

IGNITING EDUCATION

MAKING MORE AND BETTER USE OF
SKILLS COMPETITIONS



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Netherlands

COLOFON

Title Igniting Education:
Making more and better use of skills competitions
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Version 1.0
Date 09-30-2018
Project 13588.02

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1 INTRODUCTION

1.1 WHAT IS THIS PAPER ABOUT?

This paper is about skills competitions. To be more precise, it is about the use of competition-based activities in vocational education and training (VET) and in secondary education. The paper focuses on what you can do with national and international competitions if you are a teacher, staff member or manager in education.

Our document is called Igniting Education. The central theme of Igniting Education is the stimulation and development of the students' talent and skills. It should help teachers and schools design, establish and execute challenging education to ignite the development, pride and passion of students to become skilled craftspeople and professionals. This approach uses learning by doing, learning by cooperation and learning by performing with skills competitions as a toolbox.

The best way to create Igniting Education is to build skills competitions into the national educational systems and set them for new purposes and goals. This will allow competitions to fit within the organisation more easily and make it possible to use them for programming and curricula. It will strengthen learning methods by using both existing and new assignments and challenges with other official competitions. It can be effective for individual and collective learning, and will enrich teaching practice, didactic counselling and coaching to help students become the best of themselves and rely on their achievements. It will also be a valuable and constructive hub for the professional development of VET teachers and trainers.

Skills competitions can be used as a strong resource in the overall development of education and VET, the development of skills excellence and the professional and personal shaping of students. To establish this, we recognise two interdependent pathways:

- ⊗ the development of talent of all students and teachers in VET by applying specific methods and instruments;
- ⊗ the development of top expertise and skills excellence by high-end competitions using innovative assignments and challenges.

We aim to inspire educational leaders, staff members, teachers and trainers, and provide tips and tricks to benefit skills competitions in day-to-day education, students' performances and the professional development of teachers.

We will concentrate on several aspects and invite you, in your own responsibilities, to act on them. We like to:

- ⊗ anchor competitions in VET programmes, requesting board members and managers to establish this;
- ⊗ use assignments and challenges in the development of curricula and the creation of education, inviting educational staff members and developers to take part;
- ⊗ use assignments and challenges in the pedagogical and didactic practice, stimulating teachers and trainers to do so;
- ⊗ use the skills competitions as a hub for the professional development of teachers and trainers, suggesting human resource management and development to use these opportunities (HRM/D)

This paper builds on a document produced in the Netherlands in cooperation with representatives from the education system¹ (appendix 1). Together we hope to add value to the further development of vocational education in the Netherlands. The content of the original document has been elaborated in this paper to allow us to share our thoughts and ideas internationally and to receive additional support and suggestions from all over the world².

¹ *Aanstekelijk Onderwijs, een aanpak om mee én meer te doen met vakwedstrijden*, WorldSkills Netherlands, Waddinxveen, June 2018 (download at <http://worldskillsnetherlands.nl/producten/>).

² *We strive to expand our knowledge and practical understanding of how to make the best use of skills competitions, nationally and internationally. If you want to make any comment or contribution, please let us know at zwieten@worldskillsnetherlands.nl or vansoest@worldskillsnetherlands.nl.*



1.2 WHY ARE WE PRESENTING THIS PAPER?

WorldSkills Netherlands (WSNL) facilitates the Skills Talents and Skills Heroes competitions in the Netherlands, working with secondary vocational education, VET institutes, companies and other enterprises. These national competitions are connected to the international competitions EuroSkills and WorldSkills. Today, there are similar competitions organised in over 75 countries. These countries work together in WorldSkills International and act as a collective movement to improve our world through the power of skills.

WorldSkills is the global hub for skills excellence and development. Through international cooperation and development between industry, government, organisations and institutions, we promote the benefits of and need for skilled professionals through grass-root community projects, skills competitions and knowledge exchange. We show how important skills education and training is for youth, industries and society by challenging young professionals around the world to become the best in their skill of choice.

WorldSkills is the collective voice for skills excellence and development in vocational, technological and service oriented careers around the globe. Since 1950 we have raised the awareness among youth, as well as their parents, teachers and employers, that our future depends on an effective skills training system. Today WorldSkills represents more than 45 skills in over 75 member countries and regions, all working together with youth, educators and industries to help prepare the workforce and talent of today for the jobs of the future.

WorldSkills is not just a competition - it is a movement. By working within the six key areas of research, promoting skills, career building, education and training, international cooperation and development, and skills competitions, WorldSkills will be the global hub for skills excellence and development with ongoing activities nationally, regionally and globally. The WorldSkills Foundation contributes with projects and initiatives that demonstrate the capacity for innovation and collaboration with partners, in order to leverage and build self-sustaining activities.

Skills competitions all over the world are contributing to economic and social development challenges in modern society. They are, in various and different constructions, part of or an addition to the national VET systems. Career orientation, strengthening skills and craftsmanship, and showcasing the pride in achieving skills are core values. Skills competitions already inspire participating students, their teachers and trainers, and facilitate a positive and realistic professional experience and contribute to the national VET systems.

1.3 WHAT DOES THIS PAPER CONTAINS?

This paper contains thoughts, tips and tricks for management and teachers based on explorations and considerations. We explore some major developments in VET, discuss the potential of skills competitions and consult science and research to find arguments and substantiations. This is the 'what' and the 'why' that allows us to discover the 'how'. From this, we present a framework which can be used to create Igniting Education.

#whatandwhy?

Chapter two contains backgrounds and perspectives. We explore the international perspectives in VET (2.1), see how skills competitions fit (2.2), present practical perspectives (2.3) and collect and present findings from science and research (2.4).

#how?

In chapter three we share the ambitions of Igniting Education and provide practical elaborations, tips and tricks to get things done at various levels:

- 👉 Organisation: anchoring competitions in education (3.1),
- 👉 Development: using assignments and challenges in the development of curricula, assessments and examination (3.2),
- 👉 Teaching: pedagogical and didactic methods (3.3),
- 👉 HRD: professional development of teachers and trainers (3.4).



2.1 WHAT IS UP IN VET?

According to the Organisation for Economic Cooperation and Development (OECD), vocational education and training (VET) plays a central role in preparing young people for work, developing the skills of adults and responding to the labour market needs of the economy³. The OECD notices that, despite this important role, in many countries VET is often overshadowed by the emphasis on general academic education. VET, in general, has a low status by parents, students and the general public. However, the importance of adequate vocational programmes has never been denied. In fact, the growing worldwide economy is very much in need of sufficient skilled workers to enable countries and their economies to maintain and develop their competitive positions. Rapid and disruptive developments in technology and business models require people to have fundamental skills to be employable. It also requires a growing career flexibility and the capacity to develop old and new skills. In that respect, the need for ongoing and continuous development of skills is obvious. In recent years, governments, schools and enterprises acknowledged the need to invest in good systems of initial vocational education and in good facilities for lifelong development. In response, a growing number of countries developed specific national or regional skills agendas to meet the new demands and optimise existing educational systems.

We currently face four important megatrends influencing the employability of people⁴.

Technological developments

New technologies rapidly change business and production, replace or modify old jobs and create new ones. These changes provide a lot of pressure in most labour markets and need people to adapt quickly and with the right skills. Automation and robotisation are taking over manual labour and redefine organisations. This will provide less work for some professions, such as pressers, professional drivers, salespeople, industrial labourers and administrative assistants. It will also provide new jobs, the content and demands of which we do not yet know.

Digitisation and new media

Society becomes more and more digital. The transaction of information and (social and business) services is dominated by the internet and information and communications technology (ICT). General and specific skills to cope with this have become fundamental for everybody to participate in society.

Globalisation

Our world has become a global village with borderless interactions and new social relations and migrations. We face more cultural and social diversity and, in response, emerging expressions of nationalism and concern for national identities and social safety. In terms of economics, large enterprises use the global village to benefit from what countries can offer (from relocating of plants for production, official setting of headquarters etc.).

Individualisation

Modern citizens face an increasing appeal for individual responsibility, fulfillment and development. Governments tend to put an emphasis on individual responsibilities instead of regulating policies from the top down. It means citizens are expected to be mature, informed and capable of participating in society in an independent way. Modern society has

³ *Learning for Jobs, Synthesis Report of the OECD Reviews of Vocational Education and Training, OECD, 2010.*

⁴ *'Vaardig' voor de toekomst' (Skilled for the future), Ingrid Christoffels en Pieter Baay, in: Canon beroepsopdrachten, Expertisecentrum Beroepsopdrachten, January 2016.*

created infinite possibilities and numerous pathways to have a rewarding living as well. This involves the need for the right skills to be successful. Those who are skilled and capable find success but for who are less blessed or talented risk being excluded.

