of the financial bases of the talent programme.⁹

Thus in 2008, with the Parliamentary Decree referred to above, Hungarian talent support reached another milestone, as Parliament raised it to the level of a public programme, motivated by the revelation that the talent support efforts of the profession and civil society could achieve their goals much more effectively with public support, possibly leading to measurable results already in the successes of the next generations.

Initially, the *National Talent Fund* created pursuant to the Parliamentary Decree had two main sources. The one that excelled – and now actually remains as the sole source – is a 1% talent support contribution of citizens based on their PIT. It is welcome news that the number of people offering their 1% to promote this cause has been rising year by year, thus ensuring the realisation of this national strategy.

8 Decree No. 78/2008 (VI. 13.) OGY of the National Assembly on the National Talent Programme; Decree No. 126/2008 (XII. 4.) OGY of the National Assembly on the adoption of the National Talent Programme, the principles of its financing and the guidelines for the establishment and operation of the National Talent Coordination Forum.

9 Government Decree No. 152/2009 (VII. 23.) on the financing of the National Talent Programme; Government Decree No. 119/2009 (VII. 23.) on the establishment and operation of the National Talent Coordination Forum.

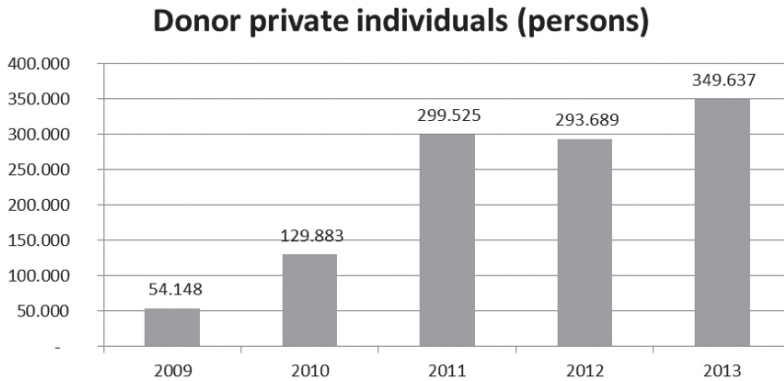


Figure 1. The number of individuals offering 1% of their income tax has been steadily increasing since 2009

The sums being offered (also derived from other sources, as the case may be) have been increasing consistently, with one major rise in 2011. The HUF 417,330,521 recorded in 2009 had risen to HUF 1,381,200,878 by 2013.¹⁰

The funds (received by the National Talent Fund) earmarked for promoting the accomplishment of the tasks of the National Talent Programme are allocated/utilised on the basis of recommendations by the *Talent Coordination Forum*. The president of the Forum is the minister responsible for education, and its co-presidents are the President of the National Talent Support Council, an MP delegated by the Education and Science Committee of Parliament, and the President of the Hungarian Academy of Sciences. The minister responsible for education is entitled to make the final decision.

In order to provide for the professional management of the National Talent Programme, the *National Talent Support Programme Management Office*, which assumes responsibility for the operational management of the Programme, was set up in the Institute for Educational Research and Development, one of the background institutions of the ministry responsible for education.

The functions of the PMU include tasks associated with the operation of the Talent Support Coordination Forum, the development of application plans conforming to the action programme to be submitted to the National Talent Support Coordination Forum, and the wording of tender announcements subsequent to relevant ministerial decisions. The PMU is also responsible for the professional evaluation of the tenders received, their submission for ministerial decision making, and the professional supervision of their implementation. In short, it takes responsibility for the implementation of the National Talent Programme.

¹⁰ Information provided by the national Talent Support Management Office.

Guidelines and action plans of the National Talent Programme:

The Hungarian National Talent Programme (national strategy) is characterised by a long-term approach, covering a period of 20 years (2008–2028). Its fundamental values are value preservation, diversity, creating opportunities, continuity and interoperability, selection in the active and passive sense, self-development, efficiency, a gradual approach, responsibility and social commitment, appreciation of talent support staff, sustainability and social support.¹¹

The operational objectives are broken down into *two-year action plans*, and are defined within that context (the third two-year action plan is currently being implemented). Each new action plan overlaps with the previous plan, with minor differences. All of the action plans include a priority development topic, e.g., preservation and enrichment of talent support traditions, ensuring equal opportunities in talent support, enhancement of community-building efforts and social commitment of talented youth, or appreciation of talent staff and organisations (institutions of education and instruction). As a priority objective, the last two plans¹² have also included familiarisation of the Member States of the European Union, and of other countries, with the achievements of Hungarian talent support.¹³

The Contribution of NGOs to the National Talent Support Programme

As mentioned above, the National Talent Programme was in fact the result of civil society cooperation under the National Talent Council. MATEHETSZ, the operative body of the Council, has also participated as an applicant to tenders of the National Talent Programme in recent years, and some of its financial units (National Talent Point, European Talent Centre – Budapest) are actually funded through NTP tenders. However, a special situation has arisen on two occasions with MATEHETSZ being the beneficiary of ESA funds received by Hungary.¹⁴ The first major support was used to implement the revised version of the *Genius Integrated Talent Support Programme* referred to above, as well as the ongoing Talent Bridges Programme. Both programmes target the fundamental restructuring of Hungarian talent support and are therefore particularly important within the National Talent Programme as a means of ensuring the cooperation of the public and private sectors in talent support.

11 Based on Decree No. 126/2008 (XII. 4.) OGY of the National Assembly.

12 Action Plans for 2011–2012, and for 2013–2014.

13 Based on *Nemzeti Jogszabálytár* (http://njt.hu/cgi_bin/njt_doc.cgi?docid=162281.246012)

14 2009–2011: TÁMOP (SRÖP) 3.4.4; 2012–2014: TÁMOP (SRÖP) 3.4.5.

Genius and the Talent Bridges Programme

The core of the restructuring effort under the Genius Programme (2010–13), i.e., the systematic reform of the talent support network, was the deployment of a system based on cooperation and driven by the NGO segment. This process is not yet complete, but its successful grounding is associated with the Genius Programme. The essence of the cooperation model is that every effort to support the talented (e.g., identification, guidance etc.) is channelled to the national system of so-called Talent Points, in order to ensure the best and most diverse support possible to each and every talented person. The system is designed so that the various forms of talent support, both within and beyond the scope of public education, have equal weight within it.

The main components of the establishment of the network were the introduction of the concept of Talent Points, the theoretical grounding of relevant professional standards, and awareness-raising about Talent Points among the talented (as well as their parents and professional supporters) through the internet. The interactive map displayed on the website (<http://tehetseg.hu/>), which comprises more than 1200 Talent Points from all over the Carpathian Basin, is the outcome of a long process requiring constant professional and graphic renewal.

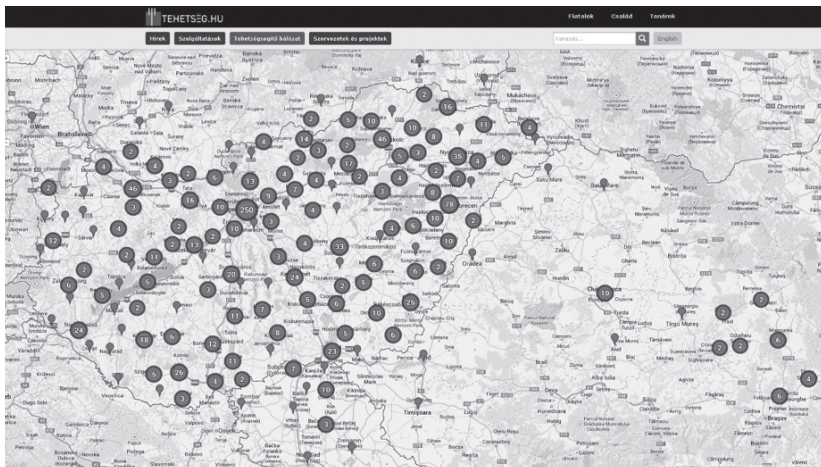


Figure 2. Map of the Hungarian Talent Points – <http://tehetseg.hu/tehetsegpontok/terkep>

The website already provides for exceptionally fast communication regarding talent support issues, as witnessed by the hundreds of thousands of

visitors to its 11,500 pages annually.

The sub-projects of both the Genius and the Talent Bridges programme are mainly based on the structure of the Talent Point cooperation model under construction, and bring together most of the talent-support activities in the country up to 2013, including the most significant activities. Initially, the objectives targeted under the programme mainly concerned the expansion of the professional knowledge and skills of teachers and other professionals working at the Talent Points, with a significant number of short courses (10-30 hours) being designed. More than 10% of the Hungarian community of teachers have taken part in these courses, and the series of books published under the programme (35 volumes to date), which, like the short courses, are based mainly on Hungarian research and best practices, have filled a major gap in Hungary. The Talent Bridges programme (2012–14) focuses on upgrading the existing network structure by providing support to Talent Points, but MATEHETSZ, as the project owner, has also organised many other programmes of direct relevance to talented students or their environments.

Concurrently with the launch of the two programmes, certain tenders under the National Talent Programme have also related to the reinforcement of the talent support network (Talent Bridges Program, 2014).

Civil society structures

By 2011, the emerging network brought to life the so-called *National Talent Point (NTP)*, dedicated essentially to the development of the website of the network and the storage and maintenance of network data (talent map, database of best practices) within MATEHETSZ, operating with different headcounts depending on the projects. The NTP collects and disseminates the best practices of Hungarian talent support. It is responsible for ensuring the steady and rapid flow of information within the network, and it contributes to communication between the various talent support forms, as well as encouraging connections between domestic and cross-border talent support initiatives by organising publications, talent days and conferences. The National Talent Point is funded from domestic sources by the National Talent Programme.

The National Talent Point has become one of the most significant nodes of the network, but by 2012, so-called *talent councils*, i.e., self-organised forms with official representation, had also emerged. From the point of view of networking, this may be regarded as one of the most important results of the cooperation model. The councils are built partly on previous, traditionally well-functioning networks (such as the Association of Mathematics Teachers), and

partly on novel groups dedicated to talent support and undergoing dynamic development (the Talent Support Council of Somogy County, the Roma Talent Support Council, the Council to Support Talent with Special Educational Needs, etc.). Many of the regional or national councils have their own publications or websites, which are no longer created out of the components of the existing talent point system. A 2013 survey conducted by Dénes Kormos on the composition of the councils shows how diversified and colourful they are.

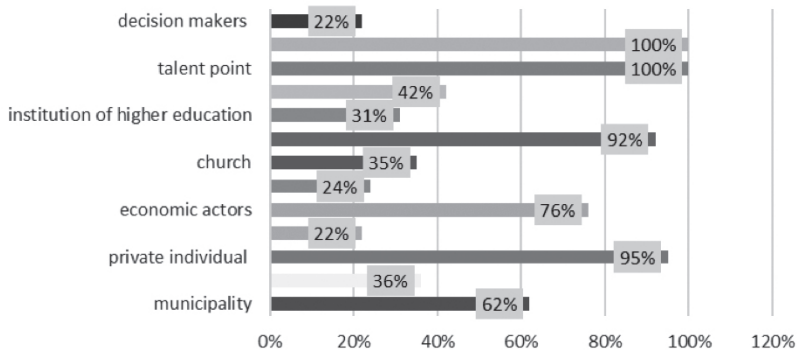


Figure 3. Compositions of the Talent Support Councils in 2013 according to D. Kormos's research

The youngest NGO is the *European Talent Centre (EUTC)*, which is based in Budapest and was formed in mid 2012. It is funded mainly by the Hungarian National Talent Programme, and is dedicated to goals aligned with the guidelines of the NTP. It also focuses on making Hungarian talent programmes visible in foreign languages, preparing best practices for adaptation in the European Union, organising EU Talent Days, initiating EU cooperation and supporting international experience exchange. In short, the EUTC promotes the establishment of a European talent support network, to be modelled, among other things, on the already existing Hungarian talent support model. Cooperation between the EUTC and the European Council for High Ability (ECHA) is exceptionally important in this work (European Talent Centre – Budapest, 2014).

The operation of both the NTP and the EUTC is an excellent example of cooperation between the public and private sectors, as a key point of their operation is close cooperation with MATEHETSZ.

The number of Talent Points has been increasing steadily – at times with extraordinary rapidity – over the past eight years, with 10–12 new activities or

institutions often being registered on the website weekly. By the end of 2013, this growth had raised questions, as a matter of course, concerning the topological type of the network and the extent to which we can speak of a genuine network of Talent Points with interconnected components. However, to quote Professor Zoltán Nédai's typological research on the initiative of civil society and within the framework of the National Talent Programme, the Talent Points had, by the end of 2013, organised themselves into a real network, thanks to the activities of MATEHETSZ and tenders announced by the NPT. The number of Talent Points without contacts is minimal (5.8%), and within the network, the National Talent Point, as a key actor in the flow of information in its current status, is of primary importance. Each Talent Point has an average of six network connections; the task ahead is to raise this number, i.e., to establish more and more contact points (Nédai, 2014). In this respect, special importance should be assigned to the appropriate tendering system, to maintaining civil society initiatives, to the allocation of the 1% donated by society to talent-support activities, and to its transfer to talent support organisations.

A crucial and novel feature of the national talent support network is the highly diverse profile of the Talent Points included in it and their special professional content: anything can be a Talent Point, from a chess club to a university department, from a public education institution with a long-standing tradition to teaching units established for only one or two years. The only condition is that their activity is, within the system of the activity concerned, driven by adequate professional standards. Whether one looks at the network as an observer, from the outside, or as a professional, from the inside, its diversity may be difficult to accept and handle, due to the frequent interpretation of standardisation as uniformity, which is actually rather removed from an NGO-based entity, and more typical – perhaps quite rightly – of the public administration point of view.

The emergence of network-based thinking in public talent support

Decree No. 15/2013 (II. 26.) EMMI of the Minister of Human Resources on the operation of pedagogical expert services created a unique opportunity for the cooperation of the public and the private sectors. As early as 2011, the Public Education Act defined whom the effective legislation regarded a particularly gifted or talented student:¹⁵ *“children/students requiring special treatment, who are highly creative and possess above-average general or special skills, and*

15 Act CXC of 2011 on National Public Education.

strong motivation and commitment may be generated in them towards the task". The Act defines care for particularly gifted or talented students as an obligation of the secondary school, integrated into everyday educational processes.¹⁶ On the other hand, Decree No. 15/2013, quoted above, makes talent support a compulsory task of Hungarian pedagogical services, obliging at least one public institution per county and in the capital to care for such students, and instituting the job of talent coordinator in order to achieve this. The national talent coordinator network is currently being established, but its functions¹⁷ relate expressly to finding the optimum support arrangement for each and every talented child, something that cannot be done without thinking in terms of networks, and a task for which cooperation with the National Talent PMU and the National Talent Point can provide clear-cut assistance.

