ONE SIZE® FITS ALL?

* ENHANCING GENDER AWARENESS IN TEACHING

TWIST

Towards Women In Science & Technology

Compiled and edited by the Science Learning Center of Science Center NEMO

With contributions from the partners of the TWIST project
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Teknikens Hus
asdo
SEVENTH FRAMEWORK PROGRAMME
מוזיאון המדע ע"ש ברנרד בלומפילד ירושלים (ע.ר)
متحف العلوم على اسم بلومفيلد القدس
Bloomfield Science Museum Jerusalem
KING'S College LONDON
TRINITY COLLEGE DUBLIN
COLÁISTE NA TRÍONÓIDE, BAILE ÁTHA CLIATH
THE UNIVERSITY OF DUBLIN
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HIŠA EKSPERIMENTOV
NEMO Science Center
FONDAZIONE IDIS CITTA' DELLA SCIENZA

ONE SIZE FITS ALL?

ENHANCING GENDER AWARENESS IN TEACHING

What the expert says

It is important to organise a training course on gender for teachers, because, more than they think, teachers subconsciously interact with students based on gender stereotypes. And students themselves often have more gender stereotypes than we think. For example, boys in particular often believe that they are better than girls at mathematics or computing. By raising awareness of these situations through training, we can try to counter such stereotypes in education.

[Prof. dr. Juliette Walma van der Molen, University of Twente, the Netherlands]

What the expert says

From TWIST I now know that science museums have an important new role, in addition to supporting enquiry-based learning: to change teachers' personal attitude to gender in their lessons. TWIST in Israel proved very relevant both to Hebrew-speaking teachers from West Jerusalem and to Arabic teachers from East Jerusalem. With the tools and programmes we have developed and now operate, we can be an agent of change for both communities.

[Maya Halevy – Director, Bloomfield Science Museum Jerusalem, Israel]

What the expert says

The gender perspective has been in the core mission of Teknikens Hus ever since it opened 24 years ago. To remain tuned in to the needs of our community and to current research and development in the field, it is important that we stay constantly on our toes and take action whenever we have the opportunity. Being part of the TWIST project, providing our teachers with the most recent research and practical tools, is that kind of opportunity!

[Eva Jonsson – Deputy Director, Teknikens Hus, Sweden]

What the expert says

We know that professional development takes time: all the research tells us that teachers need to attend a number of sessions over an extended time period in order to change their practice.
However, we found out that a one-afternoon session, if run well and if enjoyable, challenging and intriguing, can help to change a teacher's attitudes and awareness, which in turn may change practice for the better.

[Heather King – Research associate, King's College London, United Kingdom]

FOREWORD

The proportion of women active in Science & Technology research is extremely low in most European and associated countries. Because of the prevailing prejudices about S&T and the lack of female role models in the field, women are less likely to opt for careers in it – leaving S&T primarily a male domain. On the other hand, boys are lagging behind in their educational development may be due to a lack of male role models and the fact that most current educational systems seem to better suit girls' way of learning. Consequently, there is a fear throughout Europe that interest in Science & Technology is declining at the same time as demand for graduates in these fields continues to grow in order to keep on innovating.

This scenario is something we can change, but it will take time. We shall need all the talent we have – from both girls and boys – to maintain our ability to innovate. The TWIST project has addressed this challenge with an ambitious programme of co-ordinated activities throughout science centers and museums across Europe to raise awareness about the role and representation of women in Science & Technology in Europe. The programme targeted young people and their teachers and parents as well as the general public, with a focus on the outdated stereotypes and prejudices concerning male and female societal roles and career paths.

One of the activities developed to this end was a programme for the professional development of qualified and student teachers, to ensure that they are better equipped to deal with stereotypes and prejudices regarding gender issues and career opportunities. After a thorough pilot in several countries, over 1,000 teachers participated in the programme with very positive and interesting results. They are now in a position to influence more than 25,000 students, to support them in their choices and to address their talents.

All teachers have the potential to be very good role models. Most, however, are unaware of the influence they have. They subconsciously perpetuate stereotypes in their teaching, and underestimate the significant role they can play in inspiring their students. We would like to change that, and hope to play our part by sharing our experiences with others involved in the professional development of teachers.

We hope you will be inspired by the suggestions we provide in this publication.

Marjolein van Breemen

Manager, NEMO Science Learning Center, the Netherlands

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01 INTRODUCTION

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How to use this?

This publication is for inspiration. It has been developed in collaboration with several European partners and is meant as a source of inspiration for other science centers which would like to offer a programme of professional teacher development on gender awareness in schools.

The publication will not provide you with step-by-step instructions on how to organise such a programme. But it does offer information, guidelines, good practices and tips to inspire you to develop an effective programme of your own.

What is the aim?

The primary purpose of this publication is to help you to develop a programme for the professional development of teachers on the theme of enhancing gender awareness in schools. It has been compiled as part of the European TWIST project (Towards Women in Science & Technology), intended to raise awareness of the role and representation of women in Science and Technology with a focus on the stereotypes and prejudices regarding societal roles for men and women and their career paths. One of the aims of TWIST is to ensure that teachers and student teachers are better equipped to deal with stereotypes and prejudices regarding gender issues and career opportunities. This resulted in a professional development programme for teachers, with "raising gender awareness in schools" as its central theme.

The target audience of this publication is science centers and museums. The professional development programme it describes was designed for teachers working with children aged 8-14.

Contents

This publication is divided into five tabs: the introduction you are reading now, practical inspiration, gender background, team and classroom activities and further reading. Each tab provides information in brief, illustrated with tips, quotes and good practices derived from the experiences of the collaborating European partners.

TIP from Science Center NEMO (the Netherlands)

Things that seem obvious to you may be not seen that way by others. Respond to this by providing "eye-openers" to create awareness.

Conducting a professional development programme – some general findings

Before focusing on the conduct of a professional development (PD) programme for teachers on gender awareness, we would like to share some thoughts about PD programmes in general and in Science & Technology (S&T) education specifically. As in many other countries, in the Netherlands primary school teachers receive only limited S&T training, either at college or in service. Museums and science centers can capitalise on this, as they possess expertise on making S&T accessible and interesting for young children which they can share with teachers through PD programmes. Over the years, Science Center NEMO and other partners in the TWIST programme have gained a great deal of experience in professionalising teachers in the field of S&T. From this, NEMO has identified a number of basic elements which are important to incorporate in any PD programme.

CHECKLIST

- Acknowledge the expertise of teachers. Teachers know how to teach their students. You do not need to tell them that. However, they appreciate support and specialised knowledge about how to teach S&T topics. Therefore, make use of their knowledge and expand it with your specialist know-how in S&T education.
- Make sure that participants enjoy the training. They are more likely to use the information acquired if they have good memories of the day.
- Keep in contact with the participants. Research tells us that, for professional development to be really effective, it needs to be embedded in a teacher's practice. Museums and science centers can support this staying in touch with participants and sending them follow-up suggestions from time to time. This is also a good way to monitor the long-term effects of the training. Later in this document you will find an example of how this has been done with the gender awareness training.
- It is important to set a clear goal for the programme and to make that explicit to the participants, so they can see what they will gain from the session. Make it clear how the course as a whole and each particular activity will benefit a teacher's work.

02 PRACTICAL INSPIRATION

Inspiration and practical information, guidelines, good practices and tips for the professional development of teachers on enhancing gender awareness in schools.

Objectives and take-home messages *14*

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02

PRACTICAL INSPIRATION

"Expressing the aims in the form of brief sentences is an excellent and clear way of encapsulating the main idea."

[Bloomfield Science Museum Jerusalem, Israel]

Objectives and take-home messages

Objectives

When developing a professional development programme, start by determining the goals you want it to achieve. It is best to draw up clearly defined *objectives* on which the content of the programme can be based. In this case we formulated four objectives as our starting point.

1. Make teachers aware of their subconscious gender-related behaviour in the classroom.
2. Make teachers aware that they subconsciously provide gender-stereotypical role models in the classroom.
3. Make teachers aware of the different approaches to learning and to performing tasks among pupils in general, and specifically any differences between boys and girls. And also of how the gender of the teacher may affect the way they approach "typical" boy or girl behaviour.
4. Make teachers aware of the influence they and schools have on their students' perspective of society and the world.

Take-home messages

To develop activities with a clear focus and a well-defined and unambiguous topic, we recommend using so-called "take-home messages". These are messages derived directly from the formulated objectives and applicable to the participants' professional practice. We translated our objectives into four such messages.

1. Girls also like feedback on content and boys also like feedback on presentation.
2. A girl can become a pilot; a boy can become a nurse.
3. You are not so different from your pupils. The first step is to be aware of your gender and the fact that you behave according to it.
4. You are not alone. You have a big influence on your students' perspective of society and the world they live in, but so do parents, peers, surroundings and media.

These take-home messages turned out to work really well. For teachers we translated them into a checklist in the form of a bookmark, providing practical tips for the classroom. They found this a very handy tool, because it worked as a quick reminder for them. Moreover, the messages made it a lot easier for us to develop activities with a clear focus. Through these we were able to communicate how the training activities applied to the teachers' own professional practice. This drove home the main purpose of the PD programme, making teachers aware of their own behaviour and of the current gender issues in education.

Content

When determining the content of your training activities, it is important that it matches the objectives and take-home messages you have formulated. The main topic of the gender awareness programme was subdivided into four themes, corresponding with the four objectives we had chosen. Under tab 3 you can find some background information about gender awareness in schools, which underpins these four themes. The activities we developed were based on that information. ➜ Under **TAB 4** you can find a framework in which the objectives and activities are combined.

The take-home messages, translated into a checklist in the form of a bookmark.

02

PRACTICAL INSPIRATION

"We mixed different working methods, like lectures, discussions and workshops, so that the teachers would both be inspired and gain information about recent findings in gender research."

[Teknikens Hus, Sweden]

Inspiring working methods

When determining the working methods for the activities you are planning, try to vary them as much as possible. This makes your programme more exciting for the participants and keeps their attention. Examples of activity types, on a scale from passive to active participation, include: lectures (preferably with audience interaction), short presentations, discussions between participants or with an expert and hands-on activities.

Inspiring working methods can make a substantial difference to the success of your programme. On the following pages you will find examples of good practices from Denmark, Israel and the Netherlands, which include inviting experts to present a lecture, how to make people aware of their own stereotypes and how to trigger discussions. Teachers participating in the PD programmes have found these activities inspiring, and they seem to have been effective in achieving our main goal: creating awareness about gender stereotypes. ➜ You will find full descriptions of these practices and some more examples under **TAB 4**.

GOOD PRACTICE
DISCUSS RECENT RESEARCH WITH PARTICIPANTS

[Experimentarium, Denmark]

Video message | What do experts have to say on gender and science? Experimentarium used recorded video messages from leading researchers in the field to add substance to its lecture. This was done for two reasons.

1. It would be very difficult to match the diaries of four busy researchers to the planned workshop dates.
2. Experimentarium wanted the discussion to centre on just a few messages and "claims". With recorded messages, it could choose what to highlight.