These megatrends are new challenges to overcome. For VET it means that students should be prepared with the skills for new, unknown jobs and should be educated for employability in general, instead of specific jobs and professions.



2.2 HOW DO SKILLS COMPETITIONS FIT IN?

Skills competitions help students show their skills and to be acknowledged and rewarded for their achievements. In general, national competitions are held to strengthen VET and encourage students to make the best of themselves. On an international level, the EuroSkills and WorldSkills competitions showcase and inspire world-class excellence and introduce young people to a variety of skilled careers.

The WorldSkills competition is held every two years and is the biggest vocational education and skills event in the world that reflects the needs and cutting edge expertise of global industry. Competitors, mostly under the age of 23 years old, represent the best of their peers and are selected from competitions in many countries and regions. They demonstrate technical ability, both individually and collectively, to execute specific tasks they study for or already perform in their workplace. One of the main legacies of the WorldSkills competition is to give visibility to and highlight the importance of professional education as one of the tools of socio-economic transformation.

The event also provides leaders in industry, government and education with the opportunity to exchange information and best practices regarding industry and professional education. New ideas and processes inspire school-aged youth to dedicate themselves to their careers and towards a better future.

In most countries, the national competition starts with preliminaries at a school level and qualifying contests that result in national finals. Medal winners become the national champions in their skill. This pyramid of talent forms a firm baseline that can be expanded upon. In the Netherlands, for example, this baseline has broadened substantially in recent years (appendix 2).

The competition shows many positive experiences and effects. Statements from students and teachers show a strong and positive impact on their education and development. A recent survey among board members of Dutch VET institutes, with a response rate of 69%, shows that 85.3% experience the competition to be of significant quality for VET programmes, 82.4% indicate that skills competitions provide a strong boost to VET and 67.7% perceive more enthusiasm in their teaching staff ⁵.

Our first assumption for Igniting Education is that skills competitions contribute to the quality of schools and that they add substantial value as:

- ⊗ a hub to showcase the skills of students and their skills excellence;
- ⊗ an effective means in career orientation and counselling;
- ⊗ a binding instrument in secondary education and VET;
- ⊗ an instrument to facilitate dialogue in schools and with their stakeholders to encourage future skills and craftsmanship, resulting in adequate contest assignments;
- ⊗ a tool to assess and examine students;
- ⊗ a tool for the professional development of teachers and trainers.

⁵ Annual Report 2017, WorldSkills Netherlands, Waddinxveen, April 2018.

Our second assumption is that skills competitions can fit into day-to-day education. In most countries contest assignments are directly related to professional profiles and curricula. They can therefore be easily used in educational and training programmes. Assignments can also be used as teaching material and preparing tools for official exams or aptitude tests. In the Netherlands, this potential tends to be recognised and applied. However, like in most countries, the skills competitions are often regarded as extra investment to day-to-day education and not as an integrated part of it.

This emphasises the importance of showing the possibilities of competitions or specific parts of competitions as instruments to schools, teachers and trainers. Tips and tricks for practical approaches will stimulate and help them to optimise the use of skills contests and contribute to the development and improvement of educational and training programmes, their students and themselves.

2.3 BEST PRACTICES OR BEST PERSPECTIVES?

There are three developments in which good practice in skills competitions is evolving.

Anchoring contest assignments

The developments in the Dutch competitions show an increasing interest not only to compete in but also to make a better and broader use of Skills Talents (in secondary education) and Skills Heroes (in VET).

The contest assignments and assessment forms in Skills Talents are produced by teachers and skilled professionals and bring together formal learning outcomes. This means that schools can use the contests as a tool to examine pupils. An increasing number of schools participating in Skills Talents, embed the preparation and participation of the competition into their formal programmes for testing and examination (Programma's voor Toetsing en Afsluiting, PTA).

The VET institutes tend to plan their activities of the Skills Heroes contests within the curriculum and VET programmes. This offers individual teachers, trainers and teaching teams the opportunity to combine their regular educational and training work with their students' preparation for the skills contests through each of its stages (preliminaries, qualifications, finals). In this context, not only do the contestants benefit from the power of skills but all students.

Developing skills for the future

A second development refers to the national qualification framework. In the Netherlands, it is in this framework where the qualification files are developed and maintained. A qualification file contains the requirements for one or more vocational education courses and is used by VET colleges to develop their curricula. Contest assignments, used in the national competition, are also directly linked to these files. These links assure the relationship between competition and VET programmes. However, this positive development also has cons. In addition to national qualifications files and curricula, VET institutes want to have more freedom to provide programmes that meet regional, or even local, demands for specific qualifications. National requirements tend to define VET programmes and educational content in a tight framework. In this regard, competitions are sometimes seen as a way to colour between the lines and focus on traditional craftsmanship. This contradicts the appeal to provide students with 21st century skills or skills for the future.

An overview of 21st century skills:

Entrepreneurship: the ability to identify business opportunities and use them by planning and acting.

Problem solving: the ability to recognise and identify problems and solutions to solve them.

Media literacy: the ability to use ICT effectively, efficiently and responsibly.

Self-regulation: the ability to conduct goal-orientated and appropriate behaviour.

Social and cultural competence: the ability to learn, work and live effectively with fellow citizens with different ethnic, cultural and social backgrounds.

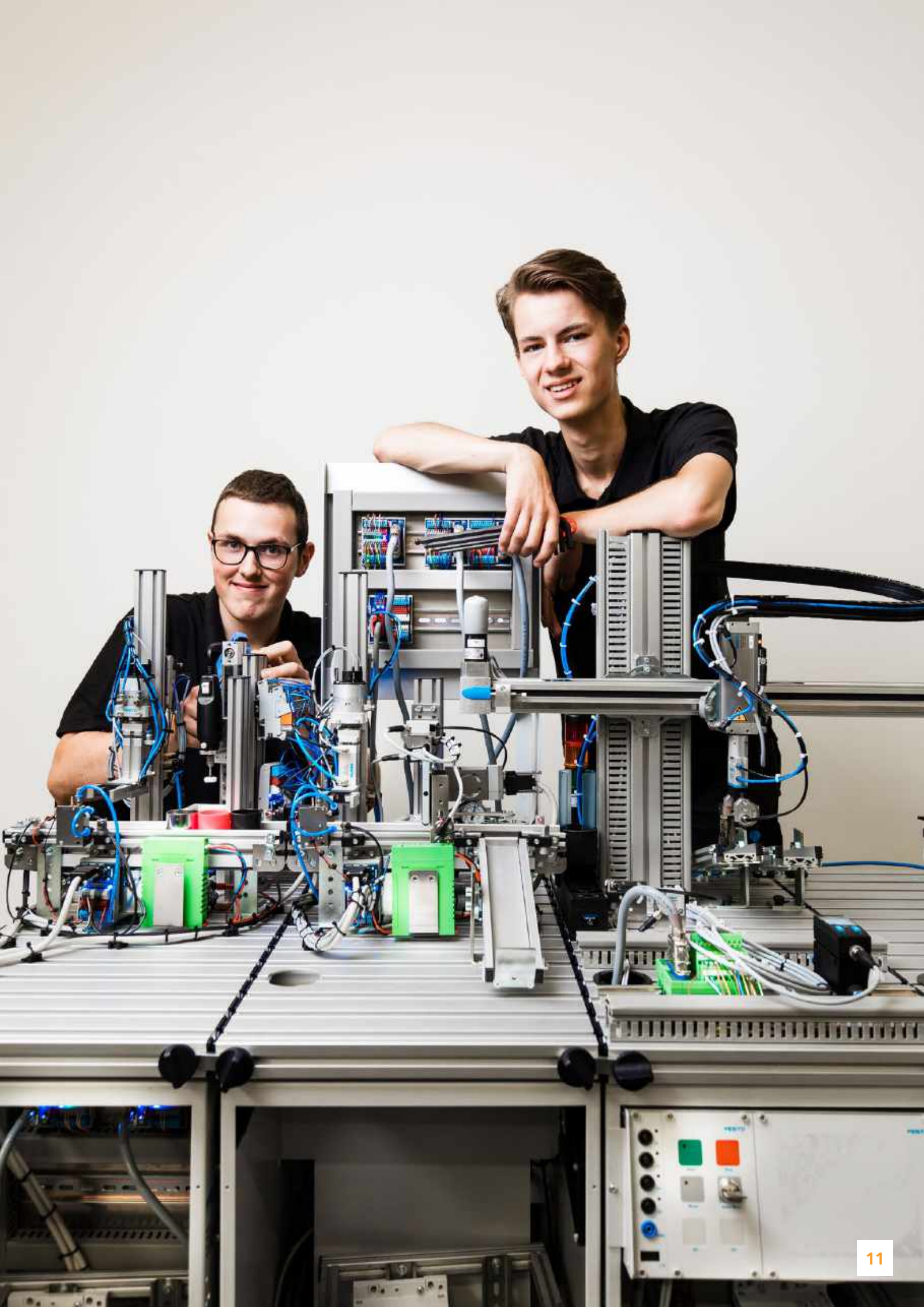
Cooperation: the ability to realise goals in cooperation with, and supplement and support, others.