Summary

The present article has attempted to provide an overview of the traditions and emerging trends related to Hungarian talent education that have an established statutory framework. Several talent education issues associated with small-scale practice in Hungary, such as acceleration options, have not been discussed in detail. In any country, the unfolding and preservation of talent is, of course, determined by many other circumstances of education policy, culture and infrastructure, from the recognition of teachers and the technical infrastructure of schools, to labour market needs. The National Talent Programme tries to influence these factors in several areas. In some cases, it actually triggers structural changes, but it cannot influence every factor of relevance to talent education. Thus, it can easily happen that interfering techniques coincide, cancelling or weakening each other's effects. Although we have a very high percentage (also by European standards) of teachers with specialist talent education

16 Act CXC of 2011 on National Public Education.

27. § (5) Making use of the difference between the number of weekly compulsory lessons of the student and the approved weekly time frame for classes, primary schools and secondary schools shall organise sessions for up to three students aimed at developing talents, aiding the inclusion of disadvantaged students and of students diagnosed with adaptive, learning or behavioural disorders, furthermore, activities aimed at the successful preparation of lower grade students. For developing talents and for promoting inclusion, at least one additional hour is ensured for both categories, in excess of the time frame of classes specified in Annex 6.

17 a) in contact with the school/kindergarten psychologists of the institutions of education/instruction concerned,
 b) in contact with the National Talent Point,
 c) familiar with/monitors the National Talent Database,
 d) familiar with/monitors the tender announcements of the National Talent Programme,
 e) in contact with the National Talent Development Centre operating within the Institution for Educational Research and Development.

qualification – with an ECHA diploma, or who have completed a course on the topic – research-based education is still rather exceptional (TALIS, 2009).

Another strength of Hungarian talent education is the long-term, 20-year horizon of the National Talent Programme, which provides a stable and permanent framework for the implementation of many talent support programmes. However, the application-based allocation of funds can generate anomalies and inter-grant conditions, as the central budget system does not coincide at all with the best task division matching the order of the academic year. This situation is aggravated by the fact that some tasks are not project-like, so it would be reasonable to find arrangements other than tenders for funding them (e.g., National Talent Point).

Yet another strength of Hungarian talent support is that certain signs of network-based thinking are already apparent in both civil society and the public sector. Although every opportunity is provided to intensify such thinking and to establish cooperation, the EU funds that ensure the activity of the Talent Points are also extended in the form of projects, and this is not always compatible with the routine of the public education system. This is very significant, given the fact that two thirds of Talent Points are linked to institutions of public education and, consequently, haphazard funding not only threatens the continuous activity of Talent Points, but may also make public education funds allocated to talent education haphazard as well.

In order to operate the National Talent Programme, it is imperative to have permanent consultations/reconciliation regarding task division of the public sector and NGOs, as the lack of regular dialogue may be conducive to unreasonable arrangements. There are still many unexploited opportunities in cooperation, dialogue and networking.

The key message of the Hungarian National Talent Programme is that the national talent support issue can be made a success through the efficient activity of NGOs, the long-term commitment of the public sector, and the targeted and effective utilisation of EU funds in combination with responsibility sharing.

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Biographical note

CSILLA FUSZEK worked for over 15 years as a teacher in primary, secondary and higher education. Since 2000 she has been focused and become specialized in the field of gifted and talented education. As a civil servant she worked for 7 years as a managing director of nationwide talent development programs aimed to promote equal opportunities to the disadvantaged strata of society. From 2007 – 2011 she was the managing director of the Csányi Foundation. She has been a lecturer at Eötvös Loránd University since 2008 and since 2009 she has been working for the Association of Hungarian Talent Support Organizations on nationwide talent support projects supported by EU funds. Initially she was responsible for establishing international connections and for collecting best practices outside and inside Europe. From 2012 she is the founding director of the Budapest European Talent Centre (www.talentcentrebudapest.eu).

Ability as an Additional Support Need: Scotland's Inclusive Approach to Gifted Education

MARGARET SUTHERLAND*¹ AND NIAMH STACK²

∞ The present paper provides an overview of the current national legislation, policies, curriculum and practice relating to gifted education within Scotland. It begins by providing an overview of the national context and historical background that, to this day, underpin the egalitarian ethos that permeates Scottish education. We discuss how historical, philosophical and political narratives that are firmly rooted in the belief that education is a right for all foreshadow Scotland's approach to "gifted education". The legislative shift within Scotland from a "needs-based" model to a "rights-based" model, coupled with our inclusive approach to education for all, has important implications and provides potential opportunities for gifted young people. The strengths and limitations of this approach are debated within the paper. Rhetoric and reality can, however, be unfamiliar strangers; the paper therefore also aims to demonstrate how legislative intention and pedagogical ideals have been put into practice within Scottish schools in order to meet the needs of gifted young Scots. We conclude by discussing the challenges that remain and the implications for the future, both within and beyond Scotland.

Keywords: inclusion, rights-based models, gifted education, Curriculum for Excellence, social justice

1 *Corresponding Author. Scottish Network for Able Pupils, University of Glasgow, Scotland, United Kingdom; Margaret.Sutherland@glasgow.ac.uk

2 Scottish Network for Able Pupils, University of Glasgow, Scotland, United Kingdom

Sposobnosti kot dodatna potreba: inkluzivni pristop k izobraževanju nadarjenih na Škotskem

MARGARET SUTHERLAND* IN NIAMH STACK

∞ V prispevku so predstavljeni obstoječa nacionalna zakonodaja, politike, kurikulum in praksa na področju izobraževanja nadarjenih na Škotskem. Na začetku je predstavljen pregled nacionalnega konteksta in zgodovinskega ozadja, pri čemer lahko ugotovimo, da je bil vse do današnjega dne ves čas podprt etos enakopravnosti, ki je prisoten v škotskem izobraževanju. Sledi diskusija o tem, kako zgodovinska, filozofska in politična dejstva, ki so trdno zakoreninjena v prepričanju, da je izobraževanje pravica vseh, odlikujejo škotski pristop k »izobraževanju nadarjenih«. Zakonodajna sprememba modela, ki temelji na potrebah, za model, ki temelji na pravicah, ima skupaj z inkluzivnim pristopom v izobraževanju na Škotskem pomemben vpliv in zagotavlja priložnosti za nadarjene mlade. Analizirane so prednosti in omejitve tega pristopa. »Napisano« in realnost pa sta si lahko »nepoznana tujca«, zato je v prispevku predstavljeno tudi to, kako so bile v škotskih šolah zakonodajne namere in pedagoške ideje vpeljane v prakso, da bi zadovoljile potrebe nadarjenih mladih Škotov. V sklepu avtorji predstavijo izzive in predloge za nadaljnje usmeritve na Škotskem in širše.

Ključne besede: inkluzija, model, ki temelji na pravicah, izobraževanje nadarjenih, Kurikulum za odličnost, družbena pravičnost

The Scottish Education System

Scotland is currently one of four nations that together form the United Kingdom of Great Britain and Ireland. We say currently, as on Thursday 18 September 2014 there will be a referendum on independence for Scotland, and depending on the outcome of this referendum this situation may change. Geographically, Scotland occupies the northern third of the British Isles and has a total population of 5.2 million (National Records of Scotland, 2014). Situated to the west of Europe, it is surrounded by seas on three sides. Although Scotland is currently part of both the UK and Europe, it is not part of England. England is a separate nation within the UK, yet the two countries are frequently mistakenly conflated in education texts. While commonalities exist between the two nations, there are nonetheless distinctive policies, legislative and practical aspects to Scotland's approach to education, not least to gifted education.

Scotland has an interminable tradition of universal state provision, and indeed Scotland has long seen education as a means to creating a robust democracy and a meritocratic social system (Devine, 1999). Compulsory education provision in Scotland consists of primary school education (age 5–12 years) and secondary school education (age 12–16/18 years). State-funded schools in Scotland are fully comprehensive, non-selective and coeducational. In addition to compulsory provision, preschool provision (age 3–5 years), further and higher education (post 18), and community education institutions exist. Political responsibility for education at all levels is vested in the Scottish Parliament and the Scottish Education and Enterprise, Transport and Lifelong Learning Department. Scotland is divided into 32 Local Education Authorities, and state schools are owned and operated by the authority in which they are geographically located. Overseeing and maintaining standards within these contexts rests with three main bodies:

1. Care Inspectorate – inspects care standards within preschool provision;
2. Education Scotland – inspects standards within preschool, primary, secondary, further and community education;
3. Quality Assurance Agency Scotland for Higher Education – this body safeguards standards and improves quality in higher education.

While the egalitarian nature of Scottish education is not without its critics (Mooney & Scott, 2005), Scottish policy rhetoric is clearly aligned with such principles as social justice, egalitarianism, equality and human rights. One manifestation of this is a belief that, “with the exception of separate faith schools for Catholic children, all children should have access to a common curriculum in

equally well-resourced schools” (Riddell, 2009, p. 288). Historical, philosophical and political narratives that are firmly rooted in the belief that education is a right for all therefore foreshadow Scotland’s approach to “gifted education”. In terms of curriculum, the shift away from a needs-based model towards a rights-based model has been gradual and is still on-going. However, the shift towards an inclusive system based on rights is evident in consequent policy and curriculum developments. A needs-based model suggests that special help for particular groups of children can best be provided when separate groups with common difficulties or issues are taught together. Once such groups have been provided for, the rest of the school population can be regarded as normal. In contrast, a rights-based model of education does not search for a group identifiable as different from the majority (Florian, 2008; Head & Pirrie, 2007) but instead focuses on community and learning (Head, 2011). As such, the learning context becomes a focus for development and a means for developing a more just society in which difference and diversity are celebrated, not segregated. Gifted education in Scotland therefore sits within an overarching framework that seeks to ensure that education is about opportunities for challenge and the participation of all pupils. This helpfully directs us away from concerns about where and by whom gifted individuals should be taught and how they should be identified, instead focusing our attention on educational beliefs and values that must be applied equally to all learners (Smith, 2006). Although these intentions are honourable, their implementation depends on effective policy, legislation and practice.

Scottish Policy and Legislation

Policy development does not happen in a vacuum. As with many nations in the 21st century, the UK is a member state of a number of supranational organisations (for example, the European Union, the World Bank, the International Monetary Fund, the United Nations, the Organisation for Economic Cooperation and Development, etc.). These international bodies have influenced member states in numerous ways (Moutios, 2009). In relation to education in Scotland, a number of key international declarations have significantly influenced educational processes and systems. Article 26 of the United Nations Declaration of Universal Human Rights (UN, 1948) declares, “everyone has a right to education”. In 1989, the United Nations Convention on the Rights of the Child (UNCRC) endorsed this and indicated that special assistance and care is important for childhood and development. In 1994, the Salamanca Statements (UNESCO, 1994) focused on educational equity for those with special educational

needs. The intention is for the stances within these international policies to filter through to member state national documentation. Clearly there are potential dangers with such an approach, and critics such as Rizvi and Lingard (2006) and Moutios (2009) would argue that such bodies have promulgated the neoliberal agenda, resulting in the focus of many countries on “human capital development”, where productivity and competitiveness within the global economy are crucial. Notwithstanding these concerns, there are clear parallels between the international discourse endorsed by these supranational bodies and policy development in Scotland. In terms of gifted education, there are two particular education acts that emerged from the international agenda and are helpful when considering the needs of the highly able. Firstly, the Standards in Scotland’s Schools, etc. (2000) Act confirmed Scotland’s commitment to an inclusive education system by asserting the right of every child to an education and introducing the assumption that pupils will be educated in mainstream schools unless exceptional circumstances apply. This Act enshrined the rights of all pupils in law by stating that education should be directed towards “the development of the personality, talents and mental and physical abilities of the child to their full potential” (Section 2), thus including the rights of highly able pupils.

The second helpful legislative development was the Education (Additional Support for Learning) (Scotland) Act 2004, updated in 2009 (Scottish Government, 2004, 2009). The Act replaced the term Special Educational Needs (SEN) with the term Additional Support for Learning (ASL), because it was felt that SEN had become too firmly associated with pupils who had disabilities and difficulties. This new term was accompanied by a new definition of what it meant to require “additional support”. This Act states that “a child or young person has additional support needs for the purposes of this Act where, for whatever reasons, the child or young person is, or is likely to be, unable, without the provision of additional support, to benefit from school education provided or to be provided for the child or young person” (Section 1). This Act explicitly tied the education of able pupils into a reconceptualised special education arena. The Code of Practice (2005), which accompanied the Act, clarified this wider concept of additional support for learning: “... all children and young people benefit from school education when they can access a curriculum which supports their learning and personal development; where teaching and support from others meet their needs; where they can learn with and from their peers and where their learning is supported in the home and in the wider community” (Code of Practice, 2005, Section 2.2, p. 19). The Code went on to state four factors that might contribute to pupils requiring support: family circumstances, disability or health, the learning environment, and social

and emotional factors. It helpfully added that “a need for additional support should not imply that a child or young person lacks ability or skills... more able children or young people may require a more challenging education provision than that of their peers” (Code of Practice, 2005, Section 2.6, p. 21). The updated act enhanced the rights of parents of all children who require additional support for learning, including those who are more able. In order to ensure that these rights are understood by parents and young people, the Scottish Government fund a helpline and website – Enquire (www.enquire.org.uk) – which offers helpful guidance and explanations of additional support for parents and young people. In 2012–2013, Enquire reported that 1% of their calls came from parents of highly able pupils; this does not, however, include details of web traffic to their website, as parents may also source information directly from there or from their children’s schools. Situated within the University of Glasgow, the Scottish Network for Able Pupils (SNAP) works with Enquire to provide workshop training for staff, and Enquire regularly refer parents to SNAP staff and the SNAP website if parents have particular questions relating to high ability.

Funding for Additional Support for Learning is included in the block grant that the Scottish Government provides to all local authorities as part of the annual local government finance settlement. Each local authority is then allocated the total financial resources available to it on the basis of local needs and priorities, having first fulfilled its statutory obligations and the jointly agreed set of national and local priorities, including the Scottish Government’s key strategic objectives. While this devolution of finance to local authorities offers autonomy to local areas, it could also mean that, in practice, groups of learners (particularly those who are perhaps misconceived as already advantaged) are overlooked, as competing priorities could lead to some groups missing out. However, providing challenge for more able children does not necessarily mean financial burdens; a great deal can be done with a curriculum that is both flexible and responsive.