Through these video messages, Experimentarium wanted to confront the teachers with scientific findings in order to set them talking – whether or not they can relate to the findings. It is sometimes easier to discuss data before you start examining your own behaviour. The intention was not to tell participants how to teach science to the two genders, but to challenge them to explore their own beliefs and stereotypical views on that issue. ➜ **TAB 4** Activity #2

GOOD PRACTICE
DISCUSS RECENT RESEARCH WITH PARTICIPANTS

[Science Center NEMO, The Netherlands]

Short presentation and discussion by Angela Crott | Angela Crott is a Dutch historian who was asked to give a presentation on her recent study of literature about bringing up boys. Her research methods differed from those used in other recent research on boys' behaviour, making her findings as intriguing as her study. This new point of view on boys' behaviour and the Dutch educational system inspired the teachers attending the presentation. Because of Crott's background as a primary school teacher, she was able to interact with her audience as an equal and to cite identifiable examples, which benefited the way her presentation was experienced by her audience. She then held a discussion with another expert on boys in education, who bases most of his findings on brain research. Afterwards, the audience had the opportunity to attend a short clinic led by Crott, at which she elaborated on her research and answered questions.

The crux of her argument is that "the boy problem" is of increasing concern in the Dutch educational system. Boys are not doing well at school and their changing behaviour, which seems to have become more disruptive, is often seen as one of the underlying causes of their underachievement. In her study of the literature, however, Crott discovered that boys' behaviour has not changed that much. What is different now is the way society and educators interpret it: their appreciation of "boyish" qualities like energy, liveliness, impulsiveness and the urge to explore has changed. ➜ **TAB 4** Activity #1

TIP from King's College London
(United Kingdom)

It is important to ensure that professional development is underpinned by relevant theoretical content and grounded in empirical evidence. Inviting a respected academic to discuss recent research with participants (as many of the TWIST partners have done) will help you to do this, and raise the profile of your course at the same time.

GOOD PRACTICE TRIGGERING THE AUDIENCE

[Science Center NEMO, The Netherlands]

Badges | To trigger the participants into critical thinking about their ideas and concepts of gender stereotypes and of boys and girls in education, we made badges featuring rather provocative statements. These were handed out as the participants arrived and laid out on coffee tables, in the hope that they would prompt discussion about the statements. The teachers' reactions were very positive. The statements worked as eye-openers for them. Some even took the badges with them to distribute to colleagues.
Examples of the statements used: "I love science"; "Boys are lazy"; "Women can't teach science"; "Science is for boys"; "Why am I here?"; "Girls are smarter". → **TAB 4** Activity #6

TIP from Bloomfield Science Museum Jerusalem
(Israel)
Interactive games or other activities can help your participants to express their opinions on "loaded" issues, such as women in science, more readily.

GOOD PRACTICE TRIGGERING THE AUDIENCE

[Science Center NEMO, The Netherlands]

The ballot Box | The Ballot Box is an interactive way of confronting participants with their own prejudices and stereotypes. They express their opinion about stereotypical claims as to whether women are capable of and suited for scientific and technological professions by voting individually and anonymously on such statements.

This method proved a good and creative way of raising stereotypes and prejudices. And it seems to have been effective, generating positive reactions from participants. They claimed afterwards that they were now more aware of their prejudices. → **TAB 4** Activity #14

02

PRACTICAL INSPIRATION

“There are a lot of ways to think about gender, and it is important to listen to different values without debating them.”

[Teknikens Hus, Sweden]

Cultural diversity

When developing a teacher PD programme about gender awareness in education, it is important to look at the issues now at play in your country. It is recommended that you seek information from experts on gender, familiar with the current situation where you are.

Before we at Science Center NEMO started to design our professional development programme, we sought advice from an expert panel of Dutch scientists on the topic of gender. After a session with this group and our partners in the European TWIST project, we realised that a topic like this is subject to cultural differences. For instance, both the way the educational system in a country is shaped and the dominant local concepts of what constitutes being “boyish” and “girlish” greatly influence the topic of gender in education. We also discovered that PD programmes vary from country to country. In the Netherlands, for example, four-hour sessions are the norm, whereas in other countries two-day courses for serving teachers are more common. We have therefore developed a modular system for the TWIST project, with several activities to each module, so that institutions may pick out those most appropriate to their local context.

The good practices in this paragraph are examples of activities that were adjusted or developed by other countries to suit their educational system or their local situation.

To develop teacher awareness about gender in schools, a four-hour session appears to be sufficiently effective. This might take the following format.

60-75 minutes	Lecture
30-60 minutes	Discussion between experts and teachers
60-120 minutes	Several rounds of clinics
30 minutes	Brief review of the session

GOOD PRACTICE
DIFFERENT VERSIONS OF AN ACTIVITY

[Science Center NEMO, the Netherlands]

Marking an essay | The participants evaluate an essay. They do not know if it is by a girl or a boy. They give a mark and a comment. They also state whether they think it is by a boy or girl. After marking, the teachers engage in a group discussion about why they gave particular marks and comments. They also reflect on any differences between the comments and marks they gave, depending on whether they believed the essay was by a boy or girl. Through this activity, they find out if there are variations in their response to the two genders. It turns out that many teachers do subconsciously differentiate between boys' and girls' achievements.
This activity fits Dutch teachers' perceptions. In our system of education, writing essays is a very common task. So teachers can apply the outcome of this activity directly to their own practice, and have the opportunity to discuss their methods with colleagues. → **TAB 4** Activity #19

GOOD PRACTICE
DIFFERENT VERSIONS OF AN ACTIVITY

[Teknikens Hus, Sweden]

Bridgebuilding | This activity corresponds with the previous one, "How to mark an essay", and has the same aim. Again, the participants evaluate work by a student but do not know if it was produced by a boy or a girl. But the Swedish teachers are asked to mark and comment on bridges built by students (shown in photographs), rather than essays. This is because essay-writing is less common in Swedish primary education than it is in the Netherlands. The adaptation by Teknikens Hus better suits its local educational system.
The differences between boys' and girls' ways of learning, which this activity is intended to highlight, should be equally visible whether they are writing an essay or building a bridge. So both versions of the activity will, in all likelihood, result in teachers learning the same lessons.
→ **TAB 4** Activity #20

GOOD PRACTICE COUNTRY ISSUES

[The House of Experiments, Slovenia]

Concept-context | In Slovenia, most student textbooks on Science & Technology present mainly male-oriented exercises and examples. The House of Experiments has therefore created an activity in which teachers try to modify and rephrase exercises to create contexts in which female students would be more interested.
The goal is to make participants more aware of the gender bias in Science & Technology education in Slovenia. By doing so it is hoped to encourage teachers to try a different approach, one more inclusive of girls, and so ultimately attract more of them to Science & Technology. After completing the activity, the teachers are provided with alternative contexts more applicable to girls, which they can use in their daily practice in the classroom. → **TAB 4** Activity #3

02

PRACTICAL INSPIRATION

"I was very pleased with the organisation of the training and the present we received afterwards."

[Participant in the teacher PD programme at Science Center NEMO, the Netherlands]

Organisational implications: preparation and follow-up

As well as its content, the organisational aspects of developing a professional development programme for teachers also require attention. We would particularly like to emphasise the importance of both good preparation and well thought-out follow-up.

Preparation: recruitment

When developing your programme, the importance of recruitment must not be underestimated. To be sure that you attract enough participants to produce lively conversation and engagement, you need to start recruiting them early. From the outset, set a target for the number of people you want to sign up for the programme. In this way you will know what you are working towards. Recruitment strategies for small participant numbers can be very different from those for bigger groups. Moreover, make sure that you are trying to attract people with the same needs – it is difficult to train and please a group with divergent needs and interests. Several partners have found that using an incentive works really well in reaching the right target audience. Examples include sending an appealing "out-of-the-box" invitation, raffling a prize amongst early registrations or promising a gift after the training. Because of the cultural differences between countries, the way you recruit may also differ.

TIP from Science Center NEMO (The Netherlands)

"Dutch teachers are often really busy and therefore difficult to reach. So we used an incentive to encourage them to share the invitation to our programme with fellow teachers. We raffled a book about gender amongst those who forwarded the invitation to colleagues. This made them more likely to read the invitation and at the same time created a snowball effect in our recruitment campaign."

Follow-up

Research shows that, in order to be really effective, the content of any training course needs to be embedded into a teacher's practice. The aim of this programme is to instil in teachers an awareness of the gender aspects of schooling. In a four-hour session we can make a start in raising that awareness, but afterwards you need to continue to support the participants if you want to maintain the level you have achieved.

Heather King (King's College London, UK): *"It is essential to create opportunities within a professional development programme for teachers to reflect on how they could incorporate new ideas into their practice. Building a relationship of trust between provider and teacher – perhaps by establishing ongoing coaching or mentoring – can also help to ensure that new approaches and new ways of thinking are adopted and embedded."*

Follow-up also includes evaluation of the programme itself. How did the participants experience the training and what are the implications of this if you want to repeat the exercise in the future? Did you achieve your goals? Did the participants have a positive experience? Did you meet the needs of your audience?

Evaluation and staying in touch

Evaluation and staying in touch to instil gender awareness are quite easy to combine. Both Science Center NEMO and Experimentarium have included this in their programmes.

Quote by participant in the teacher PD programme at Bloomfield Science Museum Jerusalem, Israel:
"I will try to break free of my stigmas and those of society. I hope to succeed."

GOOD PRACTICE EVALUATION

[Experimentarium, Denmark]

Writing a letter | Participants make a "gender resolution" before leaving. Each of them is given a postcard containing the following message to themselves:

"Dear _____,
Remember that you made a gender-resolution and will pay special attention to
1 _____
2 _____
3 _____
when teaching and when collaborating and discussing with your colleagues."

They complete the card and place it in a self-addressed envelope, which is sent to them two weeks later. This is followed up with phone calls to a number of participants in which, amongst other things, they are asked what resolutions they made and whether they have been focusing on gender aspects in their work since attending the course. This activity forms part of the evaluation and follow-up process. ➜ **TAB 4** Activity #7

GOOD PRACTICE EVALUATION

[Science Center NEMO, the Netherlands]

Telephone interview | We wanted to check the impact of the programme on the participants' day-to-day teaching practice. To do this, during the training we asked some of the teachers if we could call them a few weeks later to talk about the course and what aspect they had found useful in their work. We also planned to call these teachers again after a couple of months. In this way we hope to monitor the long-term effect of the programme, as well as keeping in contact to remind participants of the training and of their resolutions, and to give them a further opportunity to ask questions or to share ideas about gender and stereotypes in education. ➜ **TAB 4** Activity #8

Evaluation outcome from Science Center NEMO (the Netherlands)

As well as telephone interviews, we used evaluation forms to gather information from participants about how they experienced the programme. Listed below are the findings from both methods.

- 150 people registered for this training day.
- On a scale of 1-10, the average score for the day was 8.0.
- The highest score given was 10 (by four respondents), the lowest 5 (one respondent).
- 73% of attendees state they found the lecture the best part of the day.
- 89% intend to change something in the way they teach after the training.
- After three weeks, gender awareness was still "top of mind" amongst the teachers we called.
- The "goodie bag" with materials played a key role. It helped participants to remain aware.

Some quotes from teachers

- "There are no girls at all in football magazines. How unfair!"
- "I really liked the activities and plan to do them with my colleagues at school."
- "I was shocked by the results. I thought I wouldn't have any prejudices, but it turned out I'm guilty as well. What an eye-opener!"