Communication: the ability to receive and take a message effectively and efficiently.

Critical thinking: the ability to state, defend and formulate their own vision or opinion.

Creativity: the ability to create new ideas and to analyse and elaborate upon them.

(source: *ecbo/Friese Poort, 2017*)



Many schools regard 21st century skills of great importance and are searching for the right way to implement them in education. But in the skills competitions, many, if not all, of these skills are already addressed. In the contests, performances are expected to deliver the right products or services in time and of the best quality. This requires not only basic skills and craftsmanship, but also the right attitude towards entrepreneurship, problem solving, social and cultural competencies and the ability to cooperate. This can be strengthened by integrating these contests into education and in further developments of the contests themselves, such as multidisciplinary teams of students taking on innovative challenges from industry and society in which creativity, critical thinking and communication are specifically addressed.

Example 1: Museums

ROC van Amsterdam and the Rijksmuseum Amsterdam recently presented an optional programme within the regular programme for creative professions. This optional programme is called Museum Makers. Its goal is to prepare students for a career in the museum sector. At the core of Museum Makers are skills and craftsmanship needed to create innovative exhibitions or events. The programme is also available at a national level for other museums and VET institutes. The Rijksmuseum wants to organise a challenge: 'the museum in a hundred years time'.

Example 2: Innovation in health care and 21st century skills

The health care sector is facing important challenges to create and maintain the right care in a demanding and tight labour market. To address this, the Amsterdam Economic Board has created an innovation award. The health care sector contains many divergent professions and is in need of innovations in automation, robotisation and new skills. The challenge for VET is to educate students today for the future. By setting challenges on a national and regional level, combining VET and higher education, the health care sector and the educators can profit twofold: contribute to innovation and develop new skills.

Voorbeeld 3: Waterchallenge voor Vakkanjers

Both extreme droughts and heavy rainfall are common elements in the Dutch weather. In an assignment from the Unie van Waterschappen (Union of Water Boards, the public organisation for regional water management), technical VET students and young professionals have been working to find solutions for flooding. For areas with a high risk of flooding, such as paved areas, the Vakkanjers (a team of students from secondary education and VET) designed a rain barrel to temporarily contain the water during heavy rainfall. The stored water is then discharged in the sewer or gardens when the rain has stopped. The union can monitor the capacity of the barrels with sensors.

Assessment in lifelong development

A third development is a growing need to upskill members of the working labour force and the unemployed. One way to do this is to provide some VET programmes to this target group. To be able to anticipate the demands for this kind of training, contest assignments can be used by schools as an intake and assessment tool. In most countries, skills contests and assignments are stored in a database. WorldSkills Netherlands uses its own competition registration system (CRS) in developing, executing and storing of contest assignments (appendix 3). This content and its applications can be used for working professionals and the unemployed who wish to take additional education and training.

This can be used as a formal assessment to monitor skill level and craftsmanship and to identify the content needed to fill any skills gaps. Assignments can also be developed and used as cumulative assessments to confirm the learning outcomes and conclude specific training programmes.

In these three perspectives of good practice (anchoring, developing and assessing) we anticipate a number of positive challenges in the development of skills competitions and in the application of the competitions in education:

- ④ To modernise skills contests by using data in the (international, national and regional) dialogue between education and business regarding the skills of the future;
- ④ To develop and apply (international, national and regional) challenges as new ways of competition;
- ④ To develop and use appropriate models for career orientation and counselling and VET, in which skills contests can prove its added value;
- ④ To apply contest assignments as a tool for assessment.

These challenges can be taken up in every country, adjusted to national specifications and in cooperation with suitable partners and stakeholders.

2.4 WHAT HAS BEEN FOUND IN SCIENCE AND RESEARCH?

In our introduction, we stated that skills competitions add value in secondary education and VET and that this value can be increased by actions at various levels.

- ④ Educational model: anchoring competitions in VET programmes, requesting school board members and managers to establish this.
- ④ Development of curricula and exams: using assignments and challenges in the development of curricula and creation of education, inviting educational staff members and developers to take part.
- ④ Pedagogical and didactic approaches: using assignments and challenges in the pedagogical and didactic practice, stimulating and supporting teachers and trainers to do so.
- ④ Professional development teaching staff: using the skills competitions as a hub for the professional development of teachers and trainers, suggesting staff members from human resource management and development (HRM/D) to use these opportunities.

2.4.1 EDUCATIONAL MODELS

Added value for education

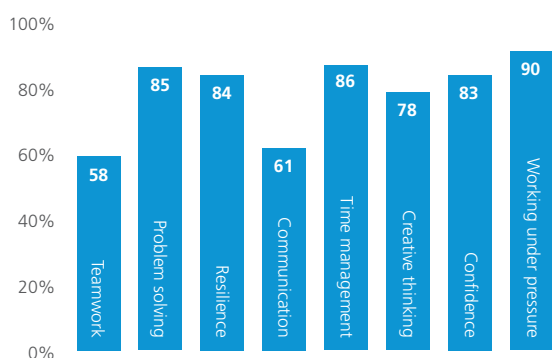
Recent research indicates that skills competitors take advantage of their efforts in the competition. They claim to enjoy a positive impact in their professional practice and career, regardless of the outcomes in terms of medals⁶. This research



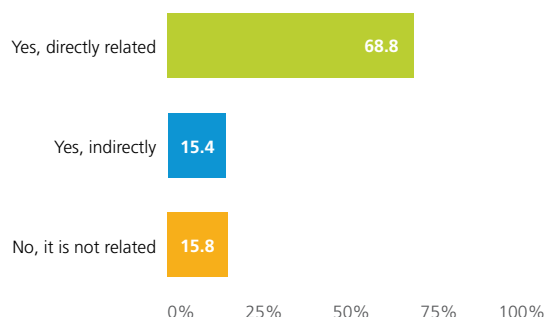
⁶ *The competitive edge; insights into how skills competitions are improving participation and employability at a local level; The Edge Foundation/WorldSkills UK, June 2018. (<https://www.worldskillsuk.org/accelerate/our-research/current-research>). Waddinxveen, April 2018.*

shows that the target group of 252 people who participated in the competition, state they have made strong progress in their general and professional skills.

Participants who agreed competitions helped develop transferable skills



Competitors whose current job is in a field directly related to the area/sector in which they took part in skills competition(s)



(Source: Worldskills UK/The Edge Foundation)

Exploratory research in the Netherlands also suggests an added value of skills competitions is in line with actual challenges of vocational education (Nijman and Hoeve, 2018). A growing interest to not only participate in competitions, but to also do more with contest assignments emphasises this (WorldSkills Netherlands, 2016).

Some argue that only a limited group of students benefit because competitive elements in education show negative effects. This argument often prevents competitive elements like skills contests being introduced into an educational model. This could be valid regarding the format of skills competitions limiting the number of national champions able to compete in the international competitions EuroSkills or WorldSkills. However, the real influence and added value can be found at the beginning of the competition cycle at the baseline. At this baseline a larger group of students is being challenged. Participation in this phase creates the initial impact and is far less important for students to win. The real focus on winning comes during the competition events. With a broader and more intense use of skills contest elements and assignments, more impact can be made on a greater number of students. One of the effects could be a more solid base for the development of talent and excellence. The sports world shows that investment in recreational sports and top athletes eventually result in a much higher level of achievement.