Curriculum Development

Alongside the policy developments outlined above, the Scottish Executive launched a paper titled *A Curriculum for Excellence: The Curriculum Review Group* (2004, see *Education Scotland 2011* for details of the documents). This new curriculum was designed to enable schools to develop their own content and pedagogy to meet perceived local needs, thus providing an appropriate curriculum for individual learners. It sought to make this available through a seamless curricular experience for pupils aged 3–18. Literacy, numeracy and

health and wellbeing became the responsibility of all teachers at all levels, and, in general terms, the framework sought to offer teachers a more teacher-centred model of curriculum, thus moving away from the earlier prescription-driven genre. The accompanying descriptions of the curriculum express high expectations for all young people, stating that all Scottish pupils will become “successful learners, confident individuals, responsible citizens and effective contributors” (Scottish Executive, 2004b). Emphasis is placed on active learning (Scottish Executive, 2007), interdisciplinary learning, and planning across the curriculum (Scottish Government, 2008). There are five levels within the curriculum, with levels one to four having an associated set of experiences and outcomes for learning that aim to “recognise the importance of the quality and nature of the learning experience in developing attributes and capabilities and in achieving active engagement, motivation and depth of learning. An outcome represents what is to be achieved” (Learning Teaching Scotland (LTS), 2009, p. 3). Age and stage can be problematic where there is no flexibility (Sutherland, 2011); however, as stated in the curriculum guide, the levels “do not have ceilings, to enable staff to extend the development of skills, attributes, knowledge and understanding into more challenging areas and higher levels of performance” (LTS, 2009, p. 4). Thus, the apparent flexibility within the framework could be considered a particular strength when considering the needs of highly able pupils, as staff appear to no longer be tethered to the traditional chains of age and stage.

While Curriculum for Excellence is not without critique (Priestly & Humes, 2010), it certainly seems to offer an ideal framework from which to construct appropriate learning opportunities for highly able pupils (Sutherland, 2011). However, theoretical concepts and admirable pedagogical intentions can be poles apart from the myriad of ways in which they are interpreted in practice in schools by a wealth of teachers with a diverse range of personal views on ability and how it is best challenged.

Getting it Right for Every Child (GIRFEC)

Having put in place policies, a curriculum framework and a raft of professional development opportunities for practitioners, the Government turned its attention to the needs of particularly vulnerable children. Getting It Right for Every Child (GIRFEC) was designed to ensure that all children receive appropriate and timely support when it is required. This would, it was believed, lead to all children developing the four capacities: making everyone an effective contributor, a successful learner, a responsible citizen and a confident

individual (Scottish Government, 2006).

The GIRFEC approach, as it has become known, aims to bring together the support available to the individual child or young person from the family, the community and universal health and education services. The GIRFEC document acknowledged that the coming together of such support structures called for a shared understanding among the professionals involved. Moreover, it argued that shared tools and models would also help practitioners to meet the needs of individuals and their families. In order to facilitate this shared understanding, it proposed that a lead professional be appointed to coordinate the support available to the child and his/her family. This proposal was accepted, and was passed in the recent Children and Young People's Act (Scottish Government, 2014).

In an educational context, collaboration emerges from social constructivism theory. It relates to the work of Bruner (1996), who postulates that learning is about understanding the minds of others, and to the work of Vygotsky (1978), who put social interactions at the heart of the learning process. "The language of collaboration has entered into and been accepted within public and professional discourse in Scotland" (McCulloch, 2010, p. 165), and is evident within the GIRFEC document. It can, however, be difficult to achieve a level of deep collaboration when diverse individuals come together with their own agendas, experiences and outlooks on the world (Head, 2011).

In acknowledgement of the difficulties of collaborative working, and with an awareness of the collective knowledge base methodology, the GIRFEC approach offered a practice model that could be used in a uni- or multi-based agency context. It was designed to ensure that information about young people was collected in a consistent fashion, arguing that this would allow the agencies involved to develop a shared understanding of what support is required and a greater awareness of any "concerns that may need to be addressed" (Scottish Government, 2008, p. 21).

Following a national review of teacher education (Scottish Government, 2010), the Teaching Scotland's Future report made it clear that the teacher was a key contributor to effective learning and teaching. Thus, "teacher education should be seen as and should operate as a continuum, spanning a career and requiring much better alignment across and much closer working amongst schools, authorities, universities and national organisations" (Donaldson, 2012). In parallel with these developments, the Scottish Teacher Education Committee set up a working group to develop the National Framework for Inclusion (2010). This framework was designed to offer support and guidance to students and teachers as they seek to develop inclusive practice. It is currently

being updated to reflect the changes to the career-long professional development landscape. As with other documentation, this framework develops the idea of inclusive practice through a series of questions that relate to the new, updated standards for teaching (Scottish Government, 2012). The staff that produced the framework brought together a range of specific expertise. A director of the Scottish Network for Able Pupils was one of the experts involved in this working group, which ensured that high ability was represented within this forum on inclusion.

At the heart of these policies and legislation is a desire to ensure that all Scottish pupils have access to appropriate and challenging learning experiences. Thus, in Scotland, “gifted learners” are part and parcel of the policy architecture; the intention is for them not to be segregated out for particular attention any more than any other group of learners.

Practice from Scottish Schools and Authorities

Education Scotland is the national body in Scotland responsible for supporting quality and improvement in learning and teaching from early years to adult and community learning. Teachers can access materials, resources and publications online and use these to inform planning and development. The Education Scotland website contains information about universal support; in other words, appropriate support for all learners, ensuring that they receive challenging and appropriate activities. It also contains information about additional support for learning, in areas where learners might require targeted support. Highly able pupils are mentioned in the following section of the website: (<http://www.educationscotland.gov.uk/supportinglearners/additionalsupportneeds/index.asp>).

One of the dangers of compartmentalising support in this way is that resources and activities that sit under another label or banner (e.g., critical thinking skills) will be overlooked by a busy teacher searching for appropriate resources and materials for “highly able pupils” simply because it does not bear the label “highly able pupils”.

In 2012, the Scottish Network for Able Pupils conducted telephone interviews across thirteen local authorities in Scotland (Stack & Sutherland, 2014). As part of this study, local authorities were asked about the provision available for highly able pupils. Authorities reported a range of extracurricular activities that were on offer in schools across Scotland. While very few were labelled or aimed specifically at pupils with high ability, the opportunities on offer were clearly appropriate for some highly able pupils. Activities included:

- Additional music opportunities, e.g., guitar lessons in which primary school staff liaised with secondary staff and pupils;
- The Duke of Edinburgh Award;
- Outdoor education;
- Youth achievement;
- Supported study clubs;
- Specific subject tuition, e.g., National Youth Orchestra, film and media classes, drama, sports coaching, music tuition;
- Early access courses, e.g., Distance Education courses, activities at the University of Aberdeen;
- Extended work experience placements;
- Interschool collaborations to meet the needs of particular groups of children, as there was a dearth of Saturday clubs available to pupils in some geographical areas;
- University visits, e.g., advanced higher art, an arts-based project relating to fashion design, visual art and music.

In addition to the extracurricular and out-of-school activities outlined above, authorities reported a range of practices that were on offer in schools; for example, they spoke about the revolving-door approach to activities (where children joined other classes for some activities and then returned to their own class), working with older peers, and working in groups or individually. Irrespective of the variety of approaches, all of these activities still took place within the mainstream school. Some pupils worked across schools – for example, primary pupils working on standard grade mathematics in a secondary school – while others had links to colleges and universities. One authority made reference to the specialist school provision available in Scotland, e.g., The Dance School of Scotland, The Glasgow School of Sport, and specialist music tuition. This specialist provision makes available alternative educational routes that are specialised but located within mainstream schools. One authority felt that mainstream schools were generally excellent at looking creatively at provision for highly able pupils. They believed that the flexible nature of Curriculum for Excellence (CfE) lent itself to this creative way of working with a range of different learning needs. CfE was perceived to offer opportunities for curriculum development work across different ages and stages. Cooperative learning was not perceived as being restricted to particular year groups, thus offering the opportunity for pupils to work across year groups.

These findings regarding the diversity and creativity of provision are replicated in the work conducted more widely by the Scottish Network for Able

Pupils (SNAP) in its work with teachers, schools and authorities across Scotland. In particular, SNAP works closely with five local authorities. In partnership with these authorities, a network of Associate Tutors has been established. The tutors act as a focus for the expansion of staff development, policy and provision at a local level, and are part of an on-going collaborative programme of staff development with SNAP staff at the University of Glasgow. They have built up considerable expertise and have been at the forefront of developments for highly able pupils within their authority. These staff development opportunities are open to all teachers. Costs are kept to a minimum, reflecting an appreciation of the fact that budgets have been cut as a result of the recent financial crisis; anecdotally, however, staff report a lack of supply teacher cover to release them from class as the main reason making attendance problematic. In order to address these restrictions, SNAP provides podcasts of conferences and seminars for Associate Tutors; there is also a virtual learning environment available, enabling remote access to resources.

SNAP has also worked with particular local authorities on specific projects. These projects have sought to incorporate aspects of research, policy and practice in the Scottish context. Crucially for SNAP, although these projects have sometimes taken place at the University of Glasgow or in contexts outside of school (e.g., museums), they have always been accompanied by a staff development element, thus building capacity within the profession and extending the session beyond a “one-off experience” for the young people attending. SNAP is keen to develop ways to address “practical problems in the lived professional lives on teachers” (Groundwater-Smith, 2007, p. 60). An example of such an approach is a project that considered ways to increase challenge in the curriculum, which brought together 21 members of teaching staff from one local authority, as well as a local authority staff representative. The group of teachers included four early years practitioners from five different settings, twelve primary school teachers or Additional Support for Learning coordinators within the primary context from eight different settings, and five secondary school teachers from four different settings across the authority. The sectors worked together to develop and implement programmes in their respective institutions. To conclude the project, SNAP hosted a dissemination event during which pupils visited the University of Glasgow and participated in a range of activities provided by university staff, including archivists, a graduate attribute advisor, PhD students, a Professor of Geography, a Senior Education Lecturer and a biologist. The local authority has reported that the schools involved are now embedding such pedagogical approaches in their learning and teaching, and that the programme is being rolled out across the authority. This approach

raised awareness about highly able pupils among teachers and authority staff through expert input from SNAP staff, leading in turn to class- or school-based curricular developments that are an integral part of the learning and teaching process.

Scotland's Approach to Supporting High Ability: Strengths, Weaknesses, and Opportunities

Egalitarianism runs like a fine gossamer thread through the development of the Scottish education system. The current focus on inclusive education discussed in previous sections is congruent with this approach. However, no system is perfect, and inclusive education, with its roots in social justice and rights, has understandably caused tensions within a system concerned with needs. Head (2011) draws interesting comparisons between practice in special schools and practice in mainstream schools. He argues that, in Scotland, the move towards inclusion has created a greater diversity of learners in special schools and units that traditionally taught pupils with similar difficulties, e.g., moderate learning difficulties, autism, etc. As a result of this change in the school population, teachers have “responded by extending their repertoire of teaching skills” (Head, 2011, p. 62). The social context teachers find themselves in as a result of inclusion might in fact offer them an opportunity to develop an inclusive pedagogy, a pedagogy that is advantageous for highly able pupils. Inclusive pedagogy is grounded in practice, a practice that takes cognisance of the individuals within it, including the pupil and the teacher. A pedagogical approach that acknowledges and endorses what the learner brings to the learning context will result in a complementary pedagogy that allows for development. Significantly, an inclusive pedagogical approach for highly able learners moves us away from the debate about place and provision, focusing instead on teaching and learning. The fact that, in Scotland, legislatively, highly able learners sit side by side with those traditionally considered to have Special Educational Needs is helpful if we are to actualise this shift in focus. The national curriculum framework guide, Curriculum for Excellence, which is about providing a “coherent, flexible and enriched curriculum for all”, is supportive of highly able learners. It would seem that, in terms of legislation and curriculum, Scotland is well situated to offer appropriate learning experiences for highly able pupils.

Change within systems does, however, need time to take root and evolve. Schon (1983) claimed that systems based on needs would impinge on teachers as they sought to adopt more inclusive practice, while Smith (2006, p. 17) argued that “in the case of Scotland it is too early to tell” whether the system is

moving away from a reductionist, needs-based model. Eight years and one international financial crisis later, it still seems too early to tell, as the recent focus has been on how to ensure quality educational provision in times of austerity, and the bigger ideals have therefore been (hopefully temporarily) marginalised.

One weakness of this inclusive approach to high ability, or any other label for that matter, is that by subsuming learners into generic discussions about learning and teaching there is a potential to overlook particular requirements that certain learners may have. It also brings into sharp focus the policy/practice nexus and places the teacher centre stage when it comes to providing effective learning opportunities. Knowledge about, and attitudes towards, highly able learners is likely to affect provision (Sutherland, 2011). The generic trap will only ensnare highly able learners if teachers approach the curriculum without giving due regard to this group of pupils and their learning. Scotland's Framework for Inclusion and its commitment to career-long professional development offers opportunities for teachers to develop pedagogy, assuming that teachers engage with such opportunities. The central role assumed by teachers in the learning and teaching process underpins SNAP's work through school- and class-based initiatives.

Conclusion

A fundamental principle in education must be about promoting social justice. Gifted education is often mistakenly equated with constructs of elitism (Sapon-Shevin, 2000) and thus not readily associated with such a principle. However, we know that gifted young people exist in all strata of socioeconomic status. Equally, we know that education does not exist in a vacuum. Highly able learners cannot be considered in isolation from other learners, and, in the case of those with double and multiple exceptionalities, their ability cannot be considered in isolation from their other challenges. It is here that the focus on rights offers some hope. The focus on rights has implications for opportunities for all young people, and placing the rights of the highly able in the debate necessarily moves us towards a discussion about pedagogy.

Similarly, education cannot be considered in a vacuum. Internationally, education is caught in a web of comparison (for example the PISA study). These comparisons assume a common baseline and fail to take cognisance of different educational structures and ethos. We need to ensure that these comparisons lead to meaningful and context-appropriate developments, and not to an unsatisfying shift towards an uncommon middle. Surely, if we have learnt anything from inclusive practices and gifted education, it is that difference can,

and should, be valued. This is true of young people's abilities, just as it is true of educational approaches that are embedded in culture, context and history.

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Biographical note

MARGARET SUTHERLAND, Dr., lectures in additional support for learning at the University of Glasgow, Scotland. She is the Director of the Scottish Network for Able Pupils and Deputy Director of the Centre for Research and Development in Adult and Lifelong Learning. She has 33 years teaching experience in schools and higher education. She has written in the field of gifted education and is author of a number of academic papers, chapters and books. She speaks at conferences and has worked across the UK and with staff and students in Tanzania; Malawi; Korea; Virginia, USA; Slovenia; The Netherlands; Poland and Denmark.

NIAMH STACK, Dr., lectures in Developmental Psychology in the School of Psychology at the University of Glasgow and is the Development Officer for the Scottish Network for Able Pupils which is also situated in the University of Glasgow (SNAP - <http://www.gla.ac.uk/schools/education/ablepupils/>). As part of her work in SNAP she is involved in supporting professional knowledge exchange partnerships with Scottish Education Authorities through providing continuing professional development activities to teachers focused on gifted development. She is also actively engaged in research and publication activities related to the development and education of children with high abilities.