Goodie bag and toolkit activities

We found that a single afternoon session, if run well and enjoyable, challenging and intriguing, can help to change a teacher's attitudes and awareness – which in turn may change their practice for the better. Providing them with a goodie bag with activities for the classroom can help teachers to remain aware of stereotypes and to begin to challenge long-standing attitudes and assumptions. The gifts in the bag are intended to remind them about the subject of gender. We suggest providing things they are likely to use in their day-to-day work, so they are reminded of the programme frequently. For example, a bookmark with tips, a card game featuring a number of occupational stereotypes or a poster about career opportunities for both boys and girls.

To keep the teachers informed and aware, and to encourage them to use the information they have received during the programme, we have also compiled a digital toolkit. This consists of a number of documents related to the four themes of the programme, describing both team and classroom activities. Also included is suggested reading to interest and inspire teachers.

➜ The activities and reading list can be found under **TABS 4** and **5**, respectively.

Quote by participant in the teacher PD programme at Science Center NEMO, the Netherlands:
"The materials we received to take home are a real motivation to actually do something with the information."

The digital toolkit

03 GENDER BACKGROUND

TWIST | Towards Women In Science & Technology *28*

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"All scientists are geeks" | The influence of stereotypes *32*

"S&T is a man's world"| Influences on students' perspective of society *33*

03

GENDER BACKGROUND

TWIST
Towards Women In Science & Technology

The gender dimension of research implicates that the share of women in Science & Technology is extremely low in all European countries and associated countries. There is a fear throughout Europe that interest in Science & Technology is declining at the same time as demand for graduates in these fields continues to grow, since S&T is an essential driver of our knowledge-based economy. Talented people, both men and women, are needed to fill this gap. Since women are underrepresented in science, there is much to be gained from encouraging more of them, in particular, to enter this field.

However, girls and women are not underrepresented in *all* aspects of science. The health-related disciplines and veterinary science, for example, currently have more female than male entrants. But there *is* a lack of women at senior levels across the board. They hold only 12 per cent of top scientific positions in Europe. At the same time, we know that gender diversity is essential to creativity and innovation. So we need both men and women. It will take time to change things, but more women entering science and greater public understanding of their individual personal qualities will help to address this.

Gender Awarenes in School | Four Themes

The TWIST project is addressing this challenge through its programme to raise awareness of the role and representation of women in Science & Technology, with a focus on the stereotypes and prejudices regarding societal roles for men and women and their career paths.

One of the aims of TWIST is to ensure that teachers and student teachers are better equipped to deal with stereotypes and prejudices regarding gender issues and career opportunities. Its professional development course for teachers is about showing girls that not only is science fun, but also that STEM (science, technology, engineering and mathematics) is both a possible and an interesting career option for them. It is also about engaging parents, teachers and peers so that they understand their role in respect of women in STEM. This is why we have chosen "gender awareness in schools" as the programme topic, dividing it into four subcategories or themes on which the different course modules are based (see the framework behind tab 4). These themes are described in greater detail below.

➜ Literature reference: Rocard et al. (2007); Further references can be found under **TAB 5**.

03

GENDER BACKGROUND

One size fits all?
Differences in boys' and girls' behaviour

Girls and boys differ from one another. Not only biologically, but also in the way they are perceived and the way they behave.

One difference in behaviour may derive from the effects of the hormones oxytocin and testosterone. Testosterone makes a male want to compete with others. When a boy wins, his testosterone levels rise. And they fall when he loses. Changes in hormone levels do not appear to be the same in girls. This suggests that competition could be a good motivator for boys to learn. Meanwhile, oxytocin has been found to affect social behaviour. Women have a higher level of this hormone, which stimulates them to establish relationships and to please others. And so suggests that girls may be more motivated when they work together on tasks or when a task is placed in a social context.

It is important to note that there will always be exceptions to the rule. Every child is different. Variations in the way children behave are found not only between the genders, but also within them. But if teachers are aware of the potential behavioural differences between boys and girls and know how to respond to them, the education of the whole class could be significantly more effective.

In addition, teachers should be aware of their own ways of learning. Just like their students, male and female teachers may have a more "boy-like" or "girl-like" way of behaving – which could make their teaching methods more suitable for either boys or girls. It is important to understand that your preferred teaching methods may not suit all your students. One size does not fit all.

➜ Literature reference: Gurian, Stevens, & King (2008); Further references can be found under **TAB 5**.

Quote by participant in the teacher PD programme at The House of Experiments, Slovenia:
"I was surprised when I saw the statistical data about the tests and differences in answers from boys and girls"

03

GENDER BACKGROUND

"Boys are lazy" Girls' and boys' behaviour in the classroom

Boys and girls differ in the way they behave in the classroom. For example, because competition seems to be a good motivator for boys to learn, they are often more competitive in their behaviour. Whereas girls appear to be more social due to their tendency to establish relationships and to please others. Girls may also pay more attention to the appearance of a paper or product.

When we look at those qualities which are considered particularly important in the current educational system in a country like the Netherlands, it is quite noticeable that these seem to be predominantly "girlish". In recent years, for example, there has been an increasing focus on linguistic tasks and abilities. But teachers know that if their teaching methods are not adjusted to address the varied needs of students, undesirable behaviour will result. When boys are not challenged in the right way, for instance, they could become bored and allow their attention to wander. This may make them appear lazy or unmotivated. But in this situation you need to ask yourself if it is the pupil who is to blame for such behaviour, or the teaching methods being used.

The "gender qualities" described above are often interpreted differently by teachers. And they can give rise to have prejudices about boys and girls in the classroom. Boys, for example, are often seen as troublemakers. But instead of feeding those prejudices, it is important to understand the differences in student behaviour and, for instance, to try to direct boys' energy into learning activities rather than crushing their enthusiasm.

➜ Literature reference: Gurian, Stevens, & King (2008); Further references can be found under **TAB 5**.

Quote by participant in the teacher PD programme at Experimentarium, Denmark:
"I now realise that the major differences between boys and girls are found in my perception of them – not in their cognitive skills."

03

GENDER BACKGROUND

"All scientists are geeks"
The influence of stereotypes

Besides the differences in the way boys and girls behave, there are also differences in their own ideas about how they should behave: what things are "boyish" and what things are "girlish"? One of the fields in which these gender stereotypes are particularly obvious is Science & Technology. S&T is still considered by many to be "a man's world", not suitable for women. And in many countries people still believe, to a greater or lesser extent, that science is difficult and dull, that working in technology is tough and unpleasant and that all scientists are geeks or socially inept.

How people think about these subjects greatly influences the interests of boys and girls and what fascinates them. Children's norms, values, behaviour and cognitive skills are dependent on the norms and values prevalent in their environment. For instance, the influence of gender stereotypes in S&T is still decisive in the career choices of many girls (and boys), and in particular in girls' decisions not to embark on a scientific career. Compared with their male classmates with similar grades in science subjects, girls often have lower self-esteem concerning their scientific ability as a direct result of these stereotypes ("girls can't do science"). Most are not aware of this, though, and so simply underestimate their ability to the extent that they believe science is too difficult for them. As a result, they often choose an alternative, non-scientific career path.

Most adults, too, are unaware of their stereotypes regarding S&T. Many of us, for instance, automatically and subconsciously associate professions like architecture or engineering with male practitioners, and in our mind's eye "see" nurses and secretaries as women. These implicit associations can be very persistent. It is important, therefore, that we raise our own awareness of our stereotypical perceptions so that we can address them and hence change the way we act.

Returning to girls in S&T, it is important to note that they are more likely to choose science courses and to perform well if they have a strong self-belief regarding their scientific abilities. This suggests that improving a girl's confidence in herself can influence her positively in choosing S&T as a career and in her performance in scientific and technological subjects. One way to help them overcome their stereotypical view of S&T as "masculine", is to introduce them to successful female role models in science. This exposes them to examples which contradict and, it is to be hoped, invalidate the stereotypes.

➜ Literature reference: Halpern et al. (2007); Further references can be found under **TAB 5**.

Quote Experimentarium, Denmark:
"You are dependent on your stereotypes – but stereotypes can be changed."

03

GENDER BACKGROUND

"S&T is a man's world" Influences on students' perspective of society

Children's stereotypical ideas concerning gender and science – like "S&T is a man's world" – start to form at a very early age. They're shaped by the ideas passed on by parents, family and peers, and by media images of what is "boyish" and what is "girlish".

Because parents are often unaware of their own stereotyped perceptions, either consciously or subconsciously they tend to raise their sons and daughters differently. Girls are often expected to play with dolls, crayons and other social or creative toys, whilst boys play with Lego, cars and similar, more technical toys. Because girls play less with such toys, they gain less early "technical" experience and so do not acquire the first basics for later success in Science & Technology. This happens not only at home, but also at school and in nursery care. Teachers and peers are just as influenced by the stereotypes as parents, after all, and so just as likely to perpetuate them in their own environment.

Although teachers as well as parents have the potential to be influential role models, unfortunately most are unaware of how important they can be in this respect. Teachers and parents alike often underestimate the significant role they could play in countering the widespread stereotypes about S&T and gender which influence their children. Becoming aware of your own stereotypical ideas and the impact you can have on others is a good first step towards changing the mindset of children regarding gender and Science & Technology.

➜ Literature reference: Milgram (2007); Further references can be found under **TAB 5**.

Quote Città della Scienza, Italy:

"The school and the family have a key role in the development of equal opportunities in science and, working together, can help to increase the interest of students and their success in science."

04 ACTIVITIES

Activities for the teacher PD Programme *38*

Activities for both the PD Programme and the classroom *50*

Activities for the classroom *82*

Contents

As part of the development of the TWIST programme for professional development (PD) for teachers, Science Center NEMO has written activities that match the four modules of the PD programme and that can be used for both the PD programme for teachers and in the classroom. These are included under this tab. In addition, several partners from the TWIST project have contributed activities they have developed for their PD programmes. These activities from Teknikens Hus, Experimentarium, Bloomfield Science Museum Jerusalem and The House of Experiments are included under this tab and can be found in the list of activities below.

Activities for the teacher PD programme *36*

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This framework contains an overview of all the objectives and the associated modules and activities.