There is some research that focuses on performance-orientated and competitive education, such as the kind common in Anglo-American education that rewards achievements in such things as 'the best essay', 'the most relevant presentation' or 'the best student of this month'. In their search, Nijman and Hoeve (2018) conclude that science gives no straight answers to the meaning and relevance of the value of competitive elements in education. Some researchers claim positive effects (Spence and Helmrich, 1983) and strong motivating drives, creating high levels of creativity (Albra, 1993, Franken and Brown, 1995). According to these authors, motivational aspects are:

1. The desire to win
2. The drive to improve
3. The incentive to perform better to achieve more.

Other authors however, indicate a negative impact. Kohn (1986) suggests that competition could easily lead to lower levels of achievement because of the psychological pressure that comes with it. The use of competitive elements in education could therefore weaken the intrinsic motivation for learning, thinking and acting, and could emphasise the need to win too much (Johnson and Johnson, 1975). On the other hand, one could argue that education is all about competition because it demands a lot from performances: rehearsals, exams etc. Almost every student faces the fear of failure which could lead to disaster. Students who suffer a fear of failure often perform at a lower level, especially in situations where there is much to lose, like final exams. But the response of nearly every contestant in skills competitions is that their participation has led to significant learning outcomes, with a positive impact on their self-esteem and a strong motivation to continue their professional development in order to deliver the best results at any time.

Gratema van Andel (2010) suggests competition can have a positive impact but to guarantee this, five important conditions should be considered.

- ④ Competitive elements must be embedded in activities that are relatively unimportant, with a low threshold, to ensure fun, enthusiasm and relaxation.
- ④ Competitive elements should always have a fair chance of winning to keep all students motivated.
- ④ Self-assessment should be facilitated by organising mutual comparison.
- ④ Clear criteria should be used to establish what is right and wrong, and there should be transparent procedures and rules to identify the winner.
- ④ Students should be able to monitor the performance of their fellow students to judge their own positions in the competition.

It is no coincidence that skills competitions fit these conditions perfectly. Team spirit, solidarity, fun, chances of winning, self-assessment and valid and objective standards are the main ingredients.

Added value for networking

An adequate educational model not only refers to the way a school shapes and provides its education, but also concerns how the school is connected with its environment and anticipates its demands and developments.

In Finland, development of students' talent and excellence in a specific profession is understood as "recognising (and fostering) individual strengths and supporting professional growth towards the goals set by workplace competence needs and global competitiveness" (Eerola, 2016). Eerola states that in order to enable students to make the best of themselves, a network of excellence around the student is necessary. Teachers, expert teams and organisations need to be and stay alert, and should participate in and contribute to networks that feed and strengthen all of their competencies.

Skills competitions provide such networks of excellence. Strong national and international networks come with the organisation of these competitions. Networks are built by participating enterprises, schools, educational authorities and other stakeholders. Assignments in the contests are the collaborative products of skilled professionals from the world of work and VET teachers. This is also true of the development and determination of the assessment criteria. This work can be recognised as an important network activity and functions as a valuable platform for ongoing discussions concerning skills and craftsmanship, focusing on achievements that are needed to be successful in professional careers.

In addition, the creation and facilities of skills contests offer teachers and schools a pragmatic and efficient option to maintain, renew and intensify the dialogue and collaboration with business. To commit enterprises at the local, regional, national and international level, not just in terms of sponsoring or facilitating skills competitions, but also in partnership with businesses, contributes to the right content and fine-tuning of VET. An obvious thing for schools to do is to evaluate their students' contest achievements and make improvements to VET programmes and training activities for the next competition. This seems a logical and relatively simple thing to do but in many countries this approach is not methodically implemented (yet).

2.4.2 CURRICULUM DEVELOPMENT AND EXAMINATION

Curriculum

The greatest challenge in VET is the right connection of curricula and VET programmes with the demands of business and labour market. Most countries use a qualification framework containing specific requirements for professional skills. In the Netherlands, this framework is formally determined by the Minister of Education in shared responsibility with representatives of enterprises and VET institutions. This secures a substantial influence for the organised enterprises. Within the framework, specific qualification files are the formal foundation for VET programmes, executed by VET institutes and learning companies that offer apprenticeships and internships. The Dutch Act on Adult and Vocational Education requires VET students to carry out part of their education at accredited work placement companies⁷. These companies help to train students in a profession in a real life environment.

However, what makes good craftsmanship, and what level of performance is required, is hard to determine. Regarding this, Nijman and Hoeve, quote Tyson (2015). Tyson states that ideas of good craftsmanship often tend to stay implicit, resulting in rather vague professional standards. This statement is confirmed in comparative research concerning the way qualification frameworks are built and maintained in the Netherlands, France and Germany (Westerhuis, Groeneveld and Smulders, 2017). In this respect, skills competitions are still untapped resources.

⁷ These learning companies are accredited by the Cooperation Organisation for Vocational Education, Training and the Labour Market (Samenwerkingsorganisatie Beroepsonderwijs Bedrijfsleven, SBB). This organisation executes legal tasks for senior secondary vocational education and training and the labour market.

Competitions use realistic and clear professional insight because specific assignments are based on thoughtful discussions around expected professional achievements and required levels of performance. In addition, these assignments create a strong experiential value because it is 'for real'⁸.

However, there are risks of presenting a profession or trade in a limited dimension or within a rigid set of knowledge and competencies. Each profession or trade has its own culture, specific moral and material principals and professional attitudes. These behaviours are important to identify the required and expected professional achievements and attitudes. In this respect, skills competitions are a useful platform to articulate and fine-tune the professional and personal behaviours needed. They also provide clear instructions to schools and teachers for the learning outcomes and content of VET programmes to meet these requirements.

Examination

In 2016, the Dutch government initiated research on the 'examination in a real professional context', conducted by the Inspection of Education⁹. The research identified several areas that cause problems for VET institutes, such as:

- ⊗ How to provide a reliable way of examination in vocational practice?
- ⊗ How to find the right balance in authenticity and reliability?
- ⊗ How to maintain focus on the quality of examination in professional practice?

The researchers suggest numerous publications and guidance to properly organise the examination in a professional practice. Unfortunately, there were no suggestions made regarding the use of skills competitions.

We believe, however, that skills competitions could add a lot of value and supply practical solutions with these problems.

- ⊗ Contest assignments come with valid assessment schemes set by teachers and experts.
- ⊗ Assignments are taken from authentic achievements that are expected in professional practice.
- ⊗ Competitions are held and monitored in controlled circumstances.

2.4.3 PEDAGOGICAL AND DIDACTIC APPROACH

In Finland, efforts are being made to establish a pedagogy of excellence (Eerola et al., 2016). Introducing these efforts, Eerola states that in education in general, and also in vocational education, the importance of cognition is emphasised too much. There is a lot of attention on mental abilities whereas physical aspects of competence, such as manual skills, are often neglected. Comprehension of skills is one thing but to apply them in practice is another matter. An excellent performer, like a contestant in a WorldSkills competition, is not only someone who performs at a level of excellence in the event but someone who has a continuous drive to perform and develop in his or her discipline and its behaviours. In this regard, Eerola also refers to the WorldSkills standards, not only the required professional skills but also cooperation, workflow management, time management, communication and interaction, and the ability to be innovative and creative.

According to Eerola, we should expect teachers and trainers to be able to recognise the strengths of their pupils and support their development in the right way. In this respect, the author claims that guiding the vocational expertise of students and teaching students with special needs are closely related.

In order to support teachers in these tasks and the teacher's ability to differentiate and meet any special needs of

⁸ It is because of this that in most countries activities for career orientation and counselling are being organised during skills events.

⁹ *Examinering in de reële beroepscontext; oplossingsrichtingen voor gesignaleerde problemen en dilemma's, Inspectie van het Onderwijs, Utrecht, Augustus 2016.*

students, an integrated approach that focuses on the development of excellence can be effective. This pedagogy of vocational top expertise is defined by Isokorpi (2013) as 'a comprehensive process in which theory and practice cannot be separated. In the development of education and training and vocational top expertise, theoretical elements are combined with practical problem-solving in authentic situations and simulated environments'. In this respect, Isokorpi also refers to the (inter)national skills competitions: 'An excellent example of the latter are vocational skills competitions'.

An integrated pedagogy of excellence requires a lot from teachers and also refers to a special quality of networks of schools and companies. This directly influences the quality of the pedagogical approach and the extent to which talent development can be successful. Excellent achievements are made by the contestants individually or as a team, but this is part of a bigger picture: teachers, trainers and instructors have considerable impact. Acknowledging this secures substantial and sustainable learning effects, even, and perhaps especially, between failures: 'if learning something is difficult, it only means that you do not have contacts with those who know how things should be done'. (Hakkarainen, 2015).

From a general educational perspective, it can be reasoned that vocational skills competitions are an attractive opportunity to link to numerous learning styles and preferences of students (Kolb, 1984 and Ruijters, 2006). Playful, practical and not without obligation.