Gifted Education in Switzerland: Widely Acknowledged, but Obstacles Still Exist in Implementation

VICTOR MUELLER-OPPLIGER¹

☞ With its strong federalism and direct democracy, as well as the high level of autonomy of its cantons, Switzerland does not have mandatory national policies and regulations on gifted education. Responsibility for the promotion of high-end learners is in the hands of the cantonal boards of education, and depends largely on their current professional understanding and educational-political foresight, as well as on the political volition and priorities of the school authorities. Within this diversity, there are schools with excellent concepts and successful implementations regarding gifted education, while other schools have a poor understanding of individualisation and potential-oriented learning. The present article summarises the philosophy and key aspects of a contemporary realisation of local- or regional-based integrated gifted education that is related to supplementary arrangements for special needs. Strengths and weaknesses in the identification and promotion of the talented within the Swiss school system are outlined and discussed.

Keywords: concepts of giftedness, federalism in gifted education, teacher education, identification, inclusive education, learning structures, national strategies/policies, the Swiss education system

¹ University of Education and Teacher Training, Northwestern, Switzerland;
victor.mueller@fhnw.ch

Izobraževanje nadarjenih v Švici: širše priznано, a pri implementaciji so še vedno težave

VICTOR MUELLER-OPPLIGER

☞ Zaradi federalne oblike oblasti in neposredne demokracije ter visoke ravni avtonomije kantonov Švica nima obvezujoče nacionalne politike in pravil glede izobraževanja nadarjenih. Odgovornost za spodbujanje sposobnejših učencev je v odgovornosti sveta za izobraževanje v posameznem kantonu. Njihovo delovanje je odvisno od njihovega strokovnega razumevanja in izobraževalno-politične perspektive pa tudi od njihove politične volje in prioritet šolskih organov. V teh okvirih so šole, ki imajo zelo dobre koncepte in ki uspešno implementirajo izobraževanje nadarjenih, pa tudi takšne, ki slabo podpirajo individualizacijo in na razvijanje potencialov usmerjeno učenje. V prispevku so povzeti filozofija in ključne točke trenutnega uresničevanja lokalno ali regionalno zasnovanega integriranega izobraževanja nadarjenih, kot so urejeni v okviru posebnih potreb. Poudarjene in analizirane so močne in šibke točke v identifikaciji in spodbujanju nadarjenih v švicarskem šolskem sistemu.

Ključne besede: koncepti nadarjenosti, federalizem v izobraževanju nadarjenih, izobraževanje učiteljev, prepoznavanje, inkluzivno izobraževanje, izobraževalne strukture, nacionalne strategije/politike, švicarski izobraževalni sistem

National context and strategies

Political and educational structures in Switzerland

In order to understand the educational situation in Switzerland, it is important to bear in mind that it is a small country of approximately 8 million people with a relatively high proportion of foreigners (23.8%). Demographic trends are influenced by multilingualism, with a number of different languages being spoken in the country's four regions: German (64.9%), French (22.6%), Italian (8.3%) and Rhaeto-Rumantsch (0.5%). Some 21% of the population report using another main language in their families instead of, or in addition to, the four so-called national languages (BFS 2014).

Switzerland is a modern federal state marked by strong federalism and direct democracy. This is expressed in two ways: in the strong autonomy of the 26 cantons and their municipalities, and in their direct participation in political decision-making. However, it is not only the cantons that have a major influence on politics. As a result of the country's direct democracy, individual citizens also have a direct influence on the government via people's initiatives and referenda, with votes being held quarterly.

Within the confederation, the central government oversees specific national areas of responsibility, such as foreign, military and financial policy. A collective head of state, consisting of seven members, governs national affairs. The responsibilities and processes of education are coordinated in the federal department of economics, formation and research.

One of the functions of the Constitution is to link the various interests of the particular cantons with the overall interests of the federal state. Responsibility for education is predominantly in the hands of the cantons (with the exception of national university and vocational policies). Therefore, each canton has its own policies and regulations regarding education, which relate closely to the specific population's understanding of education.

While the main responsibility for education and culture lies with the cantons, the 26 cantonal ministers of education form a political board known as the Swiss Conference of Cantonal Ministers of Education (EDK), which undertakes coordination on the national level. Legally binding inter-cantonal agreements (known as concordats) form the foundation of the work of the EDK. Although the EDK coordinates the work of the cantonal boards of education, it nonetheless has a subordinated function: the prior legislative power is mostly rooted in the cantons (EDK, 2014).

Gifted education in Switzerland: Benchmarks and positions

The education policies of all of the cantons declare in their charters the right of each student to be educated and fostered according to his/her individual abilities and possibilities. With these acknowledgements, they refer to the international declaration of Salamanca regarding the human right of individualised education (UNESCO, 1994).

In many schools, however, the reality is that teachers are mainly focused on teaching to the curriculum and the prescribed textbooks, some with more and others with less differentiation in their classes. For the majority of the population, there is a high national awareness of the importance of utilising all human resources, from the perspectives of national economics, the need for expertise, and sustainability. Nevertheless, there is a lack of mandatory policies on gifted education. Thus there is a clear discrepancy between most people's accurate assessment of the importance of expertise and high achievements, on the one hand, and the classroom routines in many schools, on the other, with their tendency to teach to an average level that should meet the needs of all students.

In the Programme for International Student Assessment (PISA), which aims to achieve a better understanding of the factors of effective teaching, the results of Swiss schools are above average in the ranking of high-end learning and high achievement; on the other hand, the results indicate very poor promotion of lower-end potential. PISA reveals that the Swiss school system produces an enormous heterogeneity of achievement (PISA, 2007). It also shows that Swiss schools are not sufficiently successful in overcoming sociocultural parenting. Moreover, Swiss schools often fail to consider the necessary compensation for students who are disadvantaged in a sociocultural sense. Too often, schools still fail to discover and appropriately foster giftedness of students who are foreign-language speakers or from families with a lower socioeconomic status.

The Swiss school system must intensify efforts to foster high-potential students with additional programmes over and above teaching to the average. At the same time, there is a need to improve the promotion of the strengths of all children at all levels in order to compensate for social discrimination. This process should be free of (historical) suspicions of reinstalling an elite social-class system, but also of the erroneous assumption that individual differences and potentials should be disregarded in the interest of equal opportunities.

These aims contain not only organisational and economic aspects, but also sociopolitical and ideological expectations. This balancing act should be realised in so-called schools of variety and diversity. As schools of inclusion

and integration, they should promote the gifted, while at the same time compensating for social disadvantages and raising the level of school achievement in general.

A contemporary foundation expresses the intentions of gifted education in a dynamic triarchic area of tension within anthropological, economic and ecological demands: "... the right of the person for self-realization, the benefit of human resources as intellectual and social capital of a society, and the aspect of sustainability in the meaning of qualification for life-long learning, reflected self-actualization and shared social responsibility" (Müller-Opplinger, 2014a, 58ff).

Concepts of giftedness

In general, Swiss schools follow the Three Ring Concept as a framework for understanding high achievement, in an interdependency of "above average ability", "productive creativity" and "task commitment" (Renzulli, 1978, pp. 180-184, p.261, 1986, pp. 53-92), as well as the Schoolwide Enrichment Model as a model for school development (Renzulli & Reis, 1985, 1997). Some schools refer to the Triad Interdependence Model (Moenks, 1995), which is based on the Three Ring Concept and exemplarily shows the factors of the learning environment represented by school, peers and family.

Significantly, the Swiss understanding of these concepts follows the original understanding of Renzulli, who never defined his first ring as "intelligence", meaning an academic disposition that can be measured by intelligence tests. In his concept, Renzulli (1978) established the basis for so-called "multiple intelligences" (Gardner, 1983, 1999), and for an understanding of giftedness that is much wider than high academic-intellectual abilities. Unlike in earlier conceptions of giftedness, Renzulli also indicated the influences of the social-emotional environment. Already in his first concept (1978), he implemented the "houndstooth design" to his three rings, in order to show the interaction between personal potentials and environmental influences as dynamic factors in the development of high achievement.

The Munich model of giftedness (Heller, Hany, & Perleth 1994) is also frequently used as a psychological model to understand the factors and catalysts of giftedness (mostly from school psychologists in the diagnostics of pre-conditions for giftedness).

In the last ten years, an increasing number of social- and pedagogical-based models – such as the "actiotope model" (Ziegler, 2004), the "integrative model" (Fischer, 2006) and the "ecological model" (Mueller-Opplinger, 2009,

2010, 2014b) – have emerged in addition to the more psychology-oriented models from the earlier days of gifted education. These new models function as frameworks for the pedagogical work of teachers and for schools on their way to developing teaching and learning methods, as well as educational structures, to foster the high-end abilities of students.

The definition of giftedness in Switzerland follows the definitions of the National Research Center on the Gifted and Talented (NRCGT), USA (Renzulli & Reis, 1985) and the pentagonal theory of Sternberg and Zang (1995). Giftedness is defined as the potential for above-average achievement in relation to one's peers in terms of excellence, rarity, demonstrability, productivity and value criteria. The majority of educators, boards of education and cantons recognise giftedness under the dimensions of Gardner's "multiple intelligences": musical, artistic, sports and social abilities are promoted as well as academic abilities. Very few school administrations continue to view gifted education from the one-sided perspective of academic and intellectual capabilities. Giftedness can refer to a single ability in a specific domain or it can cover multiple facets; it is not limited to cognitive aspects. In schools, we assume that 15–20% of students would be able to achieve more than school usually requires in various domains.

In response to these insights, nearly all Swiss cantons (with very few exceptions) have, over the last ten years, modified their policies relating to the identification of gifted students so that intelligence tests are no longer used exclusively, as they are no longer perceived as adequate for all of the various aspects and characteristics of giftedness (see chapter Identification: From "delegation" to "involvement").

Structural elements and support

Cantonal policies and their coordination

Following federal school organisation, all of the 26 cantons have, since 2000, developed their own policies for identifying giftedness and improving support for high-end learners (Grossenbacher, 2007, p. 37). Within the last few years, most cantons have also requested each individual school to indicate how it is defining the concept of giftedness and how it intends to recognise and foster gifted students. However, these concepts always depend on their authors or working groups: some of them are the result of collaboration with universities and expert panels, while others are more politically oriented. Each of these concepts reflects the expertise, knowledge, pedagogical understanding, socio-economic foresight and political and financial will of the particular canton to

fulfil the needs of the gifted. Due to the aforementioned direct democracy, the perceptions of the population regarding gifted education and its significance, as well as parents' power and other political influences, can have a strong impact on cantonal concepts of the promotion of the talented.

Within this loosely regulated system, there exist a variety of networks (e.g., the Working Group of EDK-East on Giftedness), cantonal workgroups, associations (such as the Parents Association of High-Ability Students), university training programmes (certificate and master's programmes for gifted education) and conferences (e.g., the Symposium-Begabung.ch, the annual Network-Symposium, and the International Congress for Gifted Education of the University for Education and Teacher Training of Northwestern Switzerland).

The national Network for Gifted Education of the EDK has an important role and influences the understanding of gifted education in the different cantons. This network is organised by the regional conference of German-speaking boards of education, and within it one finds delegates from each canton, from universities and teacher training colleges with expertise and special competencies in gifted education, and from a support and counselling institution in the field.

This partly national network coordinates efforts, discussions and developments in the various cantons. The outcomes and policies within particular cantons, and the actual needs of schools that are in the process of becoming schools of inclusion, are discussed and reflected on, as are contemporary concepts and new approaches from research and global developments in giftedness, which are introduced by the delegates from universities of education and teacher training.

In addition to an annual symposium, meetings organised each term ensure that knowledge related to gifted education can be propagated and reflected on nationwide for the benefit of teachers, principals and superintendents, as well as interested members of school boards. From time to time, the Network for Gifted Education publishes a report on nationwide school development and improvements. The last report, entitled "Gifted Education – No Longer a Taboo" (SKBF/CSRE, 2007), appeared in 2007.

A systemic approach: Gifted education claims school development

The national network views gifted education as a systemic approach (Grossenbacher, 2007, p. 37). On the one hand, gifted education means the development of teaching practices in classrooms, while, on the other hand, it

involves reflection on traditional learning structures, making them more flexible, as well as the improvement of schools as learning and profiling institutions based on their individual resources.

The network postulates that gifted education is initially located in the classroom, where integrative but at the same time individualised resource-oriented learning processes take place. “Inner differentiation” offers a learning environment where students can learn in their individual “zone of proximal development” (Vygotsky, 1978), with different methods and learning styles, in their own time, and with a personal learning plan (including individual learning aims with differentiated degrees of depth in addition to the core curriculum). In such learning contexts, students often maintain their own personalised portfolios and learning journals, which contain learning products as well as metacognitive reflections on their learning processes, strategies and attitudes (Purcell & Renzulli, 1998; Eisenbart, Schelbert, & Stokar, 2010; Mueller-Oppliger, 2013). However, this concept also requires competencies on the part of the teachers in terms of process-based pedagogical learning diagnosis, in order to discover possible potentials in the students’ achievements and behaviours (Netzwerk Begabungsförderung, 2013, p. 18; Mueller-Oppliger, 2014c, p. 208).

For students who could achieve more than these classroom learning environments allow, schools often offer additional local programmes aimed at fostering high-ability learners: pull-out programmes, special “resource rooms” (rooms with structured high-end learning material for additional discovering, research-based or problem-based learning), participation in competitions, and early studies at some universities for older students. These additional learning arrangements are led by qualified teachers who are trained to meet the needs of gifted learners. The schools carry them as a community. Regulations for identification, coordination between classroom and additional learning activities, further education/sensitising, and differentiation for all teachers, as well as a transparent organisation of responsibilities, are the key challenges for these schools.

At a superior level, individual cantons or regions are responsible for regulations and policies, as well as for funding appropriation. Cantons can organise special offices to promote gifted education, or for counselling schools, teachers and parents. Often, cantons have the power to decide on the provision of programmes for the further education of the teachers, or for their (financial) support.

Along with these systemic approaches, there are certain “pillars” of gifted education in accordance with the nationally accepted Schoolwide Enrichment Model (Renzulli & Reis, 1997; Müller-Oppliger, 2014d, p. 252), such as

acceleration (in-class and cross-class), enrichment (in-class and supplemental), curriculum compacting of learning times, pull-outs and ability grouping, as well as mentoring for special or superior abilities that individual schools cannot promote. An increasing number of schools are implementing individual talent portfolios and development journals for all students.