	Module 1	Module 2	Module 3	Module 4
		GENDER AWARENESS IN THE CLASSROOM		
Topic	**One size fits all? | Differences in boys' and girls' behaviour**	**"Boys are lazy" | Girls' and boys' behaviour in the classroom**	**"All scientists are geeks" | The influence of stereotypes**	**"S&T is a man's world" | Influences on students' perspective of society**
Objective	Make teachers aware of the different approaches to performing tasks among pupils in general. And also of how the gender of the teacher may affect the way they approach "typical" boy or girl behaviour.	Make teachers aware of their subconscious gender-related behaviour in the classroom.	Make teachers aware that they subconsciously provide gender-stereotypical role models in the classroom.	Make teachers aware of the influence they and schools have on their students' perspective of society and the world.
Between objective and the take-home message	You are aware of the differences and similarities between boys and girls performing tasks. You are also aware that your gender affects your teaching.	You are aware of the difference in your feedback to boys and girls in the classroom.	You are aware of the stereotypes you present during classroom activities.	You are aware that you have an important influence on your students' perspective of society and the world they live in.
Take-home message	You are not so different from your pupils. The first step is to be aware of your gender and the fact that you behave according to it.	Girls also like feedback on content and boys also like feedback on presentation.	A girl can become a pilot; a boy can become a nurse.	You are not alone. You have a big influence on your students' perspective of society and the world they live in, but so do parents, peers, surroundings and the media.
Activities for the teacher PD programme	#1 Lecture: differences and similarities between boys' and girls' behaviour #3 Concept-context. #6 Badges. #8 Interview by telephone.	#1 Lecture: differences and similarities between boys' and girls' behaviour. #2 Video message. #6 Badges. #8 Interview by telephone.	#7 Writing a letter. #5 Gender awareness versus gender unawareness in classroom subjects. #6 Badges. #8 Interview by telephone.	#4 Speed dating. #8 Interview by telephone.
Activities for both the PD programme and the classroom	#9 Debate on motions. #10 A value exercise – forming a value line. #11 A value exercise – four corners. #23 Similarities and differences between boys and girls. #24 Tips to improve your gender awareness in the classroom.	#9 Debate on motions. #10 A value exercise – forming a value line. #11 A value exercise – four corners. #17 Possible classroom situations: how to react? #18 Response to a specific situation. #19 Marking an essay. #20 Bridgebuilding. #21 Are there gender-related emotions in your classroom? #22 Typical student. #23 Similarities and differences between boys and girls. #24 Tips to improve your gender awareness in the classroom.	#9 Debate on motions. #10 A value exercise – forming a value line. #11 A value exercise – four corners. #12 Architect game. #13 IAT card game. #14 Ballot box. #15 Objects – which are gender neutral? #16 Make a collage. #23 Similarities and differences between boys and girls. #24 Tips to improve your gender awareness in the classroom.	#16 Make a collage. #25 factors that influence children's gender world view. #26 Posters showcasing STEM examples.
Activities for the classroom	#27 Observation assignment: what prejudices affect you in the classroom?	#27 Observation assignment: what prejudices affect you in the classroom?	#27 Observation assignment: what prejudices affect you in the classroom?	

04/1
ACTIVITIES

ACTIVITIES FOR THE TEACHER PD PROGRAMME

Lecture: differences and similarities between boys' and girls' behaviour

FACTS NECESSARIES & PREPARATIONS

Objective
To understand the differences and similarities between boys' and girls' behaviours.

Materials
- Auditorium, computer, projector, microphone.
- Expert speaker.

Target group
Teachers.

Theme
One size fits all? | Differences in boys' and girls' behaviour
"Boys are lazy" | Girls' and boys' behaviour in the classroom.

Working method
Lecture, approximately 150-200 participants (depends on size of auditorium).

Content
Differences and similarities between boys and girls are caused by both sociocultural and biological factors.

In the Netherlands we decided to focus only on the biological differences in the brain. We consulted several Dutch scientists about this, including Jelle Jolles and Dick Swaab. Not all scientists agree that there are big differences between the brains of boys and girls; some argue that most gender differences are the result of sociocultural influences.

Each partner has to decide the subject of its lecture. Choose a narrow topic to focus on. That could be either sociocultural or biological differences. The choice will partly depend on what experts are available in your country.

04/2
ACTIVITIES

ACTIVITIES FOR THE TEACHER PD PROGRAMME

Video message

FACTS
NECESSARIES
& PREPARATIONS

Objective
To confront the teachers with scientific findings in order to set them talking, whether or not they can relate to the findings.

Materials
- Pens.
- Sticky notes.
- Flipchart.
- Computer.

Preparation
Record messages from leading researchers in the field.

Target group
Teachers (max. 30 participants).

Theme
"Boys are lazy" | Girls' and boys' behaviour in the classroom.

Working method
Discussion.

Content
This activity takes approximately 60 minutes.

Instead of a live lecture, we used recorded messages from leading researchers in the field. We did this for at least two reasons.

1. It would be very difficult to match the diaries of four busy researchers to the planned workshop dates. Recording their contributions meant that they could provide these when it suited them.
2. We wanted the discussion to centre on just a few messages and claims. With recorded messages, we can choose what to highlight. (Naturally, we obtained the scientists' approval on how they were quoted in the final version.)

Participants are seated in groups of four, around small tables. On each table are pens and sticky notes. Use a PC to show the video clips. Introduce the activity by explaining that you have been

conducting interviews with researchers in the field of educational studies and gender. Ask the participants the following four questions.

1 What findings on differences between boy and girl students has your research produced?
2 It is claimed that the differences between the sexes are significantly smaller than those found within either gender. What is your opinion on this?
3 Research indicates that female teachers regard poor performance by girls as caused by a lack of ability, whereas in boys it is seen as the result of a lack of effort. Is this true?
4 Do boys and girls have different cognitive skills? Do boys and girls learn differently?

The questions are written on large pieces of paper and posted on the wall.

Before seeing the video, the participants are asked to consider their own individual answers to the four questions. They write these down on sticky notes. This is done to give each participant time to reflect on their own, before engaging in discussion with the others. We also believe that this opportunity for reflection makes them more aware of – and curious about – what the researchers will say.

The video is then played (duration: 12 min.). After watching it, the participants are given more questions to discuss. We have a list of these, which we pose one at the time.
They are…

1 Do you recognise the tendency to have different expectations of boy and girl students?
2 Are researchers right when they claim that the biggest differences between boys and girls are to be found in the teacher's head, not in real life?
3 Do you think it might be true that the differences between boys and girls are not as significant as those found within either gender group?
4 Do you find boys more interesting to teach, or girls?
5 Research says that we teach our boys and girls to fit into our gender preconceptions. What kind of girl/boy do you teach your students to be?

After the groups have discussed two questions, we make the participants form new groups. This is done mainly because of our experience that some groups have a hard time agreeing on their answers. When that happens, being rearranged can come as a relief.

04/3
ACTIVITIES

ACTIVITIES FOR THE TEACHER PD PROGRAMME

Concept-context

FACTS
NECESSARIES
& PREPARATIONS

Objective
To create awareness of gender bias in teaching materials. We do not believe that it is possible to change the how teachers work in a one-day workshop and with one activity, but by creating awareness we can stimulate them to try different approaches that might attract more girls to science, technology, engineering and mathematics.

Materials (per participant)
- Teachers can either bring their own textbooks or you can prepare some male and female-oriented exercises in advance.
- Pencils and paper

Preparation
Pick several male and female-oriented exercises commonly used in schools.

Target group
Teachers, working in teams.

Theme
One size fits all? | Differences in boys' and girls' behaviour

Working method
Introduction (2 min.), teamwork (10 min.), presentation of group work (5 min.) and group discussion (3 min.).

Content
This activity takes approximately 20 minutes. Ideally, each group should consist of four to six teachers. They are given one or two exercises, which they have to modify to make them more "girlish" or "boyish".

We show our participants that examples in school science textbooks are usually taken from a male world. By devising alternative situations which are more relevant to girls, we might be able to inspire more of them to take an interest in Science & Technology. This activity also raises awareness, because many teachers have not noticed the inherent gender bias in their textbooks. By trying to rephrase exercises in a way that will interest female students, they may think about offsetting the male orientation of the current versions.

Note that in biology we have found that the trend is in the opposite direction, with textbooks containing more female-oriented examples and exercises.

04/4
ACTIVITIES

ACTIVITIES FOR THE TEACHER PD PROGRAMME

Speed dating

FACTS NECESSARIES & PREPARATIONS

Objective
To give teachers positive reinforcement regarding their influence on students' choices and careers.

Materials
- Round bar tables.
- People working in S&T who have a positive story about their teachers and the influence they had.
- Timer.

Preparation
Ask people in your network whether they have good memories of their primary school teachers. You will need approximately 20-25 of these "speed daters".

Target group
Teachers.

Theme
"S&T is a man's world" | Influence on students' perspective on society

Working method
Groups of five or six teachers stand round a bar table. Every five minutes a new S&T worker joins them to give an inspiring talk. This can be done about three times.

Content
Speed dating with people who work in S&T. They talk about their teachers and how they contributed to the choices they made. This serves as positive reinforcement for participants.

Variant 1
If face-to-face speed dating is impractical, you can write testimonials by professionals in S&T on pieces of paper and lay them out on tables during coffee/tea breaks or record them on video and screen them in the breaks.

Variant 2
Alternatively, ask participants in the programme to make their own video messages about how they were inspired to become a primary school teacher.

04/5
ACTIVITIES

ACTIVITIES FOR THE TEACHER PD PROGRAMME

Gender awareness versus gender unawareness in classroom subjects

FACTS NECESSARIES & PREPARATIONS

Objective
To create awareness of stereotypes in classroom subjects.

Materials
- Chairs and tables for groups.
- Exercise on paper.
- Pens.

Target group
Teachers.

Theme
"All scientists are geeks" | The influence of stereotypes.

Working method
- Discussion in groups of five or six participants.
- Introductory and closing sessions, attended by all participants.

Content
Small groups of participants discuss "gender-aware" and "gender-unaware" ways of teaching in spelling, history and technology lessons. In total, this activity takes approximately 20 minutes (five minutes for each subject, plus five minutes each for the introductory closing sessions).

1 *Dictation and spelling*
Think of two subjects and write a few lines of dictation.
a In a gender unaware way. For example, "The pilot starts the jet engine and it makes a strange noise. He takes a closer look."
b In a gender aware way. For example, "The pilot starts the jet engine and it makes a strange noise. She takes a closer look."

2 *History – the Second World War*
Think of two stories to tell in a history lesson.
a Gender unaware. For example, a soldier who was also a son and a husband.
b Gender aware. For example, female resistance fighters (eg. The Girl with the Red Hair).

3 Technology

Think of two activities for a technology lesson.

a Gender unaware. For example, an activity that is directed to one particular interest group: saw an aeroplane out of wood.

b Gender aware. For example, let the students themselves choose what object they want to saw.

NOTE. Participants will feel less confronted by this exercise if they perform it "in the role" of a gender-aware or gender-unaware teacher.

04/6
ACTIVITIES

ACTIVITIES FOR THE TEACHER PD PROGRAMME

Badges

FACTS NECESSARIES & PREPARATIONS

Objective
To trigger the participants into critical thinking about their ideas and concepts of gender stereotypes and of boys and girls in education.

Materials
Badges featuring more or less provocative statements.

Preparation
Make the badges.

Target group
Teachers

Theme
One size fits all? | Differences in boys' and girls' behaviour.
"Boys are lazy" | Girls' and boys' behaviour in the classroom.
"All scientists are geeks" | The influence of stereotypes.

Working method
Non-guided discussion.

Content
Make badges featuring more or less provocative statements about gender in education. Hand these out as the participants arrive and lay more of them out on coffee tables to prompt discussion about ideas of gender in the classroom. The statements work as eye-openers and ensure that the participants start talking about the subject spontaneously.

Examples of the statements used.
- I love science.
- Boys are lazy.
- Women can't teach science.
- Science is for boys.
- Why am I here?
- Girls are smarter.

04/7
ACTIVITIES

ACTIVITIES FOR THE TEACHER PD PROGRAMME

Writing a letter

FACTS NECESSARIES & PREPARATIONS

Objective
To evaluate your own ideas about gender and the extent to which these affect your behaviour in the classroom.