2.4.4 PROFESSIONAL DEVELOPMENT OF VOCATIONAL TEACHERS AND TRAINERS

Dutch and international experiences running up to EuroSkills and WorldSkills events show they not only have a strong impact on students, but on their teachers and trainers as well. This impacts their own vocational skills and their ability to support and coach their students.

The quality of vocational education is very much determined by the pedagogical skills of teachers. In general, experiences of teachers who are committed to the preparation and organisation of the skills competitions show positive effects.

In Finland, the national and international skills competition is considered to be an effective means for the professional development of vocational teachers and a pathway to becoming a vocational expert¹⁰. This is a specific point of interest in the major reform of the Finnish education system. This reform should improve the vocational education with specific aims:

- ⊗ strengthen workplace learning,
- ⊗ increase study success,
- ⊗ develop ways for post-initial vocational training,
- ⊗ stimulate innovation, regional social-economic development and entrepreneurship,
- ⊗ better anticipate new demands on the labour market, such as rapidly increasing (technological) developments and flexibility,
- ⊗ improve partnerships in adult training, education of students and companies,
- ⊗ upgrading and updating career competencies.

“Vocational education and training provides students with the knowledge and skills necessary to acquire vocational skills and with the potential for self-employment. Adult education and training raises the level of wide-based learning and vocational competence among the adult population. Programmes provide students with capabilities for self-employment, develop the world of work, promote employment and support lifelong learning.”¹¹

Comparative ambitions and aims can be found in the Netherlands and other European countries. In Finland, one anticipates that the profession of vocational teachers will alter considerably and will have a very different profile in comparison to teachers in general education because another competence profile, career path and system of permanent education are taken into account. In this development, the national and international skills competitions are considered to play an important role to enable teachers to become a vocational expert, based on actual experiences in counselling and coaching of students and performing as an expert or assessor during competitions. A competence framework supporting these competence areas has been developed by Seija Mahlamäki-Kultanen (2016).

¹⁰ ‘Top expertise of a vocational teacher’, Seija Mahlamäki-Kultanen, HAMK 20169 *Examinering in de reële beroepscontext; oplossingsrichtingen voor gesignaleerde problemen en dilemma’s*, Inspectie van het Onderwijs, Utrecht, Augustus 2016.

¹¹ *Learning and competence 2020; Strategy of the Finnish National Board of Education*

3 APPROACH

3.1 AMBITIONS IN IGNITING EDUCATION

Based on the former opinions and findings, we believe that by participating in skills competitions and making a broader use of them in day-to-day education, vocational education will be more attractive, challenging and effective. By doing this and making it sustainable by embedding it within the structure of education, a kind of Igniting Education will arise. This kind of education, substantiated by best practices and research, can be encouraged by using the following leading principles.

- ⊕ Regarding the working methods: the use of skills contests and assignments as a contribution to hybrid learning environments in which contests can be used as a learning and assessment tool, combined with preparatory lessons and internship and apprenticeship assignments.
- ⊕ Regarding the target groups: challenging students and teachers to perform competitively and to keep developing themselves in their own specific profession and trade.
- ⊕ Regarding talent development: focused training and counselling by teachers, trainers and supervisors to help students set and improve their skills and talents, possibly resulting in participating in national and international skills contests or improving their educational skills and talents.

Igniting Education benefits from ongoing participation in the existing national and international skills competitions. In addition, the elements, methods and instruments of these competitions will be an effective instrument to improve the quality of vocational education, the development of vocational expertise and the professional and personal development of students and teachers. The competitions themselves are, of course, the object of a continuous evolution: experiencing Igniting Education will further develop the competitions. In this process, we recognise two interdependent pathways:

- ⊕ for the development of talent of all students and teachers in VET by applying specific methods and instruments,
- ⊕ for the development of expertise and skills excellence by high-end competitions using innovative assignments and challenges.

Using these pathways, the ongoing development, professional pride and championing of students can be stimulated and supported. After graduation, the student has the skills to become an all-round or specialised professional, and eventually a master in skills¹². This process begins with the ignition and stimulation of curiosity, inquisitiveness, professional pride and commitment to lifelong development. These elements are the essence and legacy of skills competitions. The products, methods and instruments in these competitions are applicable in most kinds of educational models and curriculum design.

¹² Formal titles 'master of skills' (compare to 'Meester' in the Netherlands, 'Meister' in Germany, or 'Meilleur Ouvrier de France, in France) recognise and award the highest level of professional competence and excellence. Some examples in the Netherlands are Master Chef, Master of Pastry and Master Butcher. These titles are to be granted after intense assessments of masterpieces. These assessments and titles have been developed by professionals and used by branch organisations.



Ambition 1: practice based contest assignments in class

Set in education, contest assignments challenge students to perform and benchmark their results, with a strong focus on participation and learning by doing. Students' performances and feedback, generated by teachers and fellow-students, provide a strong and helpful opportunity for self-reflection and the identification of points of learning and skills improvement. Assignments or challenges give schools the opportunity to introduce professional practice in a solid and playful way. Anticipating the formal stages of competition, the teacher can plan and align the content of their curriculum with the expected achievements in the competition.

Assignments that have been used in previous EuroSkills events and Dutch competitions are stored online and can be downloaded¹³. Assignments and assessment criteria in the Netherlands are available in the competition registration system (CRS), established by WorldSkills Netherlands (see appendix 3, and paragraph 3.3). This CRS contains over 400 assignments in over 60 disciplines that are grouped into:

- ④ entrance assignments
- ④ qualifying assignments
- ④ final assignments
- ④ international assignments.

The assignments have a constructive degree of difficulty which makes it possible to use them at all stages of VET programmes. Assessment criteria is also available to download. The assignments can be used directly or can be adapted for educational use.

Ambition 2: The teacher and supervisor are counsellor and coach

Teachers and company supervisors overseeing apprenticeships and internships contribute to the development of students. Contest assignments can structure and focus their guidance in specific disciplines for preparation and training purposes. This promotes cooperation between teachers and supervisors. In addition, teacher and supervisor can agree to specific tasks and roles in preparation for their students' possible participation in an official skills competition. Contest assignments used within the VET programmes, are not intended to identify losers or winners but to optimise learning outcomes by focusing on doing the assignment and gaining well balanced feedback. Well-grounded guidance for the student will strengthen individual and peer group reflections and learning results. The focus should be on coaching professionally, performance-orientated coaching and learning and cooperative development.

Ambition 3: A clear finish with flexible pathways

Pathways in Igniting Education lead to a clear finish: a class contest, to begin or/and end a specific part of the curriculum. This can be the run-up for some students to school contests, qualifying contests and eventually the national final. Preparative activities for all of this can differ. In addition, by starting parts of the curriculum with specified assignments, each student can determine for themselves, and in comparison with fellow-students, where they are in their professional development. This will reflect strengths and weaknesses, and provides a clear picture of which skills are to be articulated and where support is needed. In case of a solid foundation, the student can make a well-informed choice to take additional in-depth or broadening courses. In the case of a natural talent and/or a performance above average, the student could opt for specific excellence programmes focussed on training for the official national and international competitions. Igniting Education highlights individual capacities and the interests of students, supports teachers to make use of self-reflection and peer group learning and helps the school develop and offer customised courses.

¹³ Most countries, however, do not yet make use of these kinds of databases. For initiating a broader use of skills competitions in line with this document it is recommended that national skills organisations invest in such a database.

Ambition 4: Individual achievements and mutual development

Skills competitions offer a realistic career experience - students are challenged to achieve a level of practice that is professional, demanded and expected. The (inter)national standards and criteria used in skills competitions, enable an objective assessment of the students' capacities. Preparing, delivery of and reviewing contest assignments can be individual as well as teamwide. The cooperation of teachers, company supervisors and students can be optimised with the aim of helping students make the best of themselves and encourage them to achieve goals that otherwise could have been out of reach.

The same goes for the accompanying teachers and supervisors. They can use the challenges of the assignments and the demands of the supportive role as checkpoints for their own educational and vocational skills.

Ambition 5: Skills competitions as stepping stones for future skills

The development of assignments in existing VET programmes can be enriched by focusing on future trends and developments. This can reflect specific disciplines or challenges that demand multidisciplinary approaches. By developing and using these kinds of challenges in education and official skills competitions, 21st century skills and skills for the future can be anticipated.

With these ambitions in mind, we can start looking at how to implement skills contests in education.