Identification: From “delegation” to “involvement”

At the end of the last century, gifted students were primarily identified by testing their intelligence, with testing largely being executed by school psychologists. As a result, recognition of giftedness was delegated, while teachers were absolved from this responsibility and their expertise was disregarded: giftedness became a special psychological status. Over the last ten years, a better and more elaborated understanding of high achievement and its various conditions has encouraged nearly all cantons to transform their procedures into much more differentiated practices: teacher recommendations and the involvement of parents, as well as the possibility of self-nomination, are integrated into multi-perspective procedures. These procedures are often guided by specialists for gifted education (see next chapter) in their schools, in collaboration with the school psychologist, who helps to deal with children's personal issues, underachievement or twice exceptional in contexts requiring the expertise of a psychologist. Individual schools do not employ psychologists, but they are available from the canton.

This progression goes hand in hand with a basic re-involvement of classroom teachers and the requirement for all teachers to have advanced competencies in dynamic and learning process-orientated pedagogical diagnosis.

There are several scales and questionnaires available to teachers with indicators of different aspects of giftedness and students' attitudes. Most of them are originally based on the research and expertise of the NRCGT. In fact, the majority of identification processes employed in Switzerland are based on the recommendations and framework of the NRCGT (Renzulli & Reis, 1997).

In accordance with, and as a continuation of, these widely accepted concepts, screening has been developed within the last few years at the Pedagogical University of Northwestern Switzerland (PH FHNW). As well as data from classroom achievements, this model includes teachers' recommendations, parents' statements and an InterestAlyzer for children. Moreover, it contains testing in thinking and learning styles, culture fair intelligence sections, and aspects of student motivation and self-concept. Typically implemented in third grade classes, screening is conducted by qualified experts in gifted education

(master's programme), in consultation with teachers and other persons involved in the learning processes of the student.

Further education for teachers: A need

Since 2004, teachers have had an opportunity to improve their competencies by attending post-diploma studies in the field of gifted education and talent development. Two pedagogical universities in Switzerland offer Certificates of Advanced Studies (CAS following the regulations of Bologna) in gifted education. Subsequent to the CAS, the University of Education and Teacher Training of Northwestern Switzerland (PH FHNW) has, for the past ten years, run a master's programme (Master of Advanced Studies) in integrative gifted education, which is accredited by the Swiss Conference of Cantonal Ministers of Education. The master's programme is connected to the University of Connecticut with its National Research Center on Gifted Education, and to certain programmes of other universities in German-speaking nations that work with the online courses of the PH FHNW.

Over the last ten years, the PH FHNW has become a leading institution and well-known competence centre for further education in gifted and talent development in German-speaking Europe. During this time, 290 teachers have obtained certificates or master's degrees in gifted education. These experts are likely to have a significant impact on the direct transfer of expertise on gifted education in schools, as well as influencing boards of education that are responsible for policies.

With these nationally and internationally acknowledged study programmes, Switzerland is well placed with regard to the further education of teachers. A major problem, however, is the lack of coordination in Switzerland regarding both the financing of these studies and additional rewards for the specific functions of graduates as experts in gifted education.

Research and development in the field

In Switzerland, there is a lack of research in gifted education because there is no chair or institute of a university specifically devoted to gifted education and talent development. Some research has been done within the framework of a long-term study of early readers and children with early mathematics abilities and their development through to their vocational achievements (Stamm, 2005, 2007), while other research has focused on the neuropsychological aspects of underachievement and ADHS (Gyseler, 2009). Reports of the

Swiss Network (Grossenbacher, 1999, 2007) function as a kind of comparative study of the situation in schools, and Tettenborn and Tanner (2013) were commissioned by the network to conduct research on how teacher training prepares young teachers for gifted education. Recent research has focused on: the situation regarding gifted education in gymnasiums, colleges and universities; the issue of financing the development of excellence on these levels by the state or in cooperation with foundations and other institutions (Mueller-Opliger, 2013); and the implementation of individualised learning architectures for the inclusive fostering of giftedness (IBFLA) in schools (Dinkelacker, Kirchgässner, Müller, & Müller-Opliger, 2014).

Furthermore, a number of relevant school developments, gifted programmes and teaching materials have been created. These are theory-based and have been reported and reflected on scientifically. In addition, there are more than 200 master's theses on specific aspects, implementations, school developments or evaluations of programmes in the field of gifted education.

The sometimes criticised gap in basic research by individual researchers is compensated by close connections and active participation within the international research and scientific community. The collaboration of the master's programme with the National Research Center on Gifted and Talented in the US, its involvement in the IPEGE (International Panel of Experts in Gifted Education) and the IRATDE (International Research Association for Talent Development and Excellence), its partnership in the EU-Comenius project eVOCATION, as well as its active participation within the WCGTC (World Conference on Gifted Children) and the ECHA (European Council for High Ability) ensure that the programme is part of contemporary research and scientific contexts and discourse.

Financial aspects and regulations

In Switzerland – as in many other nations – programmes for gifted education currently suffer from the global reduction in investments in special services. Nevertheless, the majority of cantons have changed their finance regulations from exclusive low-end promotion to a pool solution that enables schools to finance special needs at both ends of the spectrum. Individual schools are empowered to decide how to allocate the contributions effectively for the special needs of its students (ranging from learning and behavioural deficits to the promotion of the gifted). There are, however, two problems associated with this new regulation. Firstly, the total amount of funding for all special needs (from the handicapped to the gifted) is largely used as it was before, i.e., primarily

for low-end capabilities. This means that, although gifted education has a right to financial support, this support is not regularly provided because it shortens other needs. Secondly, many teachers and principals are still focused on the promotion of the disadvantaged, and often fail to act in both directions. Financial support for gifted education differs from canton to canton: ranging from the credit of four lessons per hundred students in a school pool to the discontinuation of the contribution for economic reasons.

Further education for teachers, in the form of courses, is regularly supported. Less satisfying is the fact that certificates and master's studies in gifted education are promoted very differently: there are cantons and schools that pay the tuition fees for some of their teachers to obtain the necessary expertise in their schools, and others where teachers have to pay nearly all of the fees themselves.

Contests and other special programmes for gifted education can often not be realised without essential support by foundations. As a tendency, it is noticeable that when public funds become increasingly restricted, special programmes for gifted education end up being economically dependent on others (which is not entirely unproblematic).

Strengths, weaknesses and opportunities

Strengths and positive features

Great flexibility for innovative schools

Gifted education is becoming increasingly established in the awareness of schools and of the population in general. The activities of recent years related to gifted education have also had an impact on the current discussion on heterogeneity, diversity and inclusion in schools. Having initially started at the primary school level, today there are schools on all levels paying attention to this aspect of education, including kindergartens and gymnasiums.

Within the framework of various policies, in most cantons individual schools have a relatively wide scope to initiate and realise gifted education. This is part of direct democracy and the federal system, as well as reflecting an understanding that schools should be strongly rooted in their communities. One should not, of course, forget that limits are created by the guidelines of the cantons with their particular political will. It is, however, important to note that the strength of direct democracy can also be a handicap in a region, canton or school where those responsible for education, or the teachers themselves, fail to recognise the necessity of gifted education or lack the necessary professional

knowledge in this regard. On a positive note, we can state that schools with expert knowledge, with the will to develop gifted education, and with a team of teachers whose persuasion is matched by the commitment of its local school board, have the power and possibilities to develop excellent gifted education programmes. This applies to the majority of cantons; there are very few cantons where this is restricted by cantonal policies or funding restraints.

Efforts in the development of individualising and strength-oriented learning environments

As another strength, we can see that the majority of faculties and professors at pedagogical universities are investing a great deal of effort in the development of inner differentiation in learning environments. Individualisation has – along with cooperative learning as its complement – become a criteria for qualified teaching. Not least, this is possible because Switzerland has formulated “minimal standards” in its core curriculum. This means that, beyond the fulfilment of these minimal standards, there is an open range for individualisation, where students can distinguish themselves in their strengths. This is a challenge for the currently emerging “Curriculum 21” (the new and first curriculum that will be valid for the majority of German-speaking cantons).

Multi-perspective personalised identification

A very positive fact is that the identification process has changed in nearly all cantons, going beyond the IQ as the exclusive determining factor to much more sophisticated processes of a multifactorial and more holistic perception of giftedness. Teacher recommendation, parental involvement and, in many schools, the possibility of student self-nomination are the results of a more systemic and person-orientated view of the identification and formation of giftedness and high achievement, taking into account individual potentials, personal traits, self-direction and self-responsibility. The selection procedure is guided by specialised gifted coordinators – where available – in consultation with classroom teachers.

Further education for teachers with high international standards

For more than ten years, Switzerland has had certain regional programmes for the further education of teachers in gifted education, as well as a nationwide Master of Advanced Studies programme to qualify teachers and school leaders. The master certification is accredited by the Swiss Conference of Cantonal Ministers of Education and meets the European standards of Bologna. In order to assure high quality, the programme is under the continuous

monitoring of the international community (NRCGT, IPEGE, IRATDE, ECHA and WCGTC), as well as being engaged in an ongoing process within relevant international research communities. In 2014, the programme organised an international congress on gifted education with more than 70 workshops and 750 participants from Switzerland and abroad.

A permeable education system for lifelong development and improvement

In addition to “academic giftedness” in the school branch that is typically associated with university attendance, Switzerland has for many years operated distinguished and elaborated vocational education. Supplementing the traditionally highly standardised vocational education, an array of extended options have been developed in recent years, particularly in the voc-tech, social and health spheres, which in earlier days did not depend on university degrees. The transition between vocational education and academic further education has been facilitated and structured. Building from many vocational apprenticeships, one can today achieve access (Mature, Baccalaureate) to a university of applied sciences, or to another university, via the so-called “passerelle” (skywalk). There is increasing recognition that these other kinds of secondary schools, apprenticeship programmes and tertiary institutions of various types are an alternative path, and are enabling gifted youngsters to change tracks at various stages of their life. High-quality apprenticeship programmes are widespread and can lead to further education and academic studies later in life as well.

Weaknesses

No national obligation to promote high ability and expertise

The advantage of increased openness and recommended opportunities for individual schools (labelled as “partly autonomous conducted schools”) may, at the same time, be a weakness. Although there is potential for major developments, they have to be initiated and realised by dedicated teaching teams and principals in coordination with their local school authorities. Gifted education sometimes appears patchy. Since there is a lack of national policies on promoting the gifted, everything depends on the understanding, involvement and competencies – as well as the political priorities – of local or cantonal authorities and school teams. This is also true regarding issues such as whether a school has a gifted pull-out programme and/or a gifted coordinator on the staff. In some cantons, gifted programmes and other activities for gifted students originate from the “bottom up”: they are initiated through teachers, parents or

principals. Other cantons require that their schools fulfil demanding standards regarding the promotion of all students in their individual potentials.

The handicap of a pre-structured middle school

Generally, lower secondary education (grades 7–9) is, in many places, a problem for some aspects of gifted education, because these classes are still sorted into three types of school levels (or programmes within schools), and children's entry into one or another of these branches is often primarily based on grades received from their classroom teachers in primary school. The general public, as well as many teachers, do not seem to be worried about the subjectivity and non-comparability of teacher-given grades and recommendations, although there is overwhelming research on biases in the validation of students' achievements (Kronig, 2007).

In many schools, there is still a general belief that gifted children get good grades and therefore earn admission to a gymnasium, and consequently also to a university. It is therefore still widely believed that the basic structure and traditional sorting mechanisms “handle the gifted challenge appropriately”. Apart from being rather deterministic, this attitude also assumes that the regular university-prep curriculum is the right way to educate gifted children in general, which may be far from the truth!

Deficient awareness of the disadvantaged

This brings us back to the PISA (2007) results for Swiss schools, which show that, in too many places, social background still too often determines the school career. Whether or not a given high-ability child finds him or herself a suitable programme of independent study, enrichment, mentoring, etc. seems to depend to a considerable degree on where he or she lives and what the staff in his or her school have chosen to do, as well as on whether the school has competent specialists, personnel support, teacher teams, etc. Often, parents initiate the screening of their child, but (like elsewhere) this tends to give greater opportunities to the (gifted) children of educated, motivated, prosperous families (encouraging parents) than to those of poor, immigrant or otherwise disadvantaged families. The latter group of children are more or less dependent on the knowledge and motivation of the staff in their schools.

Unlike other nations, Switzerland does not have special policies for the promotion of minorities and the elimination of discrimination in schools. Compensation for social disadvantage and the promotion of children from less educated families is on the rise, but this has not yet led to specific programmes for those who are both gifted and disadvantaged.

Little motivation for high achievement

Compared to other school systems, in terms of policies, Swiss schools offer little motivation for the demonstration of special achievements within regular schools. Scholastic marks, with the consequent approval for entry to the one or another continuing school, are the only stimulus. There are no bonuses, no special diploma or announcements related to special achievements, and less social recognition, not to mention an absence of financial support for special efforts. In a way, there seems to be a cultural disinclination to talk about some children being more capable than others, and considerable fear about “elitism”. The tendency is to offer all pupils equality rather than equity in being fostered to their full potential.

The low level of interest in high achievement also has negative consequences when it comes to families with income power and high expectations making use of their right to educate their children in private schools. Private schools are expanding in Switzerland, slightly more notably in high-income areas and on the part of foreign parents with high social status. This trend brings a risk of undermining solidarity, or even causing deterioration, when it gets to the point that more high-income parents take their children out of public school due to their higher aspirations. Private schools are perceived as being more flexible and efficient in the realisation of requirements.

Despite the criticism, there are, of course, many classes and schools with excellent learning and acknowledgement cultures, and teachers who are able to inspire their students to high achievement and to instil in them the will to achieve to their full potential. These teachers and schools often work with portfolios for each student and invest special efforts in learning coaching. They know that success in lifelong learning and achievement demands personal co-cognitive traits, self-confidence and a belief in self-efficacy, as well as in executive competencies that are not gained only by scholastic marks.

Lack of evaluation of the effectiveness of gifted programmes

Many gifted programmes do not evaluate their effectiveness on basis of the individual student. Increasingly, evidence of individualisation is required within wider school evaluation with external experts (following the intention to develop schools of inclusion). However, these school evaluations are often quantitatively oriented and are not designed to demonstrate individual effects and conditions of success on the particular gifted student. Additional micro-analyses of the learning processes of gifted students would increase the understanding of the personal and contextual factors that provoke either high achievement, indifference or underachievement. It would provide the school

system, the individual school and teachers with an opportunity to optimise learning processes based on personal conditions and potentials.

Financial support is weak and partly insufficient

Due to the absence of national policies on gifted education, funding depends on the distribution of resources from the cantons to the schools, a process that is strongly influenced by the economics and current political priorities of local or cantonal authorities. In many cantons, financing the qualification of expert teachers in gifted education is an unresolved problem. On the one hand, further education studies are accredited by the Swiss Conference of Cantonal Ministers of Education and, as has been proven, schools and cantons are requesting many more experts than can be trained; on the other hand, the sourcing of these studies is only partially provided in some cantons. Often, the teachers involved have to partly cover the study fees themselves, despite fulfilling functions required by the school. Moreover, based on their advanced competencies, gifted education specialists fulfil key functions in their schools with no additional financial incentive.