Materials (per participant)
- Postcard.
- Pen.
- Envelope.

Preparation
Prepare the postcards.

Target group
Teachers.

Theme
"All scientists are geeks" | The influence of stereotypes.

Working method
This is an individual and private activity. We want the participants to be honest to themselves about their own "gender habitus". By keeping the exercise private, we hope that we have made it easier for them to reflect on their own behaviour.

Content

This activity takes approximately 15 minutes. It forms part of the evaluation and closure of the workshop. At the end of the session, each participant is given a postcard and an envelope. The postcard bears the following text.

"Dear _____,
Remember that you made a 'gender-resolution' and will pay special attention to:
1 _____
2 _____
3 _____
when teaching and when collaborating and discussing with your colleagues."

Each participant completes the card and places it in a self-addressed envelope, which we send to them two weeks later. This is followed up with phone calls to a number of participants in which, amongst other things, they are asked what resolutions they made and whether they have been focusing on gender aspects in their work since attending the course.

04/8
ACTIVITIES

ACTIVITIES FOR THE TEACHER PD PROGRAMME

Telephone interview

FACTS
NECESSARIES
& PREPARATIONS

Objective
To follow the impact of the programme on the participants' day-to-day teaching practice.

Preparation
- Prepare the interview questions
- Make sure you have enough participants that want to cooperate: ask participants during the training session if you may call them afterwards to do a interview by telephone.

Target group
Teachers

Theme
One size fits all? | Differences in boys' and girls' behaviour
"Boys are lazy" | Girls' and boys' behaviour in the classroom
"All scientists are geeks" | The influence of stereotypes
"S&T is a man's world" | Influence on students' perspective on society

Working method
Individually, a few weeks and a few month after the PD programme has taken place.

Content
About 3 weeks after conducting the PD programme, telephone interviews are held with some (10% of the total) participants of the programme, to see of the programme on the participants' day-to-day teaching practice has an effect. In these interviews for example you discuss the course and the individual workshops in relation to their day-to-day work. The emphasis is on the content of the training and not on the organizational side. This activity takes approximately 30 to 45 minutes and forms part of the evaluation of the teacher PD programme.

Some questions you may ask:

- What (from the PD programme) was new to you?
- What (from the PD programme) did you find surprising?
- What is the most important that you have heard or learned?
- What were your intentions when you left after the PD programme?
- Which of these intentions did you actually put into practice? What were the results?
- Do you have plans for the long term?

Also plan to call these participants again after a couple of months. This way you could monitor the long-term effect of the programme, as well as keeping in contact to remind participants of the training and of their resolutions, and to give them a further opportunity to ask questions or to share ideas about gender and stereotypes in education.

04/9
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Debate on motions

FACTS NECESSARIES & PREPARATIONS

Objective
To encourage participants to think about how they approach their students, compared with a teacher of the opposite gender.

Materials
- Motions: decide what issues are important in your country and adjust this activity accordingly.
- Film in which students, teachers or parents say why they think it is important to have female and male teachers, and what the differences between them are.
- Moderator.
- Ballot boxes or red and green cards for all participants.
- Computer with projector.
- Microphone.

Target group
Teachers.

Theme
One size fits all? | Differences in boys' and girls' behaviour
"Boys are lazy" | Girls' and boys' behaviour in the classroom
"All scientists are geeks" | The influence of stereotypes

Working method
- Voting (by card or ballot).
- Conversation between participants about the motions.
- Debate with participants.

Content
In the Netherlands there are many more female than male teachers. This is widely considered as a problem, mainly because it is thought that it is good for both boys and girls to have a male teacher as a role model. But are there other reasons why it is good to have male teachers? That is the subject of the Dutch debate.

Introduction [10 min]
Start with the short film in which students, teachers or parents say why they think it is important to have female and male teachers, and what the differences between them are.

Initial motions [15 min]
The motions appear on the screen and the participants vote on them. Each person has a green and a red card. Green means "I agree"; red means "I do not agree". The moderator asks for opinions and comments on each motion. It is important that the teachers can see the results of each vote. Men's and women's responses should be counted separately: do they vote differently?
If there are too many participants to count cards, consider using ballot boxes instead.

Possible initial motions
Choose five to seven motions tailored to the audience and the purpose of the module. Here are some examples.
- Male teachers are more strict than female teachers.
- Female teachers do more craft work with students than male teachers.
- Men are more likely to teach Science & Technology than women.
- Boys listen better to a male teacher.
- Boys are more difficult than girls in class.

Main debate [45 min]
The main motions are shown on the screen and speakers argue for and against each of them. Each participant in the one-to-one debate has two minutes to present their case, plus the chance to give a brief rebuttal after five minutes. The moderator sums up what has been said.

Things to think about when organising a debate.
- Find good speakers.
  Look them up on YouTube or ask others how they speak in public (eg. through the PR department of a university). Some people may have beautiful ideas or write brilliantly, but perform poorly in public.
- Find a good moderator.
  Leading an orderly debate and coming up with interesting new views is not something that many people can do. Seek people who have experience both of the specific theme and as a moderator. Of course, you could do it yourself – but do not underestimate the task!
- Prepare the debate with the participants beforehand, face to face.
  If possible, talk the debate over with the speakers in advance. This will help you to direct the event in the direction you have in mind, and to check that the others involved are thinking along the same lines.
- Involve the audience.
  This can be done simply by asking questions (right from the start), letting them cast their votes and performing little mind experiments, illusions, tricks, pieces of theatre, etc. Be creative. The audience will love it!
- Use clear statements.
  This gives your debate urgency and direction. Let the audience give their opinions on the motions, too.
- Narrow down the themes.
  Do not try to discuss too many things at once. The more clear-cut a statement is, the easier it is to debate. And do not try to be too "correct" in the statements: it is better to provoke discussion than to find consensus right from the start.
- Have a clear schedule for your event.
  Write down how you want your event to unfold. The more details you think about beforehand, the easier it will be once things are under way.

Possible main motions

Choose two to four motions tailored to the audience and the purpose of the module. Here are some examples.

- Female teachers stop rough play earlier – perhaps too early.
- Male teachers do not understand girls.
- Female teachers do not understand boys.
- It is good to separate the boys and girls in the classroom.

Basic variant

In a more basic variant of this activity, participants discuss propositions (which can be the same as the motions above) during a break or over a drink at the end of the day. In this case the propositions are written on cards placed on tables. Having talked each of them over, the participants make a tear in the card next to the word "yes" or "no" and put it in a box. This encourages them to think about the proposition. At the end of the session, you can summarise the opinions given.

04/10
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

A value exercise – forming a value line

FACTS NECESSARIES & PREPARATIONS

Objective
To encourage participants to listen to statements expressing different ways of thinking about gender, without challenging them.

Materials
- Prepared questions with different options.
- Space to make a line of people.

Preparation
Devise the questions.

Target group
Teachers and students.

Theme
One size fits all? | Differences in boys' and girls' behaviour
"Boys are lazy" | Girls' and boys' behaviour in the classroom
"All scientists are geeks" | The influence of stereotypes

Working method
Group activity.

Content
This activity takes approximately 45 minutes.
- Questions about gender do not necessarily have one correct answer. This activity should increase our awareness of different opinions. During the exercise it is important that everyone be allowed to express their own opinion without others trying to challenge or comment on it. You can also change your opinion (move along the line) as the exercise unfolds.
- The activity leader reads out a statement and the participants – teachers or students – line up in response. One end of the line represents the opinion "I totally agree", the other "I totally disagree". So you literally decide where you stand on each statement: at one end of the spectrum, or somewhere in between? We start with a test statement.
- After each line has formed, some of the participants are asked to explain why they chose a particular point along it.

Examples of statements for students.

- I would like to win a million euros (test question).
- Girls achieve better results at school than boys.
- I would like to work in healthcare.
- Both boys and girls can become great nursery teachers.
- I would like to be a scientist.
- Boys are noisier than girls.
- Both boys and girls can become great construction workers.
- Boys are better at technology than girls.

Examples of statements for teachers.

- I would like to win a million euros (test question).
- Girls achieve better results at school than boys.
- Boys and girls are equal at school.
- Men make better scientists and science teachers than women.
- Boys are noisier than girls.
- My gender is of great influence when performing my profession.
- Men have more to gain from sex equality than women.

04/11
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

A value exercise – four corners

FACTS NECESSARIES & PREPARATIONS

Objective
To encourage participants to listen to statements expressing different ways of thinking about gender, without challenging them.

Materials
- Prepared questions with different options.
- A room where it is possible to mark the corners.

Preparation
Devise the questions and the alternative answers.

Target group
Teachers and students.

Theme
"Boys are lazy" | Girls' and boys' behaviour in the classroom.
"All scientists are geeks" | The influence of stereotypes.
"S&T is a man's world" | Influence on students' perspective of society.

Working method
Group activity.

Content
This activity takes approximately 45 minutes.
- Explain that questions about gender do not necessarily have one correct answer. This activity should increase our awareness of different opinions. During the exercise it is important that everyone be allowed to express their own opinion without others trying to challenge or comment on it. You can also change your opinion (move to another corner) as the exercise unfolds.
- Four corners. The activity leader reads out a question and in response the participants – teachers or students – go to the corners of the room, each of which represents a different answer. Once there, they discuss as a group (or in subgroups) why they chose that particular alternative. If someone is alone in one corner, they can talk to the leader about why they are there.
- After the group discussion, some of the participants are asked to explain to everybody why they chose that particular corner.

Examples of questions and answers, for teachers (1) and students (2).

1 *What do you think is the biggest obstacle to teaching in a way that is gender aware?*
   a Lack of knowledge and working methods.
   b Lack of time to think about the issue.
   c Our own values.
   d Open corner ("other").

2 *Why do more boys become scientists than girls?*
   a Boys are better at science.
   b Science is for men.
   c Girls find it more difficult to become scientists.
   d Open corner ("other").

04/12
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Architect game

FACTS NECESSARIES & PREPARATIONS

Objective
To encourage the participants to experience their own prejudices.

Materials
- Story.
- Pencil and paper for each participant.

