From the editors
This year ESoE handed out 26 diplomas; 19 in October during a festive meeting. It was a nice happening, with highly appreciated personal attention for each student. It’s one of the events that trigger us for a newsletter…. Here we go.

For this newsletter we thank the following persons, in random order, for their contributions: Douwe Beijaard (as director and about the second VSNU/ICL conference), Kees Huizing, Daphne Keller, Antoine van der Beemt, Elise Quant (coordinator of the master program), Bas de Waal (alumnus) and three new students in the “opleidingscommissie”. Because of illness, the ict tips-and-tricks column had to be skipped, this time.

I also use this introduction to thank the coordinators of both the master and minor programs for all their work and enthusiasm in the past years. The MT of ESoE noted already some time ago, that due to all kind of changes, in time it wouldn’t be natural anymore to have two separate coordinators. The organization of the “Eduticate Minor” has changed considerably and possibilities for modularization and making the education more flexible gave reasons to combine both functions. Elise Quant will still be around, concentrating on activities in the area of NLT, O&O, Beta didactics. Mariyan Gardenier, who unfortunately is ill at the moment, will leave ESoE on December 31 officially, and return to Fontys.

From Douwe Beijaard, director of ESoE
This year about 40 students started their study in the master SEC. Like each year this is again a very heterogeneous group of students varying from students who follow the master immediately after their bachelor programme to students who already work as teachers in schools. It is always a challenge for our educators to do justice to the learning needs of every student. Less bachelor college students than in other years intend to follow both educational packages, i.e. the former ‘educative minor’. Recently it has been decided that, under restrictions, students may exchange a so-called USE-package for an educational one. It is expected that this will lead to more students who will also follow our teacher education programme during their bachelor studies.

An essential aspect of the current ‘ICL/VSNU teacher agenda’ is to make the routes toward the teaching profession more flexible. One result of this is that the so-called educative minor can also be followed by students after their bachelor or master study. This will soon be ascertained by law. Because of many reasons, among which legal
regulations, it is less easy to realize more flexible or other routes to the teaching profession for students already during their master study. Nevertheless, this is highly prioritized on the list of the teacher agenda. This particularly offers good and new possibilities for several two years master programmes such as those offered by the TU/e Graduate School. Therefore, ESoE is strongly involved in getting this realized. It will definitely lead to more qualified science and mathematics teachers. As you all may know ESoE is bending its research programme towards teaching and learning in the STEM (Science, Technology, Engineering, Mathematics) domain. In this respect it is wonderful that we can soon welcome our new professor of ‘Mathematics/STEM Education’, Birgit Pepin, who will start in Eindhoven the first of January 2015. We hope that she is going to strengthen and further develop our new research programme significantly.

While Birgit Pepin is coming from North Europe (Norway) to the continent, I have been in Finland throughout 2014 for several weeks where I was officially appointed as visiting professor at the Faculty of Education of the University of Turku. I did seminars for PhD students and staff and discussed with them about their research projects and research programmes. I also had discussions with teachers about their work in schools. They greatly value their autonomy and time for thinking and improving their work. They see this as an important aspect of being academically trained teachers. However, like in many other countries the teachers in Finland also begin to feel more pressure on placing the emphasis on student achievement. For Finland this is important in order to keep its high PISA ranking. Nevertheless Finland still is, with its own cultural background, an interesting country to visit. The University of Turku as well of the University of Helsinki are both doing educational research of a high quality. They are also good places for our master students for going abroad as part of their study in the new Graduate School in the near future.

We are already a few months on the road in this academic year. Meanwhile 26 master students received their diploma in October. I hope that all the new students enjoy their studies at ESoE and that many of them will decide to become a teacher. In 2015 there will also be several of our PhD students who are going to defend their dissertation. As director of ESoE I wish them all lots of success!

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About one of the projects in the framework of the Centre for Engineering Education

Antoine van der Beemt

The three Dutch universities of technology - Delft, Twente and Eindhoven - joined forces in initiating a centre of expertise: Centre for Engineering Education. Perry den Brok is one of the board members of this centre.

The start of this centre goes together with an extensive research project. One of the work packages deals with a review of interdisciplinary science education, which encompasses a systematic literature review aimed at defining a framework. This framework subsequently serves as a lens to examine selected interdisciplinary courses from all three universities of technology. The framework in part is based on the work by former ESOE
PhD student Sonia Gomez, and by PhD student Rens Gresnigt. Sonia’s PhD thesis is used to examine the design of assignments in courses, for example by looking for words such as ‘open ended’ or ‘ill defined’. Rens’ article about the relation between multidisciplinary, interdisciplinary and transdisciplinary serves as a ‘control-mechanism’ to evaluate whether courses are in nature interdisciplinary rather than just in name. First results are expected Spring 2015.

Introducing Daphne Keller
My name is Daphne Keller and I work at ESoE as a postdoc since November 1.
I studied Chemistry in Utrecht where I also did my PhD. After having worked in industry (ASML) I found out, that I preferred to work in education.
So I jumped in at the deep end and started in a school in Wijchen. After I had survived the first months I registered for teacher training at Eindhoven School of Education. Sometimes the combination of working and studying is asking a lot, but during the subject Onderzoek van Onderwijs (Research on Education) the interest in research came back
Now I teach a few hours NASK1 (physics) at a VSO-4 (secondary school for special education) in Eindhoven for children with a disorder in the autistic spectrum. Besides that, I work at ESoE on an innovation oriented research project on “blended learning” in the metal-electronics industry.
I am married to Olaf and have two daughters, Isabelle (7) and Hannah (4 years old).