Opportunities

Despite the need for ongoing efforts regarding gifted education, some promising developments can be observed within the context of the education system. One of them is the development of the new (almost nationwide) competency-based “Curriculum 21”, which includes competency frames to indicate the achievements of students between minimal and excellent standards. The new competency grids can fulfil the function of individualised fostering plans, showing progress and actual learning improvements, as well as above-average and excellent achievements. They show individual profiles of the students, and can serve as basis for individualised learning agreements.

In recent years, some cantons and cities have developed special programmes in addition to the pull-out programmes in the individual schools. These include: regional learning centres for the gifted in the canton Aargau, with “Atelier Litera”, “Atelier Historia”, “Mathsupport”, “Robotic” and others (www.ag.ch); the “Universikum” in the canton Zurich, with special courses for the gifted (www.stadt-zuerich.ch/universikum), including summer camps for gifted students; and the “Exploratio” in Winterthur (schule.winterthur.ch), as an additional offering for high achievers.

Meanwhile, most universities in Switzerland have arranged and are open for early studies for scholars who are willing and able to commence

their university studies early in addition to attending their regular gymnasium school programme.

The foundation for gifted children makes another kind of resource available with its well-known free counselling for parents who are seeking help regarding special abilities and the promotion of their children.

In the field of teaching and learning development, the canton Aargau is realising a joint research project in cooperation with the PH FHNW to develop learning architectures for the stimulation of high achievement in classes of inclusive learning. The joint development of learning and teaching environments and teaching behaviours on the part of schools in cooperation with universities for teacher training seems to be a sustainable setting to improve both practices in the professional field as well as theoretical discourse on the possibilities of and obstacles to scholastic education.

Furthermore, national contests such as “Schweizer Jugend forscht” (<http://sjf.ch/>) with “kids@science” and “Girls Science” for children aged 10–13 years, as well as the “Swiss Talent Forum” and its study weeks, have an impact on the fostering of high achievement in Switzerland.

Of particular note within the context of school competitions is the LISSA Award (www.lissa-preis.ch). Schools with elaborated programmes in gifted education, with substantiated long-term school development, with impact on other schools, and with continuous evaluation are ranked and rewarded by a jury of experts in gifted education. The particular effect of this award is that, in addition to the contest, the development processes and best practices of successful schools are documented and published for use by other interested schools, teachers or principals. From time to time, the foundation for gifted children that runs the LISSA Award produces video documentation of the awarded schools, in order to share their efforts and outcomes within the profession. This kind of modelling seems to be an encouraging method to motivate other school teams and school leaders.

Conclusion

Despite the lack of mandatory national policies on gifted education and the absence of a national strategy, there is a reflected awareness of the significance of gifted education in some cantons. The majority of cantons have developed concepts in this regard and require specific implementations from individual schools. However, there are still a few cantons that have failed to assimilate these requirements, which is hard to understand, as Switzerland is a nation whose economy relies solely on the knowledge, innovations, excellence and expertise of its population.

Instead of national regulations, Swiss school development is led by agreements and conventions mostly between cantons or within specialised and mandated networks. Although this works well, it is highly dependent on the current professional understanding, educational-political foresight, and political volition of cantons or school districts. This also results in ongoing controversy about the needs and significance of educational provisions, which, although preventing unreflective routines, requires a great deal of ongoing efforts of persuasion.

Numerous subsidiary actors support gifted education in action fields where the state does not fulfil the necessities. On the one hand, this solidarity relieves the obligations of the state, while, on the other, it compensates for a failure to fulfil obligations that are considered to be the duty of a national school system, i.e., to ensure the social and economic welfare of the nation.

There is an discrepancy between the necessity and urgent demand for experts and specially trained teachers for gifted education, and the absence of support for advanced studies and/or the absence of rewards for the special function that these specialised teachers fulfil.

Many schools have perceived the signs of the time and the changes in education. They are aware of the need to improve the conditions for fostering excellence and high achievement, as demanded by the configuration of a challenging future. These schools invest a great deal of effort in making learning structures more flexible, and in the development of individualised learning environments with differentiated learning paths to the benefit of the students and their strengths, and of potential-oriented learning. Sometimes, the impetus comes from cantonal policies or assignments, sometimes from parents, and very often from dedicated and deeply committed teachers and school leaders.

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Biographical note

VICTOR MUELLER-OPPLIGER has been a teacher and school principal, grade 3 to 9, during more than 12 years before he became a professor at the University of Education and Teacher Training of Northwestern Switzerland (PH FHNW). Studies in Special Education and Educational Psychology. Research in «gifted education and talent development», «identification of gifted», «self regulated learning», «learning architectures for differentiated and selfdirected learning», «coaching and mentoring in learning processes».

Program director of the international Master study program in «Integrative Education of Gifted and Talent Development IBBF» of PH FHNW in cooperation with the University of Connecticut.

Profile: <http://www.fhnw.ch/personen/victor-mueller>

Development of Finnish Elementary Pupils' Problem-Solving Skills in Mathematics

ANU LAINE^{*1}, LIISA NÄVERI², MAIJA AHTEE³ AND ERKKI PEHKONEN⁴

∞ The purpose of this study is to determine how Finnish pupils' problem-solving skills develop from the 3rd to 5th grade. As research data, we use one non-standard problem from pre- and post-test material from a three-year follow-up study, in the area of Helsinki, Finland. The problems in both tests consisted of four questions related to each other. The purpose of the formulation of the problem was to help the pupils to find how many solutions for a certain answer exist. The participants in the study were 348 third-graders and 356 fifth-graders. Pupils' fluency, i.e. ability to develop different solutions, was found to correlate with their ability to solve the problem. However, the proportions of the pupils (17% of the 3rd graders and 21% of the 5th graders) who answered that there were an infinite number of solutions are of the same magnitude. Thus, the pupils' ability to solve this kind of problem does not seem to have developed from the 3rd to the 5th grade. The lack and insufficiency of pupils' justifications reveal the importance of the teacher carefully listening to the pupils' ideas in order to be able to promote pupils' understanding of the concept of infinity, as well as the basic calculations.

Keywords: open problem, development of problem-solving skills, infinity, Finnish elementary school, mathematics

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1 *Corresponding Author. University of Helsinki, Finland; anu.laine@helsinki.fi
2 University of Helsinki, Finland
3 University of Helsinki, Finland
4 University of Helsinki, Finland

Razvoj spretnosti reševanja matematičnih problemov pri finskih osnovnošolcih

ANU LAINE*, LIISA NÄVERI, MAIJA AHTEE IN ERKKI PEHKONEN

~ Namen prispevka je ugotoviti, kako se med finskimi osnovnošolci razvijajo spretnosti reševanja problemov od tretjega do petega razreda. Podatki študije so bili zbrani na podlagi enega nestandardnega problema iz pred- in potesta v okviru triletne t. i. sledilne študije na območju Helsinkov na Finskem. Problema obeh testov sta bila sestavljena iz štirih med seboj povezanih vprašanj. Oblikovana ali pripravljena sta bila tako, da sta bila učencem v pomoč pri iskanju števila mogočih rešitev na posamezen odgovor. Vključenih je bilo 348 tretješolcev in 356 petošolcev. Fluentnost učencev, tj. sposobnost razvijanja različnih rešitev, je bila povezana z njihovo sposobnostjo, da so problem rešili. Vendar pa je delež učencev (17 % tretješolcev in 21 % petošolcev), ki so odgovorili, da je mogočih rešitev neskončno, ostal enak. Zdi se torej, da se sposobnost učencev za reševanje tovrstnih problemov od tretjega do petega razreda ni razvila. Pomanjkanje in nepopolnosti v utemeljitvah učencev kažejo, kako pomembno je, da učitelj pozorno posluša ideje učencev, da bi nato lahko spodbujal njihovo razumevanje koncepta neskončnosti in osnovnih izračunov.

Ključne besede: odprti problem, razvijanje spretnosti reševanja problemov, neskončnost, finska osnovna šola, matematika

Introduction

Already at the elementary level in Finland, the aim of learning mathematics is also to understand mathematical structures, not merely to learn mechanical calculations. The curriculum for the Finnish comprehensive school (NBE, 2004) has problem solving as one of the formal objectives for all school subjects. Pupils should be able to make justified conclusions, explain their actions and present their solutions via concrete models, treatments, voice and written texts (NBE, 2004). Current thinking among researchers and reformers is that mathematical discourse involving explanation, argumentation, and that the defence of mathematical ideas should be a defining feature of a quality classroom experience (Walshaw & Anthony, 2008). Pedagogical practices that create opportunities for students to explain their thinking and to engage fully in dialogue have been reported by Steinberg, Empson, and Carpenter (2004). By expressing their ideas, students are able to make their mathematical reasoning visible and open for reflection.

This paper considers pupils' skills in solving a non-standard task, an open problem, and the development of pupils' skills from 3rd to 5th grade.

Problem solving

It may be said that the base for research on modern problem solving was created in the 1950s by George Polya, when he introduced his four-step model for problem solving: 1) Understanding the problem, 2) Devising a plan, 3) Carrying out the plan and 4) Looking back (cf. Polya, 1945). Nowadays, problem solving is understood and usually offered as a method to develop mathematical thinking (e.g. Schoenfeld, 1985).

In this paper, we will apply a rather widely used characterisation for a problem (cf. Kantowski, 1980): a task is said to be a *problem* if the solving of it requires the solver to connect the task to his/her earlier knowledge in a (for him/her) new way. If he/she can immediately recognise the procedure needed for solving the task, it is a *routine task* (or a standard task or exercise) for him/her. The concept of 'problem' is thus relative in terms of time and of the person concerned. Simple addition tasks, such as $3 + 4$, could be problems for a school beginner, whereas after some years they are routine tasks.

When the teacher offers a problem task to the pupils, it might be familiar (similar ones have been solved before) to some of them, and thus it is no longer a problem to them. The so-called *non-standard* tasks differ markedly from those typically presented in mathematics textbooks. Non-standard tasks are often

surprising and unusual, and demand new kinds of thinking from solvers. For example, most of the PISA tasks are non-standard problems (cf. OECD, 2006).

Mathematical tasks can also be divided into open and closed tasks (cf. Boaler, 1998). In a closed task, both the starting and end points are uniquely determined. The solver needs only to find the route to the solution. Most of the tasks in mathematics textbooks are closed, whereas in *open tasks* there are several alternatives for the starting and/or end situations, as well as for the solution method.

In the 1970s, a new method for mathematics teaching, the so-called open approach (cf. Becker & Shimada, 1997; Nohda, 2000) was developed in Japan. In an open-ended problem, the starting point is given, but the end is open. Therefore, open problems have many possible answers. One example of an open-ended task is as follows: 'Divide a rectangle into three triangles. Can you find another solution? How many solutions are there altogether?'

Creativity

Creativity can be described as performance by which an individual produces something new and unpredictable (cf. Silver, 1997). There are two principal definitions of mathematical creativity: the creation of new knowledge and flexible problem-solving abilities (Kwon, Park, & Park, 2006). Creative people are able to produce new ideas even from poorly-defined information using the principles of intuition. Intuition is defined as cognitions that appear subjectively to be self-evident, immediate, certain, global, coercive (Fischbein, 1999). Intuition can be thought as unconscious thinking in which the connection and the logic of the steps cannot be seen (cf. Ericsson, 2003). In the literature of mathematics education, the term 'creative problem solving' (CPS) is used to a certain extent to emphasise the aspect of creativity in problem solving (cf. Pehkonen, 2004). CPS offers a powerful set of tools for productive thinking: these can be learned and used successfully (Treffinger, 1995). The purpose is primarily to change formal thinking habits and attitudes to more flexible and receptive ones.

Divergent thinking is the ability to draw on ideas from across disciplines and fields of inquiry in order to reach deeper understanding (Guilford, 1956). Often, it is based on imagination, hopping illogically from one topic to another, mainly without connections, whereas convergent thinking generally means the ability to give the 'correct' answer to standard questions. Thus, it is logical, striving purposefully to the set goal (Guilford, 1956). It is often said that in mathematics, and also in problem solving, two types of thinking modes are needed: divergent thinking that is used to generate creative ideas, and convergent

thinking in which logic is in the focus, i.e. creative thinking (divergent), for which intuition is typical and analytical thinking (convergent) where logic is in the focus. Studies exist that systematically attempt to improve pupils' divergent thinking (e.g. Kwon et al., 2006).

There are four components of creativity in the Torrance Tests of Creative Thinking (cf. Torrance, 1974): fluency (i.e. how fluent the solver is in creating a large number of ideas or alternative solutions), flexibility (i.e. how flexible the solver is in seeing things from different points of view and using many different strategies during the process of solving the problem), originality (i.e. how capable the solver is to produce unique and unusual ideas or put together old ideas in a new way), and elaboration (i.e. how capable the solver is to process ideas by providing more details that deepen the understanding of the topic). In Japan, when using the teaching method of the open approach, teachers aim to develop pupils' problem-solving skills and creativity. In creativity, the focus is in the three first components of creativity (Shimada, 1997).

Potential infinity

Infinity is a fundamental concept in mathematics; it is encountered as early as in counting when children understand that there is no endpoint. Such ongoing processes without an end are usually the first examples of infinity for children; such processes are called 'potential infinity'.

Infinity awakens curiosity in children even before they enter school (e.g. Wheeler, 1987). In the elementary curriculum, infinity is implicitly present in many of the topics, e.g. in arithmetic when dealing with fractions, or when introducing straight lines in geometry. Some of these ideas (e.g. straight line) are introduced to the pupils as early as in the 2nd grade (NBE, 2004). Therefore, pupils in the 3rd and 5th grades are familiar with the idea of potential infinity, although what infinity means is not covered during the elementary school. Consequently, infinity remains mysterious for most students throughout their school years (e.g. Pehkonen & Hannula, 2006). For example, even 16–18 year-old English students' primary focus on infinity is as a process, i.e. something which *goes on and on* (Monaghan, 2001).

The purpose of this study

This paper is based on the information gathered in the comparative study between Finland and Chile in 2010–2013, a research project (Project #1135556) that is partly funded by the Academy of Finland. In the background study of the project, pupils' mathematical skills were measured with a test in the beginning

of the third grade in autumn 2010 and at the end of the fifth grade in spring 2013, with the same pupils. Since the Chilean school year begins six months later than in Finland, we do not yet have all the Chilean results; consequently, we are not able to make any comparison between the countries. Therefore, we will here restrict ourselves in the comparison of the Finnish results in the 3rd and 5th grades. In this study, there have been 10 experimental and 10 control classes.