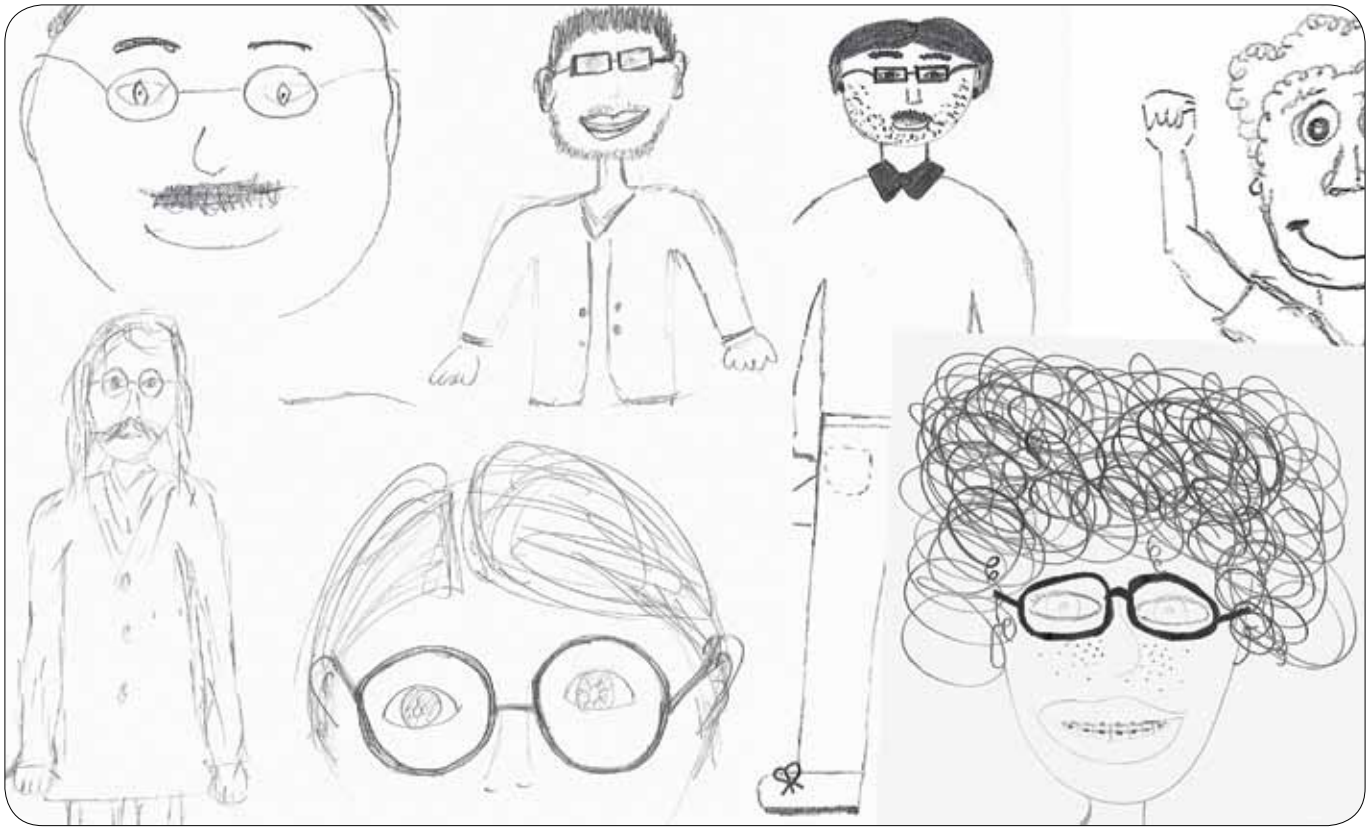
Target group
Students and teachers.

Theme
"All scientists are geeks" | The influence of stereotypes.

Working method
- Storytelling.
- Drawing a picture.
- Sharing results.

Content
This activity is suitable for the classroom, but we believe it is also worth doing with teachers.. Participants are told a story about an architect (whose gender, age and race are not mentioned), then asked to draw the person they see in their mind's eye. The moderator asks some of them to show their pictures and to explain what they depict. Who has drawn a man? Who has drawn a woman? Do you have any idea why this is your image of an architect? In all, the activity takes about 10 minutes.

Story
Close your eyes and imagine. An architect has thought all day about a new bridge that is to be built. Traffic, including big lorries, has to be able to cross a wide river. The architect not only wants the bridge not be large and safe, but also beautiful. After a long day of thinking, the architect has a great idea for the bridge. Think about how happy and enthusiastic the architect looks. The architect says, "This is going to be a great bridge!"



Assignment
Draw the architect.

Group discussion
Collect the drawings and hang them on a wall. Compare and discuss the drawings with the students. Ask the students if their architect is male or female. And how old are they? What do you need to become a good architect? Does it matter whether you are a boy or a girl? Have the students seen an architect on TV or in a magazine? Was that architect male or female? Is it possible that the image they have drawn corresponds with that person?

NB. This activity may cause language problems. In Dutch, as in English, "architect" is not a masculine or a feminine word. Individuals are "free" to visualise either a male or a female architect. If "architect" is a masculine or feminine word in your language, this story will not work. But you may be able to come up with a gender-neutral alternative which does.

04/13
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

IAT card game

FACTS NECESSARIES & PREPARATIONS

Objective
To show participants that they subconsciously harbour gender bias.

Materials (per participant)
- Forty playing cards bearing such words as: woman, female, aunt, daughter, wife, Mrs, mother, grandmother, man, boy, father, male, grandfather, husband, son, uncle, philosophy, literature, art, humanities, music, language, history, physics, engineering, chemistry, statistics, brain sciences, biochemistry, astronomy.
- Four small signs on which are written:
  – humanities or female;
  – Science & Technology or male;
  – humanities or male;
  – Science & Technology or female.
- Tables on which to place the signs.

Preparation
- Produce the playing cards.
- Produce the signs.

Target group
Students and teachers.

Theme
"All scientists are geeks" | The influence of stereotypes.

Working method
In pairs, facing one another. Maximum 20 participants.

Content
This activity examines participants' subconscious associations in respect of gender and professions in S&T and humanities. It is a competitive game for two players. They sit facing one another. In front of each are a pile of cards and two signs. The first player has the signs:
- Humanities **or** female; and,
- Science & Technology **or** male.

The second player has:
• Humanities **or** male; and,
• Science & Technology **or** female.

Each player sorts their cards into the two categories in front of them. They must do this as fast as possible, competing with one another. Each of the words on the cards can be classified as either male/female or humanities/ Science & Technology. For example, "daughter" is female and "son" male," whilst "art" is humanities and "physics" Science & Technology. When they have finished, the players change places and repeat the exercise with the other signs. They then play the entire game at least two more times. After each "round" they check who has "won." Were there any differences in how they sorted the cards? And was the level of difficulty the same in each case?

This game tests whether the players tend to associate particular professions with one or other of the genders. Most people are quicker to classify a word as "female" when that is combined with "humanities" than when it accompanies "Science & Technology".

At the end of the game players return to their seats and a short discussion is held. It is important to point out that results can be affected by various external factors, such as distractions during the course of the game. In most cases the results are valid, but it is quite possible to obtain results which do not reflect the player's true attitudes. However, the game is designed to raise awareness of the issue rather as a diagnostic tool. The results should be viewed with a healthy dose of curiosity and scepticism.

By playing the game, most participants discover in an informal way that they subconsciously harbour a gender bias which may inadvertently affect their behaviour.

04/14
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Ballot box

FACTS NECESSARIES & PREPARATIONS

Objective
To confront participants with their own stereotypes and prejudices regarding women and science.

Materials
- Different coloured beads (three per participant, the colour depends on their gender).
- A sign with voting instructions.
- A box with nine holes.
- Nine transparent containers.
- A curtain or other material to cover the containers.

Preparation
- Prepare a sign with voting instructions, or have a trainer on hand to help if anyone has problems.
- Prepare different coloured beads for male and female participants (three each).
- Prepare a box with nine holes in which to insert the beads. Next to each hole is an icon representing "Agree," "Disagree" or "Don't know". Each set of three holes relates to a separate claim.
- Develop suitable claims.
- Place a container (preferably transparent) under each hole. This is covered during voting.

Target group
Students and teachers.

Theme
"All scientists are geeks" | The influence of stereotypes.

Working method
Group activity.

Content

An interactive way of confronting participants with their own prejudices and stereotypes. In an individual secret ballot, each participant expresses an opinion regarding stereotypical claims as to whether women are capable of and suited for scientific and technological professions. For example:

- "Beauty and concern with outward appearance are not compatible with an inclination and passion for science."
- "Girls are emotional and irrational, so they are not suited to science."
- "Girls are better at studying and rote learning, but are not suited to research and development."

Participants receive three beads each at the beginning of the study day. Each gender is given beads of a different colour. Alternatively, each participant chooses three beads at the ballot box. Voting takes place during the break, as instructed by the trainer or on the sign by the ballot box. After the vote, the transparent containers are exposed to reveal the results. How did participants respond to each claim: "Agree," "Disagree" or "Don't know"? Did males and females vote differently? The results can then be discussed.

04/15
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Objects – which are gender neutral?

FACTS NECESSARIES & PREPARATIONS

Objective
To gain a picture of what objects and items are considered gender-neutral and what are seen as female or male.

Materials
- Thirty pictures of common objects.
- A clothes line or long string (10 m).
- 30 clothes pegs.

Preparation
- Collect or download and print pictures of 30 common objects, like an iPad, a screwdriver, a washing machine, a razor, a comb, a hairbrush, a hammer, a blender, a laptop, a Smartphone, a vacuum cleaner, a bicycle, a car, a ball, some toys and so on.
- Hang up the clothes line or string. At one end hang a sign saying "female", at the other end a sign saying "male".

Target group
Teachers and students.

Theme
"All scientists are geeks" | The influence of stereotypes.

Working method
Group activity.

Content
Duration: 30 minutes.

Each participant is given one picture and one clothes peg. They must then choose where along the line – on a scale from male, through neutral, to female – to hang their picture. When everyone has done this, they take a step back and look at the line. Ask each participant to say something about why they placed their picture where they did.

04/16
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Make a collage

FACTS NECESSARIES & PREPARATIONS

Objective
To reveal the gender bias that students see, hear and experience all the time.

Materials
- Copies of a typical girls' magazine (in the Netherlands we used Tina, for girls aged between nine and thirteen).
- Copies of a typical boys' magazine (we used the football title Just Kick-It!; in the Netherlands all magazines aimed at boys are on a specific topic, such as football, games or toys – there are no general publications for them).
- Copies of a gender-neutral magazine (we used National Geographic Junior).
- Sheets of A4 or A3 paper.
- Scissors.
- Glue.

Target group
Students and teachers.

Theme
"All scientists are geeks" | The influence of stereotypes.
"S&T is a man's world" | Influence on students' perspective of society.

Working method
- Introduction, attended by all participants.
- Cutting and gluing in pairs or small groups.
- Group discussion

Content

- Tell the students that they are going to make a collage. They will be working in pairs or small groups.
- Decide which pairs or groups will make three collages (ie. with cuttings from the boys', girls' and gender-neutral magazines) and which will make only one. Ensure that there are at least two collages of cuttings from each category of magazine.
- Tell the students to make their collages. They can cut pictures, photos and illustrations from the magazines and paste them onto sheets of A4 or A3 paper.
- Ask the groups to compare their collages.
  – Are there differences between them?
  – What are the differences?
  – Why is that?
  – Do the students think they are influenced by this?
- Then discuss this with the whole class.

04/17
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Possible classroom situations: how to react?

FACTS NECESSARIES & PREPARATIONS

Objective
To learn how to use knowledge of the differences between boys and girls.

Materials
- Auditorium with computer, projector and microphone.
- Expert speaker.

Target group
Teachers.

Theme
"Boys are lazy" | Girls' and boys' behaviour in the classroom.

Working method
The expert gives a short introduction about the biological and social differences between boys and girls, and how these come about. Then a classroom situation is described. This is first discussed by groups of two or three people sitting near each other, before the expert asks for suggestions on how to handle it and comments on them.