3.2 ORGANISATION: ANCHORING COMPETITIONS IN EDUCATION

It is relatively easy for schools to anchor their efforts in existing skills competitions. A lot of schools tend to regard these activities as an addition to the curriculum and as stand-alone events. As a result, teachers often complain about the extra time needed for preparation, training and participation. The simple solution is not to regard skills competitions as stand-alone events but as an official part of the VET programme. On an organisational level, all activities regarding skills competitions become part of the regular curriculum and programme. As a result, the activities become part of the regular tasks. Specific possibilities and ways to implement these activities depend on the rules and regulations in the educational systems in your country.

In general, it is all a matter of perception and recognition of added value. By using contest assignments in day-to-day education and using skills competition events effectively, every school can contribute to educational goals like:

- ⊗ implementing 21st century skills,
- ⊗ effective career orientation and counselling,
- ⊗ building continuous learning paths,
- ⊗ optimising alignment between education and labour market,
- ⊗ using high quality means of assessment and examination,
- ⊗ professional development of teachers (for example by using training programmes to become experts, assessors or counsellors during skills competitions and using the national and international events as a professional network).

For each of these goals, skills competitions, contest assignments, competition instruments and methods can be used and result in effective tools to initiate and optimise Igniting Education.

Any costs associated with skills competitions becomes worthwhile because it adds to a good and sustainable education and maximises school funding.

To persuade colleagues, directors and board members of the value of Igniting Education, ongoing storytelling and the actual experiences of students and teachers during events becomes invaluable. Storytelling is an effective way to create, reward and honour heroes. Personal experiences are convincing and light up the meaning and benefits of skills competition activities for education. You can choose to:

- ⊗ facilitate a platform for students and alumni to present their experiences. For example their written stories, their videos or photos, your intranet and social media,
- ⊗ encourage teachers and supervisors to share their experiences in skills competitions, the way they prepared their students and themselves, the benefits they experienced for their own professional development,
- ⊗ invite directors and board members to meet contestants and share their observations during preliminaries, qualifying contests and finals in blogs or vlogs,
- ⊗ enable entrepreneurs and professionals that provide internships and apprenticeships, or have been working on skills assignments, to present their observations and opinions.

Another effective way to convince your colleagues is to highlight the strengths and weaknesses of skills competition activities, reduce resistance and optimise benefits by showing how these activities can help reduce or solve problems within the school at board, management and teacher level. Also:

- ② if a central database is available, existing assignments can be re-used as documents and assessment tools therefore lightening the teacher's load,
- ② use of skills competitions and assignments support teachers professional skills, promotes cooperation and facilitates and intensifies contacts and cooperation with companies.

3.3 EDUCATIONAL STAFF: CURRICULUM DEVELOPMENT AND EXAMINATION

The content of contest assignments and the assessment criteria are usually a good addition to existing curricula and exams. They indicate not only solid specifications as to what is needed for good achievements, but they express the practical level of performance which is expected at a professional level. In most countries, assignments are the cooperative result of teachers' expertise and the practical knowledge of professionals. This means that most assignments provide a realistic interpretation as to what a specific skill is all about. Using this information directly in the curriculum results in clear insight in expected learning outcomes and provides students with a clear professional insight.



In the Netherlands, a competition registration system (CRS) has been built to ensure the quality of contests and to provide proper criteria to assess objectively (appendix 3). In addition, the TOSCA project (Transferability of Skills, Competition and Assessment Standards) has been carried out in recent years to develop a common methodology for setting up high quality skills competitions at national and international level using the CRS. To achieve that, a common terminology and working method has been developed based on comparative analyses of existing national standard specifications. From there, TOSCA standard specifications of the jobs have been created and forms the basis for skills competitions¹⁴.

The CRS contains three tools to use in the development and delivery of skills competitions.

- ④ Development tool to be used for the online development of test projects, including assessment forms. This tool has built-in control functions by education experts, assessment experts and linguists.
- ④ Competition tool to be used as an online system for pre-registration, registration, sharing test projects and results, further information sharing, online assessment and documentation of the competitions.
- ④ Infrastructure tool to be used as an online tool where inventory lists for each skill category are drawn up. With this tool the overall management of the competition, including cost management, can be done effectively.

Although the system is specifically designed for competition use, the CRS can also be used as a stand-alone for the development of curricula and exams. The CRS has grown to be a large database of assignments in the Netherlands which can be consulted and used repeatedly. As such, it is a resource of valuable material for curricula and exams and provides essential input for VET institutions and companies around developments in vocational criteria and the evolving expectations and demands of the labour market and businesses.

By using the CRS's functionalities, development-orientated and qualifying elements in vocational programmes can be strengthened. Contest assignments can be used in exams and assessments to monitor and measure the students' developments. Evaluation of your students' achievements in official competitions provide essential input to assess and improve the effectiveness and content of your vocational education programmes.

To optimise the curricula and exams, educational and teaching staff can identify specific elements to be used in development and preparation for qualification. This assessment supplements:

- ④ theoretical learning outcomes, focused on knowledge and insights in the contexts of specific disciplines. To this purpose, students should present explanations and substantiations to the practical execution of the assignment. These explanations can be included in the student's portfolio. A well completed assignment can be regarded as an objective proof of skills and knowledge
- ④ practical learning outcomes focused on the right output and specifications of the vocational discipline, confirming the assignment's judgment criteria
- ④ situational or integral learning outcomes focused on the right application of skills leading the assignment. Specific elements like the quality of teamwork, proactivity and other general or 21st century skills can be assessed.

These forms of assessment related to specific assignments can be part of both well-adjusted collective assessment and individual assessment schemes. By doing so, more customisation in the training or course can be established.

In this way, skills assignments and assessment schemes can also be used for intake and assessment of workers who approach VET institutes for customised forms of training and retraining.

¹⁴ More information can be found at <https://worldskillseurope.org/international-cooperation-development/>

3.4 TEACHERS: PEDAGOGICAL AND DIDACTIC APPROACH

A fundamental part of successful teaching in education in general, and in vocational education specifically, is the ability to observe and reflect. Teachers and trainers should be willing and capable of seeing and judging their students properly. This involves a good look and feel and adequate empathic and reflective abilities.

In a good didactic performance, professional knowledge, adequate educational interventions and good personal interaction are of the utmost importance. Without professional knowledge there can be no vocational education. Without the right educational interventions students cannot be reached and stimulated to learn. Without good personal interaction, enforcement problems and exclusion of students are a risk.

Like in most countries, secondary vocational education in the Netherlands has a triple qualifying goal: to be successful on the labour market; to be a good participating citizen in society and to be able to progress in higher education. Many VET teachers and trainers struggle to apply the best approach for their students within the school environment. At the same time, apprenticeships and internships outside the school environment are usually a major part of vocational education, demanding good alignment with the teaching practice. At the top of this, the student population in vocational education is numerous. All this makes clear that being a teacher in vocational education is a challenge, for who fitting and ready-to-use teaching methods, didactic concepts and pedagogical approaches are difficult to find. However, the principles of skills competitions, content, methods and instruments can strongly support teachers and trainers in their struggle to be the best.

In vocational education, the leading principles to apply include action learning, master-companion models, apprenticeships and peer group learning. These principles assume students to have and develop an active attitude in taking part and learning. Such an attitude can be strongly stimulated by the use of contest assignments in the educational process. In this regard, 'achieving by partaking' during a course or training is far more important than 'taking part to win'. The way in which feedback is given by the teacher impacts the value of the student's learning experience.

Well considered and individual feedback on results and the process of performing the assignment will increase the student's development. At the same time, a contest will facilitate a process of peer-review and peer-development.

An important topical question for teachers in vocational education is how to prepare students for professional occupations that can change rapidly in the nearby future. One of the often used ideas in this respect is self-regulation, where the students follow their own direction in learning and development, and subsequently in their professional career. Skills competitions and practical assignments contribute a lot to this ability to develop self-regulation. Actions are focused on the preparation and execution of clear goals, reflection on the process and results, and a certain pressure and authenticity in performing the tasks in each assignment. They also assume a reliable and expert guidance by teachers who are committed to and express a co-ownership of the development process of their students.

It is evident that practice learning and hybrid learning (i.e. practical and theoretical learning at the same time) are essential elements of vocational education. By using skills contests and contest assignments, teachers will strengthen this process of learning during school and in internships and apprenticeships. It will challenge students to perform on levels that are expected in professional practice. Integration of skills contests creates a hybrid learning environment in which theoretical and practical instructions can be linked properly. An adequate pedagogical and didactic approach will secure an ongoing and effective reflection of students on their performances.