The purpose of this article is to analyse the development of Finnish pupils' problem-solving skills from the 3rd to the 5th grade. The research problems are stated as follows:

- How do the pupils solve a non-standard problem at the 3rd and at the 5th grade?
- How fluent are the pupils in inventing answers?
- How do the pupils explain the number of solutions when the difference or respectively the quotient of two numbers is two?
- What kind of understanding do the third and the fifth graders have of infinity?

Method

Participants and data collection

The data in this article consist of mathematics tests that were carried out in the autumn of 2010, at the beginning of the 3rd grade and in spring 2013, at the end of the 5th grade, as a part of the comparative project's background measurements. In autumn 2010, the pupils ($N = 348$) were about nine years old. Ten classrooms were selected for experimental and ten classrooms for control groups in the Helsinki metropolitan area. In spring 2013, the same school classes were tested again ($N = 356$). All the pupils who were at school on testing days took the test; therefore, there is the different number of pupils in the first and second tests. Furthermore, some pupils had changed their classrooms or schools.

Both tests were constructed so that they measured different parts of pupils' knowledge of mathematics (calculation, application and problem-solving skills) and each part had some anchor tasks in order to find out the development in this area. For each test, the pupils were allowed 45 minutes. In this study, we analyse one problem from both tests.

The task is a so-called guiding exercise in which questions are presented one after another. In third grade, the task was to produce certain subtractions, and in fifth grade divisions. In addition, pupils were asked to ponder how many of this type subtraction /division task there are altogether. The aim of the

guiding exercise was to help pupils to picture the number of calculations.

The task was formulated as follows in the 3rd grade:

1. Find numbers with the difference of 2. For example
 - $5 - 3 = 2$
 - $_ - _ = 2$
 - $_ - _ = 2$
2. Can you find more examples? What kind? Give the examples.
3. How many subtractions with a difference of 2 do you think there are altogether?
4. Why?

In the 5th grade, the task was identical, except of the calculation 'Find numbers with the quotient of 2.'

Data analysis

Pupils' answers were coded depending on the complexity of the answer to three categories: correct, wrong and no answer. The statistical analysis containing frequencies, means, dispersions and Pearson's correlations was made with the SPSS program package. The reliability was tested by t-test with significance levels of 0.05, 0.01 and 0.001. In the calculations of the differences of percentages in the 3rd and 5th grade results, we use the common agreement for the levels of statistical risks. The significance of the difference between percentages was tested using Z-test.

Pupils' verbal justifications for the number of subtractions or quotients were analysed more closely. The analysis was qualitative, and it can be characterised as inductive content analysis (Patton, 2002). The written responses were interpreted and categorised by comparing the similarities and differences in the pupils' answers. All answers were recorded in a database so that all the researchers could make their own suggestions separately. After some trials, a crude division to three categories (justification correct, justification wrong, no justification) was decided.

Results

First, we will present results from the 3rd grade, then from the 5th grade, and finally look at the development of both pupils' problem-solving skills and their idea of the number of subtractions/quotients from the 3rd to the 5th grade.

Situation at the 3rd grade

Most of the pupils (93%) found two correct subtractions in the first part of the task (see Table 1). The wrong answers were mostly of the type that the pupils had made subtractions with an answer of -2, i.e. they had not understood the meaning of the order of the numbers in the calculation. In the next part, the pupils had to invent more examples. They invented from 0 to 14 new solutions. About one third of the pupils wrote down also subtractions that contained numbers with two or more digits. Six pupils invented a subtraction task that was coded as original. Most of these contained large numbers, e.g. $1,000,000-999,998=2$. One pupil used even decimal numbers ($10,000.5-9,998.5$). Flexibility and elaboration, the other components of creativity, are not relevant here because of the form of the task.

Table 1. *Third graders' findings for subtractions*

	Answers (N = 348)	The proportion of the answers (%)
Find numbers with the difference of 2. For example $5 - 3 = 2$ $_ - _ = 2$ $_ - _ = 2$	Both correct	93
	One correct	5
	Both wrong	2
	No answer	0
Can you find more examples? What kind?	Examples with 2- or more-digit numbers*	47
	Examples with 1-digit numbers*	33
	Wrong solutions	5
	No answer	15

*Pupils' examples from the first part of the task were also taken into account in these percentages if a pupil had not invented more examples.

We were also interested in the pupils' fluency, i.e. the number of invented solutions in the second part of the task. The aim of the first part of this guiding task was that the pupils while inventing examples would also realise that there can be an infinite number of solutions. In Table 2, we present the distribution of pupils' solutions. Most of the pupils gave from three to five examples.

Table 2. *Third graders' fluency in inventing subtractions with a difference of 2*

The number of solutions	0	1-2	3-5	≥ 6
The number of pupils	58	96	114	80

In the third part of the task, the pupils were asked to ponder how many subtraction tasks for the difference of 2 there are altogether (see Table 3). The number of correct subtractions was divided into three parts: infinite, more than 20 (this varied up to numbers with even 12 zeroes after one) and less than 20. The pupils were able to write about 20 subtractions on the answer sheet. After that, they had to imagine the subtractions in their head. When a pupil did not answer the question, but instead gave more examples his/her response was coded as 'wrong answer'. Only 17% of the pupils gave an answer that there is an infinite amount of subtractions giving the difference 2.

Table 3. *Third graders' answers to the question about the number of the subtraction tasks with the difference of 2*

	Answers (N= 348)	The proportion of the answers (%)
How many subtractions with the difference of 2 are there altogether?	Infinite	17
	More than 20	31
	Between 1 and 20	11
	Wrong answer	14
	No answer	27
Why?	Justification correct	14
	Justification wrong	35
	No justification	51

Pupils were also asked to justify their answer. About a tenth of the pupils were able to give some kind of explanation as to why there are an infinite number of subtractions (see Table 3). About half of the third graders had written down at least something as an answer to the question about why they thought there are so and so many subtractions in the fourth part of the task. The pupils' correct verbal reasons to the question what is the number of possibilities to obtain 2 as a difference between two numbers were either of the type 'No end of numbers', or of the type 'You can always subtract', whereas the incorrect justifications were more or less inexplicable. However, in each justification, category

the pupils' answers to the preceding question (How many subtractions with the difference of 2 are there altogether?) varied from two to infinity.

More than half of the third graders, who had written something as an answer, gave an inexplicable explanation, which means that they wrote down something that did not truly explain anything. Some typical answers:

- Because there are many.
- Because there are so many calculations where the difference is two.
- Because there are different calculations in the world.

In the category 'No end of numbers,' most of the pupils used the terms 'infinitely' or 'endlessly' for the number of possibilities, and their reasons were simply as follows:

- Because numbers will never end
- Because numbers will increase all the time

However, some pupils gave the same reasoning even though they gave the number of solutions as 'millions' or as 'lots of zeroes after one' or just as 'much'.

In the category 'You can always subtract,' most of the pupils had written that there could be an infinite number in the third part of the task.

- Because you can always take off so much that 2 remains.
- When you subtract from any number something you get two.
- Because you can always subtract a number that is two less than the number from which you subtract.

Furthermore, in this category, many pupils gave more or less the same reasons even though they did not use infinity in their answer. A pupil who had given '100' as the number of possible subtractions wrote:

- Because from every other number you can calculate a difference of two, except from numbers 2 and 1.
- Another pupil who had given '10,000' as the number of possible subtractions wrote:
- Because the first number in the calculation changes with one forward and so also the other number.
- Or a pupil, who thought that there are a million possibilities, wrote:
- Because always if you take off from some number another number which is smaller by two the answer is two.
- Some of the pupils explained by giving an example:
- Because you can calculate e.g. $1000 - 998$.

- Because there are many calculations like $1,000,000,004 - 1,000,000,002 = 2$.
- Because $10 - 8 = 2$, $100 - 98 = 2$, $1000 - 998 = 2$, $10000 - 9998 = 2$.
- Because if you subtract e.g. 98 from a hundred you get the number 2.

In the first example, the pupil had stated that there is an infinitely of differences, in the second ‘thousand million millions’, in the next hundred thousand, and in the last one a hundred.

It seems that there were at least three ways for pupils to find the justification for the number of calculations with the difference of two: 1) They had systematically written down the differences with small numbers, e.g. $2-0$, $3-1$, $4-2$ or $9-7$, $10-8$, $11-9$; or 2) They had used slightly larger numbers like $50-48$, $60-58$, $90-88$; or 3) Very often, they gave the difference $1000-998$ as an example.

The relation of the fluency (see Table 2) to other variables was studied because it seemed to be relevant based on the qualitative data. The fluency correlated with the size of the numbers used in the calculations ($r = 0.57$, $N = 348$, $p = 0.000$), i.e. if a pupil gave examples of subtractions with two or more digit numbers, they were more fluent. The fluency correlated also both with the conception about the amount of the numbers ($r = 0.32$, $N = 348$, $p = 0.000$) and with the justification ($r = 0.25$, $N = 348$, $p = 0.000$). In fact, the fluency correlated with all other parts of the task except the first ($r = 0.05$, $N = 348$, $p = 0.345$) because almost everybody had solved the problem. It seems that if a pupil had started to invent many examples to the subtraction, s/he was able to come closer to the idea of the infinity of numbers.

Situation at the 5th grade

Most of the pupils (88%) found two correct divisions to the first task (see Table 4). The wrong answers were mostly of the type that the pupils had divided the smaller number with the bigger one (cf. Huhtala & Laine, 2004). In the next task, pupils had to invent more examples. They invented from 0 to 12 new solutions; 64% of the pupils also wrote down divisions that contained numbers with two or more digits. Only eight pupils invented a division that was coded as original. These divisions contained large numbers, e.g. $10000 \div 5000$.

Table 4. *Fifth graders' findings for the division task*

	Answers (N = 356)	The proportion of the answers (%)
Find the numbers with the quotient of 2. For example $6 \div 3 = 2$ $_ \div _ = 2$ $_ \div _ = 2$	Both correct	88
	One correct	5
	Both wrong	3
	No answer	4
Can you find more examples? What kind?	Examples with 2- or more-digit numbers*	64
	Examples with 1-digit numbers*	23
	Wrong solutions	0
	No answer	13

*Pupils' examples from the first part of the task were also taken into account in these percentages if a pupil had not invented more examples.

We were also interested in the fluency, i.e. the number of invented solutions in the second part of the task. In Table 5, we present the distribution of pupils' solutions. The mode of the answers is placed in zero solutions, i.e. about one third of the pupils did not give any examples in this part of the task.

Table 5. *Fifth graders' fluency in inventing divisions*

The number of solutions	0	1-2	3-5	6-12
The number of pupils	111	80	83	82

Pupils were asked to ponder how many division tasks with a quotient of 2 there are altogether (see Table 6). Only one fifth of the pupils responded that there is an infinite number of divisions of that kind.

Table 6. *Fifth graders' answers to the question about the number of the division tasks with the quotient of 2*

	Answers (N = 356)	The proportion of the answers (%)
How many divisions whose quotient is 2 there are altogether?	Infinite	21
	Numbers over 20	38
	Numbers between 1 and 20	19
	Wrong answer	3
	No answer	19
Why?	Justification correct	21
	Justification wrong	43
	No justification	36

Pupils were also asked to justify their answer. About one fifth of the pupils gave a correct justification, i.e. were able to explain why there are an infinite number of division tasks (see Table 6). In the fourth part of the task, about 60% of the fifth graders had written an answer to the question asking why this was so. The pupils' justifications for the number of possibilities to obtain 2 from a division of two numbers were divided into the three categories as earlier in the case of the third grade: 'Inexplicable explanations', 'No end of numbers', and 'Correct explanations'. It must be noted that in the fifth grade the number of possibilities also varied from a few ones to infinity.

Less than half of the fifth graders who gave an explanation gave one that did not truly explain anything. Some pupils gave the same kind of answers as the third graders:

- Because there are many and you can invent more.
- Because there are so many multiplication calculations.

However, many of these respondents paid attention to the number 2, e.g.:

- The result of many divisions is 2.
- Because 2 is an even number.
- Because there are so many numbers that you can multiply by two.

Some of the fifth graders spoke about multiplication table and mostly about the multiplication table of two. However, the number of possibilities was then extremely low.

- I counted them using multiplication tables.

- All in the multiplication table of 2.

The majority of the fifth-graders classified in the category 'No end of numbers' stated that there are infinite or endless of possibilities to obtain 2 as a quotient, and their reasons were mostly the same as in the third grade:

- Because there are numbers endlessly.

There were also some answers in which the pupils ended with an infinite number of solutions by adding zeroes.

- You can always add zeroes, e.g. $4 \div 2$; $40 \div 20$; $400 \div 200$.

The category 'Correct answers' was divided into two subcategories: 'Divisor is half of the dividend' and 'Even numbers'. In both of these subcategories, most of the pupils answered that there are an infinite number of solutions. In the subcategory 'Divisor is a half of the dividend', some fifth graders used the correct terms, some used a simple formulation, some wrote a quite complicated answer, and some had noticed a distinct kind of system.

- Because the dividend can be any number and the divisor is half of it.
- Because it can be divided by half of it.
- If you multiply some number by 2, the answer will be an even number; this answer can then be divided with a number which is half of it, and the answer will be 2.
- Because the dividend is increased by two and the divisor by one.

Like the third graders, many fifth-graders gave more or less the same reasons, even though they did not use infinity in their answer. A pupil who had given 'Hundreds' as the number of possible solutions, wrote

- Because you just divide it by half of it, e.g. $100 \div 50 = 2$.

Furthermore, in the subcategory 'Even numbers', there were simple and more complicated statements. We included in this subcategory the answers in which the respondents had also given examples as a justification.

- An even number is divided by half of it, and there are many even numbers.
- Because even numbers can be divided so that the answer is 2.
- All even numbers can be divided by two.
- Also, two million can be divided by one million and the answer is two.

The relation of the fluency (see Table 6) to other variables was studied.

The fluency correlated with the first task in which pupils had to invent two calculations ($r = 0.24$, $N = 356$, $p = 0.000$), i.e. if pupils had calculated both tasks correct they had invented more new examples. The fluency correlated with the size of the numbers used in the calculations ($r = 0.67$, $N = 356$, $p = 0.000$), i.e. if a pupil gave examples of divisions with two or more digit numbers they were more fluent. The fluency also correlated both with the conception about the amount of the numbers ($r = 0.33$, $N = 356$, $p = 0.000$) and with the justification ($r = 0.43$, $N = 356$, $p = 0.000$). In fact, the fluency correlated with all parts of the task, including with the first one unlike at the third grade. It seems that if a pupil had started to invent many examples of the division s/he was able to approach the idea of infinity of numbers. It is possible that the third grade pupils made more carelessness mistakes.

Comparing the situation in the 3rd and in the 5th grades

We wanted to determine if there had been some development in pupils' ability to solve a non-standard problem. In addition, we were interested in the possible development of pupils' idea of infinity.