Content
The expert introduces a classroom situation. The question is how you as a teacher should handle it. Discuss it with your neighbour(s). What do you think? If it were happen next week, what would you do? Would you respond differently if it involved a boy or a girl? After a few minutes, the expert asks for your suggestions and comments on them.

Here are some examples of situations that might be described.
- You enter the class and two students are fighting. You break them up. What do you do next?
- During a break, you see a student crying in the playground. You have not seen what happened. What do you do?
- The students have been working by themselves on maths for about 30 minutes. Some of them are becoming restless. What can you do?
- One of your students is frequently "troublesome". What do you do?

04/18
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Response to a specific situation

Objective
To encourage teachers to think about how they approach their students, compared with a teacher of the opposite gender.

Materials
- Written situation to talk about.
- Paper and pencils.

Target group
Teachers.

Theme
"Boys are lazy" | Girls' and boys' behaviour in the classroom.

Working method
Group activity. Make sure that both men and women are represented in each group:

Content
Introduction [10 min]
Each group is presented with the following situation.

> You are a primary school teacher. You give each child in your class a piece of clay and then leave them alone. The girls are well-behaved and make little clay figures, but the boys make a mess: they throw the clay at the ceiling to see if it sticks and stuff it into the keyhole of the door. Then you come back into the room.

Response [10 min]
What do you do when you come back into the room? Everyone writes down their own answer, without conferring with the rest of the group.

Discussion [20 min]
Compare answers within your group. Do men and women react differently? What are the differences?

Summary [10 min]
Sum up the results. What can you learn from each other? What would you do differently next time?

04/19
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Marking an essay

FACTS NECESSARIES & PREPARATIONS

Objective
To understand how you react in the classroom. Are there subconscious differences in your response to boys and girls?

Materials
- Four essays, similar in content but different in design; two written by a boy, two by a girl.
- Flipcharts.
- Marker pens.
- Location with enough rooms for each group to meet separately.
- Computer with PowerPoint, a projector and screen (optional).

Preparation
Ask at least two students – one boy and one girl – to write an essay. Provide them with the content. Copy each essay a couple of times and number them so it is unclear to the participants if an essay is written by either a boy or a girl. The workshop leader or facilitator writes down the name and sex of the students that matches the numbers on the essays. Don't show the participants the list with names!

Target group
Teachers.

Theme
"Boys are lazy" | Girls' and boys' behaviour in the classroom.

Working method
This activity begins with a discussion, in small groups. After 20 minutes each group presents its findings. The activity concludes with a group discussion, a conclusion and tips for improving the teachers' gender awareness.

Content

Assessment [10 min]

Divide the participants into at least four groups of six to ten teachers. Give each group a flipchart, marker pens and an essay. Ask the teachers to assess the essay by giving a mark and a compliment. Tell 50 percent of the groups the sex of the student who wrote the essay.

Criteria [10 min]

Ask the teachers to list the criteria they used to assess the essay and how they arrived at the compliment they gave.

Presentation [15 min]

Each group briefly presents its results.

Comparison [10 min]

Now tell the groups that one of the essays was written by a boy, the other by a girl. Compare the groups' results. Is there a difference between those teachers who knew that an essay was by a boy or a girl and those who did not? Are there differences between the compliments given to the girl and the boy?

Discussion [10 min]

Discuss the outcomes of the group assessments. Had they thought they would respond as they did? Do they need to change the way they respond and, if so, how?

Conclusion [5 min]

Tell the teachers that the toolkit contains a checklist of tips for gender awareness in the classroom.

04/20
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Bridgebuilding

FACTS
NECESSARIES
& PREPARATIONS

Objective
To increase gender awareness amongst teachers. To understand how you react in the classroom. Are there subconscious differences in your response to boys and girls?

Materials
- Two photographs showing different bridge constructions and the students who made them – one a group of boys, the other a group of girls.
- Two sticky notes per teacher on which to write comments.
- Marker pens.
- Whiteboard or similar on which to post the notes, in categories.
- Computer with PowerPoint, a projector and screen (optional).

Preparation
Obtain two photographs showing different bridge (or house, mechanical, electrical, etc.) constructions and the group of students who made them – one a group of boys, the other a group of girls. Make sure the photographs show clearly that they are boys or girls.

Target group
Teachers.

Theme
"Boys are lazy" | Girls' and boys' behaviour in the classroom.

Working method
Group activity.

Content

This activity takes about 30 minutes. Start by showing one of the photographs and asking each group to formulate a positive comment and write it on a sticky note. Then do the same with the other photograph. Now post the notes on the whiteboard, keeping the comments on the boys and the girls separate.

Next, categorise the comments on the group of boys. Examples of categories are: design, structure, function, construction methods and materials. Do the same with the comments on the group of girls.

Give the teachers five minutes to discuss the results. How different or similar are the comments on each design? Each group presents its findings. End with a group discussion, a conclusion and tips for improving the teachers' gender awareness.

This activity is a good way to start thinking about how we give feedback to boys and girls in Science & Technology education, and to increase the teachers' gender awareness.

04/21
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Are there gender-related emotions in your classroom?

FACTS NECESSARIES & PREPARATIONS

Objective
To discover whether students have gender-related emotions. Should – and can – you as a teacher respond to those, or should you treat all students equally?

Materials
- Flipchart.
- Marker pens.
- Enough rooms for each group meet separately
- Computer with PowerPoint, a projector and screen (optional).
- Emotions worksheet and Emotion cards in three colours

Preparation
Make the emotion cards. Give each group cards of different colours.

Target group
Teachers.

Theme
"Boys are lazy" | Girls' and boys' behaviour in the classroom.

Working method
This activity starts with meetings of small groups. After 20 minutes each group presents its findings. The activity ends with a group discussion, a conclusion and tips for improving teachers' gender awareness.

Content
Individual worksheet [10 min]
Divide the participants into groups of six to ten teachers. Give each person an emotions worksheet and the emotion cards. Do not tell them what the colour coding means. Ask them to fill in the worksheet individually, as they think their students react – not how they think their students should react. It is not the intention of the game to elicit "socially acceptable" responses.

Group discussion [10 min]
Ask the teachers in each group to tell each other what they have filled in. Do they have different answers? What is the background to these choices? Then ask all the members of a group to compile a combined worksheet incorporating the similarities between the individual worksheets. Discuss the differences.

Overview [10 min]
Each group sticks its cards on a large sheet of paper. The "clouds" produced by the different groups are thus merged to form one large overview. Are there distinct categories?

Discussion [20 min]
Discuss the outcomes of the group exercise. Had they thought they would make the classification they did? Do they need to change it and, if so, how would they like to do that?

Conclusion [10 min]
Tell the teachers that the toolkit contains a checklist of tips for gender awareness in the classroom. And that they can also play this game with their students.

Emotions cards
Print these on coloured paper. Choose three different colours.

Colour 1

Cosy	Concern	Passion	Sympathy
Gentle	Empathy		

Colour 2

Impulsive	Confident	Timid	Determined
Indecisive			

Colour 3

Agressive	Bold	Nosey	Risk-taker
Eager	Rebellious		

Emotions worksheet

Boys	Boys & Girls	Girls

04/22
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Typical student

FACTS NECESSARIES & PREPARATIONS

Objective
- To gain a clear picture of a typical student of the age group you teach.
- To pass on the knowledge acquired during the lecture to your students.

Materials
Paper and pen.

Target group
Teachers.

Theme
"Boys are lazy" | Girls' and boys' behaviour in the classroom.

Working method
Individual activity.

Content
- Think about the general age group you teach. Write down what a typical student in that age group is like. Your description can include classroom behaviour, but you should also think about the students' interests in order to build a complete picture.
- When you have finished, read back what you have written and think about girls. How would your description change if it were only about girls? Write this down.
- Read the first description again, but this time think of boys. Again, write down how your description would change if it were only about boys..
- Reflect on what you have written. In what ways might the differences you have identified affect the way you view your students?
- Think of at least one thing you might do differently as a result.

04/23
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Similarities and differences between boys and girls

Objective
To make students and teachers think about and discuss the similarities and differences between boys and girls.

Materials
- At least four pictures of children your students' own age (two girls, two boys).
- Whiteboard.
- Paper and pencils.

Target group
Students.

Theme
One size fits all? | Differences in boys' and girls' behaviour.
"Boys are lazy" | Girls' and boys' behaviour in the classroom.
"All scientists are geeks" | The influence of stereotypes.

Working method
Classroom discussion.

Content
This activity is a class discussion about the similarities and differences between boys and girls.

Introduction [5 min]
Put the four pictures of children on the board.

Similarities [10 min]
Ask the students to describe the similarities between the children pictured. Do not comment on the characteristics mentioned, but just write them on the board.

Differences [10 min]
Now ask the students to describe the differences between boys and girls. Again, do not comment on the characteristics mentioned. Just write them on the board.

Discussion [30 min]
Review the characteristics given. Depending on the answers put forward, differences in all areas should be covered. At this point you can introduce stereotypes. For example, if it has been said that boys are rough: are all boys rough? Are boys always rough?

Then go on to discuss the idea of being unique. Ask questions like, "Can boys and girls like the same activities?" These create room for discussion: are there "boyish" and "girlish" activities? Do boys do things on the girls' list, and vice versa? Is that OK?

Conclusion [10 min]
End the discussion with a conclusion.

➜ This activity is based on: http://www.ricw.state.ri.us/lessons/66.htm

04/24
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Tips to improve your gender awareness in the classroom

FACTS NECESSARIES & PREPARATIONS

Objective
To give you practical tips for gender awareness in the classroom.

Target group
Teachers, for practical use in the classroom.

Theme
One size fits all? | Differences in boys' and girls' behaviour.
"Boys are lazy" | Girls' and boys' behaviour in the classroom.
"All scientists are geeks" | The influence of stereotypes.

Content
Tips to improve your gender awareness in class.

Language
- When writing a text, make sure that is relevant to both sexes.
- Ensure that both sexes are in the text.
- Address both girls and boys.
- From time to time, feminise parts of the text.
- Break stereotypes. For example: active-calm; intelligent-emotional.
- Avoid the word "man" as part of another word. For example, manpower.

Educational practice in the classroom
- Give the girls and boys equal turns.
- Provide the students with prescriptive, informational content and feedback regarding their performance. Such feedback enhances students' beliefs in their abilities.
- Commend students as much for their services, activities and initiative as for their cleanliness, diligence and good behaviour.
- Ensure that both boys and girls stick to agreements

Didactic

- Analyse learning content and resources on gender awareness.
- Search for topics that appeal to both boys and girls.
- Vary the working methods.
- Ensure that when students work in groups, both girls and boys have leadership and administrative tasks.

Non-verbal communication

- Nod encouragement to both girls and boys.
- Give equal attention to the undesirable behaviour of both boys and girls.
- Undesirable behaviour comes in different forms. For example: running in the classroom; giggling during instruction.

04/25
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Factors that influence children's gender world view

FACTS NECESSARIES & PREPARATIONS

Objective
To make it clear how much influence teachers have over their students' perspective of society.

Materials
- A large sheet of paper bearing the image of a child with four circles around it.
- Sticky notes in four colours (enough of each colour for each participant).
- Moderator.

Target group
Teachers.

Theme
"S&T is a man's world" | Influence on students' perspective of society.