We have already referred to the theory of learning preferences (Kolb, 1984 and Ruijters, 2006). According to this theory, education will create effective learning pathways if the right links are made between the student's learning preference and the way education is organised and presented. These preferences are characterised as follows:

⑤ **Learning by watching**

- ⦿ People who like to watch tend to learn best in a practical setting. They observe other people, identify usable elements and apply these in their own work.

⑤ **Learning by participation**

- ⦿ People who prefer to join in tend to learn best by interacting with other people. Their reactions and ideas speed up their own learning process.

⑤ **Learning by acquiring knowledge**

- ⦿ People who acquire knowledge like to learn from books or hang onto every word their teacher says. They like to learn in situations in which experts transfer knowledge and skills.

⑤ **Learning by exercises**

- ⦿ People who like to engage in exercises tend to try new things in a safe environment. They are not afraid of failure because that is the input for learning.

⑤ **Learning by exploration**

- ⦿ The explorers learn the most of life itself. Learning in restricted areas like schools is not enough for them. They tend to learn the best by finding their own way.

These learning preferences not only refer to the student but also the context in which the learning takes place. By using this context a teacher respects the individual differences in learning. Preferences will, in themselves, change during a lifetime. Your preference during primary school will be different from your preference during secondary or higher education, or in your professional career. Preferences will also develop in accordance with the teacher or trainer and the professional peer group one belongs to and functions in. A positive aspect of skills contests is they offer a realistic environment in which a student can act according to their individual learning preference and reflect on their performance and be coached and supported by the teacher or trainer. In addition, contest assignments have hard results that can be neutrally judged. This gives a lot of information as to where the student stands in their development.

Imagine you are organising a simple skills contest in your classroom as part of the curriculum and which is being used as a teaching method. No medals are at stake but your assignment reflects professional practice and provides your students with the opportunity to experience it. Your students who learn by watching will observe their fellow students who prefer to learn by exploration and exercise, and will learn directly from their performances. The students wait for your instructions and your guidance to relevant books and other sources so they can apply this in practice. To each student, you can give relevant feedback and match each of their learning preferences.

Teachers' experiences in regular national skills competitions and the international EuroSkills and WorldSkills events tend to be limited to the specific preparation and participation of (a small number of) students. Specific training and coaching activities are expected in the preparation for qualifying contests, national finals and EuroSkills and WorldSkills. On these occasions, teachers and trainers become the most enthusiastic supporters of their students by giving them extra support and coaching. From this point of view, skills contests are primarily used as an instrument for selecting the best candidates with only a relatively small number of students benefiting from the opportunities of competitions, extra support and coaching that is given to them. Using skills contests and the amount of tutorial support that comes with it on a day-to-day basis provides those opportunities to all students.

Teachers in vocational education use all their pedagogical-didactic knowhow and skills to enable their students to become the best of themselves. Using skills contests and assignments they can strengthen this effort. To do so, we offer a simple roadmap.

Step 1

- Use this document to draw up your vision and mission to make broader use of skills contests.
- Explore the possibilities in your school and educational practice and check the things you need to practice this vision and mission.

Step 2

- Consult the Skills Coordinator in your school to make sure a contest in your discipline is available.
- If so:
 - ⊙ take into account the preliminaries and qualifying contests that are planned already within the formal cycle of competition
 - ⊙ check if any school activities for preparation and participation is integrated into the curriculum (review paragraph 3.2)
 - ⊙ plan preparation activities in your own series of lessons and do so in a wide spectrum - not only activities concerning vocational skills, but also those concerning attitude and behaviour and other aspects that are relevant to skills performances. By doing so, you can commit your colleagues to general courses.
- If not:
 - ⊙ consult any available database of assignments to see if there are any assignments in your discipline
 - ⊙ determine the purpose of using these assignments. For example, to construct lessons or practical instructions, to assess the results of a specific course, or as a tool to let students discover their level of competence
 - ⊙ determine the usefulness and necessity of writing your own assignments for the specific purposes you have determined.

Step 3:

- Organise your own class contest and use previously developed assignments or your own, or parts of them.
- Make use of the assessment schemes and prepare your students in line with the expected achievements so they know what to focus on (and explain why you want to do this and what is in it for them).
- Set a date for running the competition and establish a jury to assess the results. The jury can be you and one or more of your colleagues, or supervisors from companies.
- Prepare this action and assessment and, among other things, determine:
 - ⊙ whether you would like your students to participate as a team or individually (in line with what you think is best for them)
 - ⊙ what you need in terms of material and venue
 - ⊙ the time schedules in running the assignment(s)
 - ⊙ what support you can and will provide to your students in preparing activities (could be colleagues, supervisors or senior students).
- Construct a number of lessons to be specific training activities.
- Prepare how you will provide feedback for your students.

Step 4

- Run your contest according to your planning.
- Celebrate all your students' achievements.

Step 5

- Use the assessments to give feedback (per team or per individual).
- Take note of which students appear to have a specific talent.
- Ensure in the feedback to:
 - ⦿ reward what went well and emphasise the elements each student can rely on, feeding into their self-esteem
 - ⦿ provide clear points for improvement, indicating to the student what to work on and articulate any form of help.
- Consult your students in order to establish the need of repeating the contest.

Step 6 (in line with the regular skills competition cycle in your country)

- Select the best candidates to join preliminaries.
- Plan and organise training activities within your lessons for these candidates (do not narrow this down to specific vocational skills, but also take into account motivation, cooperation, ability to cope with disappointments, etc., review step 1).
- Enable other students to participate in these activities so they can benefit.

This is not a rigid roadmap. You should use the elements you find useful for your students, that strengthen your day-to-day teaching and contribute to your school's ambitions and challenges.

3.5 HUMAN RESOURCE MANAGEMENT: THE PROFESSIONAL DEVELOPMENT OF VET TEACHERS

To finalise the approach we investigate the possibilities of using the national and international skills competitions as professional development for teachers. If you are a school manager, member of the board or staff member for human resource management (HRM) or human resource development (HRD), you should visit the skills competitions events, such as the finals in your country, EuroSkills or WorldSkills. In doing so, you will not only enjoy the contesting students' energy, enthusiasm and skills performances, but you can observe the numerous vocational and educational professionals working as supervisors, workshop managers, members of the jury or student coaches. They embed and share their skills and knowledge during competitions that benefit (inter)national cooperation. Held during these events are conferences and workshops that encourage visitors to share, discuss and develop themes like skills for the future, lifelong professional development, make connections between education and the labour market and the quality of vocational educational systems. In this respect, you will realise that skills competitions are a goldmine for professional development.

Compared to teachers in general education, there is a lot to consider around specific competencies of teachers in vocational education. Most countries use a general profile for teaching competence but it is each country's own responsibility to identify and formalise specific competencies for vocational education. For example, because of a radical reform of the Finnish VET system, new challenges arise for the VET teachers in the Netherlands. The reform will affect the learning and completion of qualifications, workplace relationships and staff's job descriptions. Anticipating these changes, and in line with the development of the pedagogy of vocational expertise, including the links to and use of skills competitions, a frame of reference has been developed for vocational teachers' expertise (Mahlamäki-Kukltanen, 2016). This frame of reference provides clear competence areas and learning outcomes of teachers' performances in (inter)national skills competitions, and can easily be linked to the goals and aims of Igniting Education which we have presented in this document. For this reason, we have made small modifications in this framework regarding the application of these competencies in day-to-day vocational education. We suggest VET institutions use this framework to establish their own levels of excellence for their teachers using the facilities of skills competitions for better vocational education and to help teachers perform special tasks in these competitions.