The third-graders' two examples in the first part of the task were more frequently correct than the fifth-graders' examples in the corresponding task ($Z = 2.27$, $p = 0.05$). The fifth graders' worse performance probably results from the frequency of the typical mistake of not understanding the meaning of the order of the numbers in division (e.g. Huhtala & Laine, 2004). The fifth-graders left the second task (invent more examples) empty more frequently than the third-graders did ($Z = 4.58$, $p = 0.01$). Third-graders are younger and, therefore, probably more conscientious and want to do their best, unlike fifth-graders at the beginning of puberty and tending to rebel against the rules. There were, however, no differences between the number of pupils who were fluent, i.e. gave more than six examples in this task. When looking more closely at the examples, it can be observed that the fifth-graders used larger numbers than the third-graders did in their calculations ($Z = 4.60$, $p = 0.001$). Over 60% of the 5th graders used numbers bigger than 20 in their divisions in comparison to 50% of the 3rd graders.

In the task in which pupils were asked about the number of solutions, third graders' answers were more frequently coded as incorrect ($Z = 5.29$, $p = 0.001$) because they gave more examples instead of answering the question. The third-graders' estimations about the number of solutions were also more frequently smaller than those the fifth-graders ($Z = 2.99$, $p = 0.01$). Pupils' understanding of the concept of infinity did not, however, develop from the 3rd to the 5th grade; 32 pupils on third grade and 50 pupils on fifth grade were able both to

use the concept of infinity and to give a correct justification. It is intriguing that only eleven of the pupils who had used the concept of infinity and given a correct justification in the 3rd grade also did so in the 5th grade. When comparing pupils' written explanations, we observed that the 5th graders had given justifications more frequently: altogether, 51% of the 3rd graders had no justification compared to 36% of the 5th graders ($Z = 4.06, p = 0.001$). The explanations were, however, not of better quality, because the biggest increase was in the explanations that showed that the pupils had no idea how to correctly answer the question. It seems that more pupils in the fifth grade had explained something in order not to leave the task empty, and that older pupils are usually more fluent in writing their ideas.

Conclusions

It is not possible to fully compare the results between the 3rd and 5th grades, because the tasks were different and division is a far more abstract concept than subtraction for the pupils. Although pupils should be familiar with the concept of potential infinity as early as at the 3rd grade, it seems that this concept remains problematic at the 5th grade (cf. Pehkonen & Hannula, 2006). This is understandable because the concept of infinity is not a central topic in curriculum; therefore, there are no exercises in the textbooks concentrating in this concept, for example. That is why it depends on the teacher as to how much s/he uses time with this concept. It is also possible that this concept is not very clear for the teachers (cf. Hannula, Laine, Pehkonen, & Kaasila, 2012).

It is essential to engage with the concept of infinity in the different fields of mathematics. Otherwise, pupils' only idea of infinity will be that of a never-ending process (Monaghan, 2001), as was confirmed in our study. In addition, it is important to practice justifying solutions, as stated in the curriculum for the Finnish comprehensive school (NBE, 2004), because even at the fifth grade some of the pupils still had difficulties in explaining their thinking.

It was interesting to see how this guiding task composed of four parts functioned in this study. It seemed that if a pupil started to invent many examples, i.e. was fluent, s/he was able to come closer to the idea of infinity, and was therefore able to solve the problem. It is important in teaching to use open problems because they encourage pupils to invent different solutions. When pupils are used to inventing many solutions, it will probably also be easier for them to solve problems. It would be interesting in the next study to compare the results in experimental and control schools in order to determine the possible effect of the three-year intervention that was carried out in the experimental schools.

It is also important to pay attention to pupils' explanations (Walshaw & Anthony, 2008). For example, although some of the pupils were able to give infinity as an answer, they were not able to explain it, i.e. they did not fully understand their answer. In contrast, some of the fifth graders answered, for example, that there are fewer than 20 solutions to the division with the quotient of 2 but their explanation contained elements of understanding. Perhaps their understanding of numbers was restricted to small numbers. These pupils need a different kind of guidance from their teacher.

Ultimately, teachers should also pay careful attention to pupils' answers in written tests because in this way they will obtain useful information about the state of and possible problems in pupils' thinking. This helps the teachers to ask such pupils questions that in turn help pupils to deepen their understanding. Therefore, it is essential to create within the class a safe emotional atmosphere that promotes conversation and explanation.

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Biographical note

ANU LAINE, Dr., is an adjunct professor in mathematics education, working as a university lecturer in the Department of Teacher Education at the University of Helsinki in Finland. Her research interests include affects, communication and problem solving in mathematics education.

LIISA NÄVERI, PhD, is working as a university lecturer in the Department of Teacher Education at the University of Helsinki in Finland. Her research interests include problem solving and understanding in mathematics learning.

MAIJA AHTEE, PhD, is a professor (retired) in the field of mathematics and science education in the Department of Teacher Education at the University of Jyväskylä in Finland. Her research interest is more in physics education.

ERKKI PEHKONEN, Dr., is a full professor (retired) in the field of mathematics and informatics education in the Department of Teacher Education at the University of Helsinki in Finland. He is interested in problem solving with a focus on motivating middle grade pupils, as well as in understanding pupils' and teachers' beliefs and conceptions about mathematics teaching.

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Reviewed by CHUING PRUDENCE CHOU¹

In the seven years since the publication of the first edition of *Comparative Education Research: Approaches and Methods*, it is remarkable to see how much has stayed the same yet how much has changed in the field of comparative education. The second edition of the book reflects this, with both the expanded and retained content evolving to address developments in the field. The fact that the vast majority of the first edition has been included in the second edition of the book is testament to its enduring value as a foundational reference text in the field. The editors of the book, as well as many of its contributors, are recognised experts in comparative education and are well qualified to undertake such a wide-ranging project, which continues to leave a lasting impression on the field. Mark Bray is the former Director of the UNESCO International Institute for Educational Planning and former Chair of the World Council of Comparative Education Societies (WCCES). Bob Adamson, the second editor, is currently the Head of the Department of International Education and Lifelong Learning and former President of the Comparative Education Society of Hong Kong. Mark Mason, the third editor, is a Professor in the Department of International Education and Lifelong Learning at the Hong Kong Institute of Education. He also serves as Senior Program Specialist in the Curriculum Research and Policy Development of UNESCO. For researchers and students of comparative education, the collaboration between these editors and the contributing authors has resulted in a text that has defined the field, particularly in terms of its contributions to methodology, in a way few other books could.

As mentioned above, the second edition reveals both the extent to which the field of comparative education research has evolved over the seven intervening years, as well as the many key aspects that have remained the same. Among

¹ Fulbright Scholar and Professor, Department of Education, National Chengchi University, Taiwan

the aspects that have changed or intensified in influence over the years, four are particularly worth mentioning. First, while the adoption of neoliberal, free-market economic policies and the subsequent deregulation of education began in the 1980s, its influence in recent years has only continued to increase. Over the last decade, these trends have continued to put pressure on many education systems throughout Europe, North and South America, and Asia. As a result, the increasing gaps between rich and poor on the individual, school, national and international scales are obvious, and they continue to intensify ethnic conflict, cultural disputes and social instability. Second, in this new environment, increasing competitiveness and accountability have become the *raison d'être* for many educational institutions. Accelerating competition between and within schools has run rampant and become the norm with which administrators, educators and students must all comply. Emphasis on benchmarking has become increasingly pervasive in all aspects of education systems. For students, this has been realised through international assessments of student academic achievement, such as the Programme for International Student Assessment (PISA), Trends in International Mathematics and Science Study (TIMSS), and Progress in International Reading Literacy Study (PIRLS), as well as standardised testing at the national and subnational levels. For educators and higher education institutes, world-class university rankings and the proliferation of publication indices as quantitative indicators of faculty and university performance, described as the SSCI syndrome, have continued to shape policies at all levels. In addition, the rise of information and computer technology has brought forth a new revolutionary trend in learning. The dominant role of the Internet in students' lives inside and outside the classroom has challenged conventional schools and classrooms in an unprecedented way, so that all educators, teachers and parents are forced to comply with the trend of change.

Researchers in the discipline of comparative education have responded to these changes over the last few years. For example, the World Congress of Comparative Education Societies (WCCES) has evolved accordingly, with themes such as "New Challenges, New Paradigms: Moving Education into the 21st Century" (Chungbuk, Republic of Korea, 2001), "Education and Social Justice" (Havana, Cuba, 2004), "Living Together: Education and Intercultural Dialogue" (Sarajevo, Bosnia and Herzegovina, 2007), "Bordering, Re-Bordering and New Possibilities in Education and Society" (Istanbul, Turkey, 2010), and "New Times, New Voices" (Buenos Aires, Argentina, 2013). The changing thematic emphasis of these high-profile conferences in recent years represents a collaborative effort to respond to the changing demands of comparative education research today. Education has long been a means of addressing inequality,

and education research that aims to empower social groups that have traditionally been marginalised continues to increase in importance to this day. Recognising the global significance of this trend, the present book has been updated accordingly, most notably with the addition of a chapter on comparative approaches for race, class and gender. In responding to this ongoing evolution in comparative education research, the book also includes some subtle but significant changes to its structure and contributing authors.

Despite these significant changes, certain key aspects of the field of comparative education have remained constant over the years. For one, many studies still focus on international comparisons based on national characteristics and individual education systems. The nature of comparative education research still emphasises making comparisons using national data. International assessments of student achievement have continued to reinforce this as one of the dominant themes in the field. Furthermore, understanding what works in education and what does not by making comparisons still requires valid units of comparison. Given this basic tenet of comparative research, references that provide a methodological foundation for research are always in high demand in the field. Solid comparative methodology remains the basis for conducting meaningful research. George Bereday, for example, first introduced his four-step method in *Comparative Method in Education* in 1964, emphasising four steps: description, interpretation, juxtaposition and comparison. Even today, this still remains a foundational reference text in comparative studies. The book under review can be described as being of similar significance, and it is one that other studies will refer to throughout the years.

With a particularly intensive focus on methodology, the book covers a wide range of topics in comparative education research. It contains three major sections, entitled “Directions”, “Units of Comparison” and “Conclusions.” As an introductory section consisting of three chapters, the first of these sections sets the stage for the chapters that follow. It begins with a discussion of actors in comparative education and the purposes of conducting comparative education research. Chapter 2 places the field of comparative education in the broader context of academic research and scholarly enquiry, paying particular attention to the interdisciplinary nature of the field and its close relationships with other fields in social sciences. In Chapter 3, the author elaborates upon quantitative and qualitative approaches to comparative education, each of which has its own distinct methodological orientations and functions in the field.

Contained within the second section of the book are the chapters that make the book uniquely valuable. In contrast to the thematic focus common to many reference texts, each chapter focuses explicitly on a specific unit of

comparison used in comparative education research. The units of comparison considered in the second edition include places, systems, times, race, class, gender, cultures, values, policies, curricula, pedagogical innovations, ways of learning, and educational achievements. The identification of these units of comparison dates back to a three-dimensional analytical framework developed by Bray and Thomas (1995), which categorised the possible units of comparison into “geographic/locational levels,” “nonlocational demographic groups” and “aspects of education and of society” (p. 9). Taking this more holistic understanding of comparative education research as its foundation, the chapters address not only the conventional units of comparison, such as geographic entities and education systems, which have been the focus of research in many prominent studies, but also others that may serve as more relevant units of comparison based on the context. When using time as a unit of comparison, the chapter deals with astronomical time, biological time and geological time, as well as personal time and historical time. In dealing with cross-cultural and comparative research, the book points out some philosophical and methodological aspects for making comparisons. Another chapter focuses on studies of values in different education systems, which must take into account the relevant contextual factors in each society. Comparing education policies between different nations or systems is not uncommon in the global age. The chapter also discusses theoretical and methodological issues by illustrating comparative analyses of education policies.

Another hot issue in the field concerns how education systems design and carry out their curriculum. The authors examine different notions of curricula with a tripartite framework for curriculum comparison. In addition, more and more comparative education research focuses on educational change, reform and innovation internationally. This new trend has enriched the discipline by echoing and interacting with global demands for change. Comparing learning and intentional academic achievement has become the focus of international benchmarking for national competitiveness ranking. The two chapters devoted to this discussion describe and define concepts and terms for undertaking comparative analyses of learning and educational performance nationally and internationally.

The most significant addition to the second edition comes in the form of a new chapter that focuses on race, class and gender as units of comparison. In the new chapter, Jackson provides a refreshingly holistic discussion of studies on race, class and gender in comparative education. In particular, the relation of each demographic variable to the notion of identity (p. 195), the clear distinction between economic, cultural and social capital in determining class (p. 205),

and the inherent limitations of making between-country comparisons based on demographic indicators whose definitions vary from place to place. In the final section, the authors conclude with a discussion of models for comparative education research coupled with insights that one can gain from different comparative approaches and methods in education research.

Regarding the contributions of the book, the diagram of comparative education analyses can serve as one of the most significant milestones in the development of comparative education research methodology since Bereday's work in the 1960s. The book provides many solid methodological approaches and concrete examples, which is especially important given recent changes in the field. Secondly, it is a collaborative work by top experts in the field from around the world, including both researchers and practitioners. Most of the authors are specialists with solid backgrounds in theory as well as hands-on experience in conducting comparative education research. Moreover, the book has continued to change with the field, as evidenced in the new chapter, the structural changes, and the revised data and visuals, which veterans and newcomers alike will find useful and insightful.

Despite the book's rise to prominence as one of the key reference texts in the discipline, there remain a few points that leave room for improvement or expansion in supplementary academic research or in future editions of the book. For example, the order of the units of comparison within each chapter could be improved by reorganising its structure in a more logical way. It could either follow the structure of the cube advanced by Bray and Thomas in 1995 or have a clearer logical order of its own. In addition, many current educational issues, such as educational mentality and ways of learning and instruction, have been shaped by the advancement of new technology and the Internet. For example, it could touch upon issues such as how research methodology and approaches in comparative education could contribute to knowledge-infusion and knowledge-transfer in a world of declining reading. The inclusion of other prominent worldwide issues would be welcome, such as the spread of the SSCI syndrome in higher education among East Asian countries and the escalating value conflicts occurring between different generations when dealing with education policies and social disputes. The book could better serve a wider and more diverse readership if it were to emphasise the increasing role of technology, as in Chapter 12: Comparing Pedagogical Innovations, which is a crucial trend affecting how research must be updated to better fit the new Internet world.

Above all, the second edition of the book will be of great value not only to researchers of comparative education research but also to policymakers and

students who wish to understand the array of methodological approaches available in comparative education research more thoroughly. It can serve as a valuable toolkit for both beginners and experts who wish to engage in advancing the field of comparative research in education into the future.

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