Working method
- Introduction and conclusion, attended by all participants.
- Individual assignment
- After the notes have been stuck on the paper, the participants can view the filmed testimonials.

Content
On a large sheet of paper is an image of a child with four circles around it that represent the degree of influence that someone or something has on the child. Each participant is given four sticky notes of four different colours. Each colour stands for a category that influences children: parents, peers, teachers/schools and media. The participants have to decide to what extent these categories influence children by putting the four sticky notes on the paper, each inside one circle.
The moderator concludes with a summary of what the participants think and informs them about scientists' ideas on this subject.

04/26
ACTIVITIES

ACTIVITIES FOR BOTH THE PD PROGRAMME AND THE CLASSROOM

Posters showcasing STEM examples

FACTS NECESSARIES & PREPARATIONS

Objective
To give you and your students examples of STEM (science, technology, engineering and mathematics) careers in international development., using posters developed to appeal to both boys and girls.

Theme
"S&T is a man's world" | Influence on students' perspective of society.

Content
Download the posters from http://practicalaction.org/careers.
Print the posters, or order a set, and hang them in your classroom.

04/27
ACTIVITIES

ACTIVITIES FOR THE CLASSROOM

Observation assignment: What prejudices affect you in the classroom?

FACTS NECESSARIES & PREPARATIONS

Objective
To identify patterns and actions that might not otherwise be noticed.

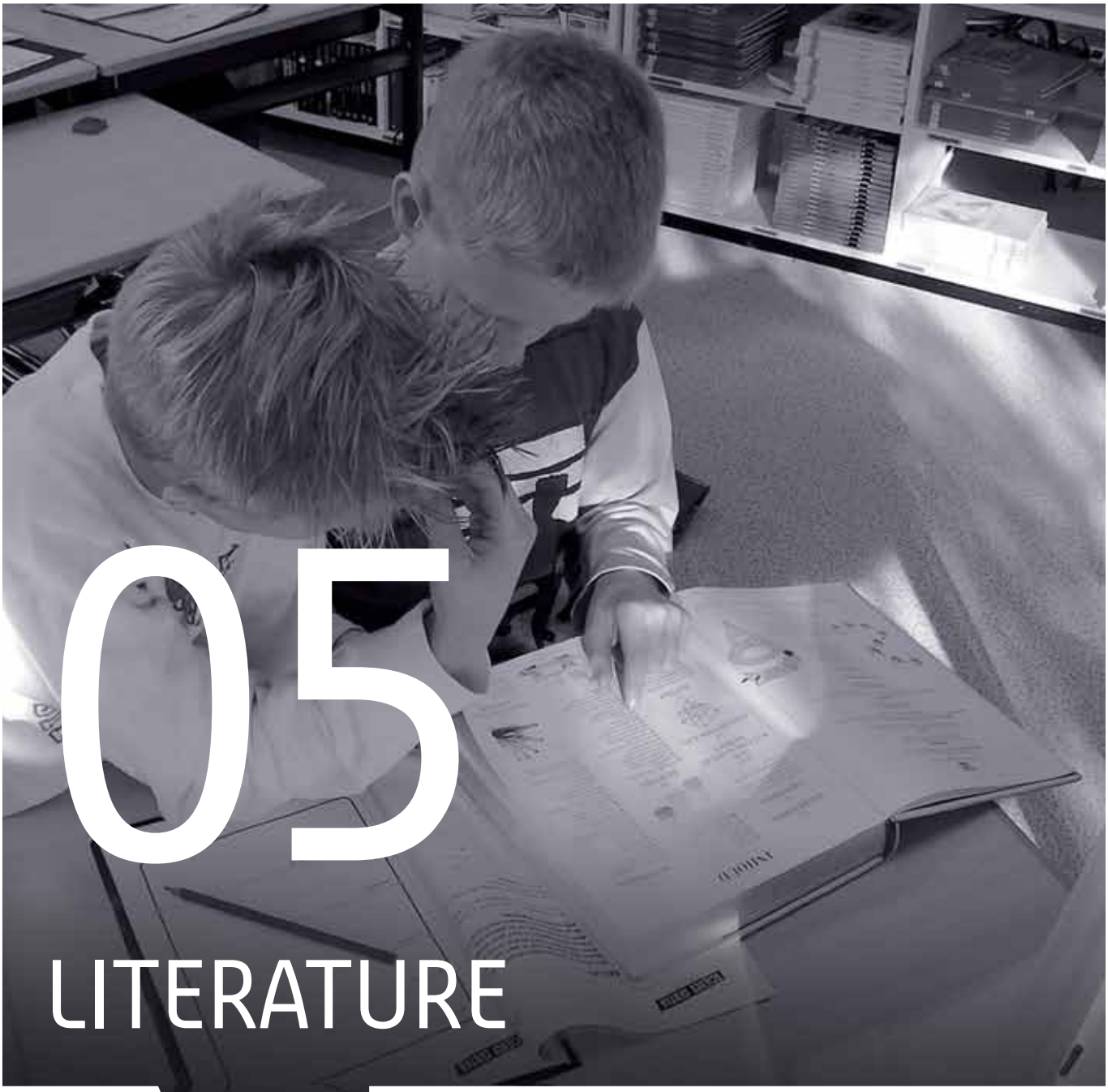
Materials
- Tips to improve your gender awareness in the classroom.
- Pen.
- Another class and a teacher who is willing to let you observe them.

Target group
Teachers. They can perform this activity in their day-to-day practice.

Theme
One size fits all? | Differences in boys' and girls' behaviour.
"Boys are lazy" | Girls' and boys' behaviour in the classroom.
"All scientists are geeks" | The influence of stereotypes.

Working method
Observing and reflecting on your own behaviour.

Content
Choose a focus in your observation: boys' and girls' behaviour or the ways in which stereotypes are perpetuated. Observe another teacher and use what you see to reflect on your own actions. You can also let someone else observe you in your classroom. Afterwards, discuss your observations. For what to look for, see "Tips to improve your gender awareness in the classroom".



05 LITERATURE

Following is a list of literature that is used for this publication and that can be used when developing a PD programme for teachers on gender awareness in the classroom.

References and further reading *84*

05
LITERATURE

References and further reading

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AFTERWORD

Do the TWIST: science centers confront gender imbalance in schools

Science centers and museums are able to create examples of gender mainstreaming within science education, innovation activities and scientific systems and institutions – examples which could prove invaluable to Europe and to the future of its scientific innovation. The TWIST professional development programme for teachers exemplifies this approach by showing how schools can become more aware of the diversity of their students.

The main objectives of the programme are to initiate and develop debates and to ignite an ongoing awareness of the way we approach the two genders. We know that we do not have "the right answers", and also had to consider the fact that we are not all experts on gender issues.

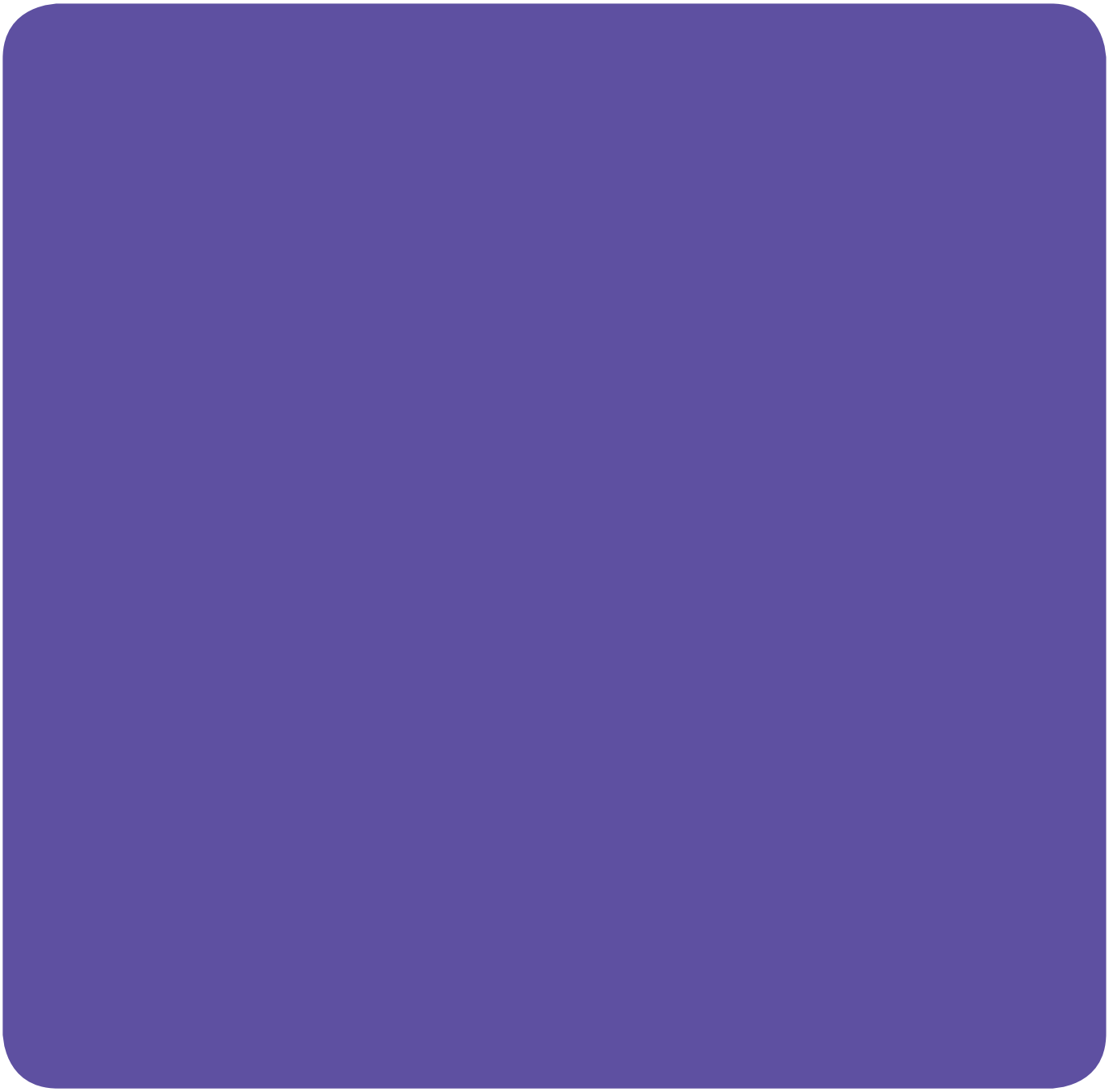
It was clear from the outset that we needed to prompt the teachers into talking about their attitudes towards boys and girls. We wanted to avoid a situation in which they looked to us for answers. In the workshop we took time to point out that we would not be explaining how to teach science to boys and girls, but instead challenging participants to explore their own beliefs and stereotypical views on that issue.

Our experience of the programme is that teachers have started to think about the ways they approach girls and boys, and specifically about the "gender boxes" they put children into. The programme has definitely been an eye-opener for participants, with quite a few stating that they have since "thought a lot about their part in gender stereotyping".

"I now realise that the major differences between boys and girls are found in my perception of them – not in their cognitive skills" – participant in the PD programme at Experimentarium, May 2012.

Sheena Laursen

Coordinator of the TWIST project and Director of International Affairs, Experimentarium, Denmark



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