Competence area	Learning outcomes
Pedagogical competencies	<p>Is able to plan, implement, evaluate and develop personalised coaching processes for their students in vocational courses or performance in national and international skills competitions, at the top level of their vocational skills.</p> <p>Is able to support students in their vocational courses and competitors in skills competitions, using contest assignments and assessments in their courses and using methods of interaction and mental training.</p>
Building a specific vocational teacher's identity	<p>Has the ability to communicate, as part of their teaching work in their organisation, regionally, nationally and internationally, about vocational skills and skills competitions and their contributions, in order to specify and positively showcase a 'vocational identity'.</p> <p>Is able to motivate and activate new teachers and representatives from the world of work and business to add value to vocational education in general, and skills competitions specifically, in order to create Igniting Education.</p>

Competence area	Learning outcomes
Management and leadership of teaching and competence	<p>Knows how to build learning environments (physical, virtual, social and psychological) and apply skills contests and assignments for an effective coaching process, optimising the expenses and benefits of the process of learning and talent development, and inspiring students to become the best of themselves.</p> <p>Is able to perform in numerous roles in vocational education and in skills competitions, such as a developer of assignments, team counsellor, skills technician and assessor.</p>
Facilitating personalised solutions	<p>Is able to utilise informal and formal learning and development possibilities in the teaching and coaching process in a cost-effective manner that best supports the student's individual needs and skills, inspiring students and themselves to keep on learning and developing.</p> <p>Has the ability to promote and document personal learning in teaching and coaching.</p>
Workplace and challenge competencies	<p>Is able to recognise, innovate and implement challenges and solutions for learning and competition activities to create added value and a competitive edge for companies and schools, contributing to the development of skills in specific disciplines.</p>
Multicultural competencies	<p>Is able to identify (national and international) cultural influences and characteristics in craftsmanship, professional attitudes and behaviours, and performance orientation and is able to use this in counselling and coaching of students.</p>
Building learning communities	<p>Has the ability to use and implement competition activities in VET programmes to build an effective learning community for students and skills competitors. Is able to apply experience, insights and learning outcomes of competition activities to their educational practice and to contribute to improved rules and operating models of national competitions.</p>
Optimisation of learning resources	<p>Is able and active in the exchange of knowledge and information in national and international skills competition networks and uses this knowledge and information in VET programmes.</p>

This framework can be used, and modified, by school management and HRD staff members to express and determine:

- ⊗ the school's ambitions and expectations in developing and implementing Igniting Education (or the best vocational education)
- ⊗ the professional standards teachers have to meet to realise these ambitions
- ⊗ the practical use of skills competitions as a means for the professional development of teachers
- ⊗ the use of practical experiences and learning outcomes of competitors, in order to modify and improve VET programmes.



APPENDIX 1: CONTRIBUTORS AND INTERVIEWEES

The following people were consulted for talent development and building skills competitions into secondary education.

Albert Strijker	Dunamare Onderwijsgroep
Ewald van Vliet	Stichting Lucas Onderwijs
Hein Kremers	Stichting Platforms VMBO (SPV) (tot medio 2017)
Henny Roosenburg	Stichting Platforms VMBO (SPV)
Wim van Deijk	Prisma College en VO-raad (tot september 2017)

The following people were consulted for talent development and building skills competitions into secondary vocational education.

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Ben van Berkel	ROC De Leijgraaf
Bert Bennink	Alfa College
Derk-Jan Nijman	Hogeschool Arnhem en Nijmegen
Danielle van Heck	Lentiz
Debbie Maring	ROC Midden Nederland
Fred van Koot	WorldSkills Netherlands
Georgia Vasilaras	De Leijgraaf
Hans de Jonge	MBO Amersfoort
Maarten Wevers	Aeres Groep
Mariette Hasselman	Aventus
Peter Siemann	Albeda College
Ria Kuijck	Da Vinci College
Sietske van Voorthuijzen	Da Vinci College
Leontien Kragten	ROC Midden Nederland
Joachim Franssen	ROC West Brabant

APPENDIX 2: DUTCH SKILLS COMPETITIONS IN NUMBERS

Facts & Figures	SKILLS TALENTS		SKILLS HEROES		
	2017	2018	2016	2017	2018
Participating schools	130	150	55	55	56
Amount of participating courses			287	545	751
Amount of participants	> 8000	< 10.000	> 3000	> 6000	> 10.000
Amount of competitions	11	10	34	60	65
Amount of finals	11	10	34	40	60
Amount of finalists	345	345	210	410	640
Preparation hours for students	190.000	210.500	-	170.000	> 283.000

APPENDIX 3: EXPLANATION OF CRS

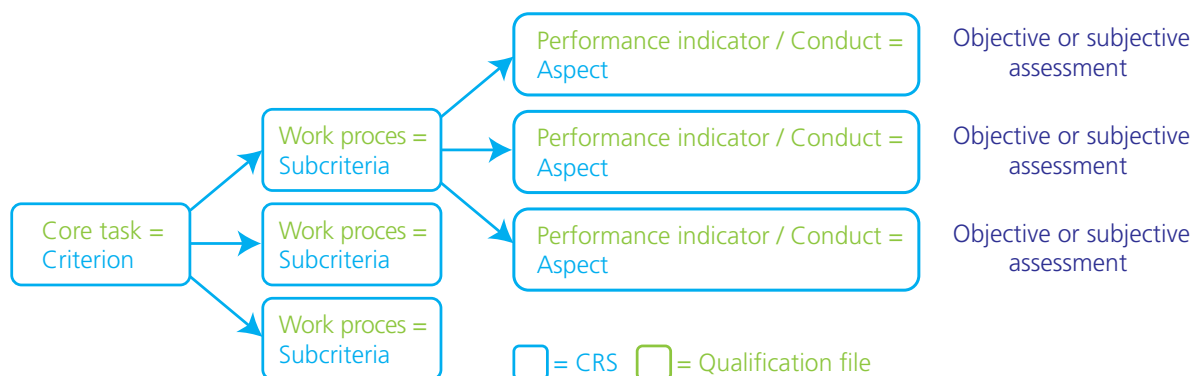
In the Netherlands, a competition registration system (CRS) is used for the competitions Skills Heroes (in VET) and Skills Talents (in secondary education).

The CRS contains three tools to use in the development and delivery of skills competitions.

- ④ Development tool to be used for the online development of test projects, including assessment forms. This tool has built-in control functions by education experts, assessment experts and linguists.
- ④ Competition tool to be used as an online system for pre-registration, registration, sharing test projects and results, further information sharing, online assessment and documentation of the competitions.
- ④ Infrastructure tool to be used as an online tool where inventory lists for each skill category are drawn up. With this tool the overall management of the competition, including cost management, can be done effectively.

The criteria and content for online assessment is based on an international version which is used in the WorldSkills and EuroSkills competitions. The CRS provides an effective means for processing the assessments. Furthermore, it facilitates comparative reviews of the national results in the numerous disciplines. Therefore, a 100 point scale is translated mathematically into a 400-600 point scale. A result of 500 points or more is awarded with the distinction 'excellent craftsmanship'.

The use of CRS regarding qualifying and final contests in the Netherlands is mandatory. Assignments and criteria for assessment are linked to the official qualification files in the Dutch VET system and the national final objectives in secondary education. In the figure below, the relationship can be explained for VET (the blue lines representing the CRS, the green text referring to the qualification files):



The basis for all contests is the official learning outcomes in the education system. Each assignment is accompanied by assessment tools and instructions on how to use them.

The assessment scheme includes an overview of the evaluation aspects and the maximum score that can be achieved. The total of the scores is 100 points in every case. The scheme clarifies the aspects in each assessment. The assessment has to reflect the extent to which basic competencies are mastered and show the extra achievements on top of them to be an indication of excellence. The method of assessment takes into account which judgment is objective and which is subjective. We try to restrict the number of subjective reviews and provide an overall review to be as objective as possible, to have an independent judgment without discussion.

For every objective, and therefore measurable aspect, a standard is used for every review with the maximum score that can be achieved. If necessary or desirable, limits of tolerance can be determined.

Examples of assessment criteria

Example 1:

A piece of work has to be 800mm long with a tolerance of plus or minus 2mm. The maximum score is awarded if the actual length is between 798mm and 802mm. If not, the score will be zero points.

Example 2:

A piece of work has to have five parts at least. The maximum score is four points. If there are not five but four parts, the score will be two points. If there are three parts or less, the score will be zero points.

It may be that some aspects to be reviewed cannot be judged objectively because strict measurements cannot be made. In these cases, a professional review from a jury is necessary. Assessors should be instructed to examine and moderate their reviews by referring to known and accepted occupational standards, such as available industrial standards, key indicators and other information that is relevant. For this kind of judgment, a four point scale is used with strict procedures for the process of the assessment.

The review has to be done by at least three jury members. Every member reviews every aspect of a given task in the assignment individually and gives their score to be 0, 1, 2 or 3 points:

- ⤵ 0: the result does not stand up to the occupational standard, or the task has not been executed.
- ⤵ 1: the result stands up to the occupational standard.
- ⤵ 2: the result stands up and has some characteristics of excellence.
- ⤵ 3: the result is excellent and is overall significantly above the occupational standard.

For the occupational standards, several sources can be used:

- ⤵ workshop manuals
- ⤵ specification descriptions
- ⤵ NEN or DIN standards.





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Igniting Education is partially related to the Erasmus+ project
KA2 project X-factors / 2017-1-NL01-KA202-035286.

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