What is an academic teacher in secondary schools? Douwe Beijaard
On Thursday November 6th the second VSNU/ICL conference took place, this time entitled: “Good academic teachers in the classroom.” The conference started with two short introductions by Karl Ditrich (chair VSNU) and Paul Rosenmöller (chair VO-raad). Both underlined the need for academically trained teachers in secondary schools. Their introduction was followed by a panel discussion about the teacher education programmes at universities. Some found that too much must be learned by student teachers in a too short period referring to the fact that expertise development takes years, others questioned the content of the programme varying from being too theoretical to being to practical. In fact rather old issues that have been discussed so often.
I was asked to lead a discussion session about the content of academic teacher education and started to introduce this topic by ‘defining’ what characterizes an academically trained teacher. Summarizing, in my opinion academic teachers:
- Derive their teacher identity above all from the subject they studied;
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- Ask themselves questions about or have a critical attitude towards their own work and that of their colleagues;
- Acknowledge and see research questions in their own practice;
- Are very able in diagnosing students’ problems with subject-matter based on the knowledge they possess;
- Work evidence-based;
- Take distance from their daily practice (thinking about their work and coming with alternatives).

Furthermore I confronted the audience with three statements from some Finnish colleagues:
- “When you are not academically trained you see your subject as ready, you just tell facts to children.”
- “When you are academically trained you see what is missing and want to discover what you don’t know.”
- “Academically trained teachers are used to ask their students questions and teach them not to take things for granted.”

This all appeared to be enough input for a lively discussion. I was amazed about the fact that some colleagues from other universities do not see real differences between teachers from universities and from other teacher education institutes. Fortunately, however, most do! For their education as teachers it was agreed upon that it is important to support them by offering them subject-specific didactics and knowledge from educational sciences and that they see and experience as useful for their internship in schools of course. But at a high level, not only in terms of tips and tricks!

Actually, I would very much like to get some responses on what I wrote above. It might sound evident but it is far from clear what a good academic teacher is. Anyway, like my Finnish colleagues I believe that academically trained teachers really make a difference!

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EKX1 - Communication and ICT for the engineer Kees Huizing

Professional engineers present themselves and their work on the Internet

In the second quarter the course EKXC1 ‘Communicatie en ICT voor de ingenieur van de 21e eeuw’ will start. It is developed and conducted by ESoE and W&I in cooperation. Focus will be on the professional presentation of the engineer and his work. Personal branding is important and it is getting more and more important. Presenting your work in a clever and personal way definitely makes a difference with respect to professional effectively and career development. This may start as simple as a LinkedIn profile, but may develop into a blog or professional website addressing both peer and a broader public. For an example from TU/e see: http://steinbuch.wordpress.com/about/

Specific subjects are: personal branding, using Internet and various social media cleverly and effectively, communication and marketing.
theories underpinning effective approaches, issues of law and judicial complexities, and the (defining) role of technology (personalization, adaptive media, interactive media, ...). The subject is taught in a practical manner and the assignments form the backbone of the course.

For teachers the course may shed a new and refreshing light on e.g. on motivating and convincing students, and professional careers as a teacher. Insight in laws and judicial aspects may be useful when working with online learning environments such as the ‘magister’ and other ICT tools.

The course is a free subject within the TU/e Bachelor College. It is taught in Dutch. However, colleagues and students are welcome to attend one or more sessions (primarily as hearers). Subjects of particular personal interest may be picked from the table below. For more detailed information c.huizing@tue.nl.

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<th>Date</th>
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<td>Security, privacy en law – I</td>
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<td>Beveiliging, privacy en recht – Case studie (vonnis ten)</td>
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Van de coordinator master programma  

Elise Quant  

Het is altijd fijn om zo nu en dan te kijken naar wat er voor resultaten bereikt zijn en ook om degenen die bovengemiddeld hebben gepresteerd te belonen.

Ten eerste natuurlijk wil ik alle afgestudeerden van de afgelopen diploma-uitreiking nogmaals van harte feliciteren! Wij wensen jullie
veel succes in jullie loopbaan en hopen dat jullie contact houden als alumnus!

Speciaal dit jaar was de uitreiking van de certificaten aan de eerste lichting Eerst de Klassers die hier hun opleidingsdeel gevolgd hebben. Ook zijn zij de eersten die de variant voor Onderzoek & Ontwerpen en Natuur, Leven en Technologie afgerond hebben. Vier van de zes die vorig jaar gestart zijn mocht ik nu toespreken, de andere twee volgen hopelijk snel!

Ook werden tijdens de diploma-uitreiking de onderwijsprijs en de onderzoeksprijs uitgereikt. De onderwijsprijs ging naar de groep die een lessenreeks onderzoeksvaardigheden had opgezet voor het Theresialyceum. Gefeliciteerd Lenka, Arjan, Frenk en Milou. Voor hun lesmateriaal zie

http://maken.wikiwijs.nl/50367/Het_ontwikkelen_en_toepassen_van_onderzoeksvaardigheden#page-804577
De onderzoeksprijs ging naar Petra Schuurman voor haar onderzoek naar de aansluiting op het gebied van calculus in het eerste jaar op de TU/e, zie ook http://issuu.com/tuecursor/docs/cursor03_nl_los/19?e=2935671/9734376

We hebben onlangs studenten genoemd voor de landelijke Onderwijstalentprijs. Hier vielen de prestaties van Petra ook al op, naast de groep EDK-ers. Ze gingen er helaas niet vandoor met de hoofdprijs, maar blijft staan dat we jullie toppers vinden!

Dit zal mijn laatste bijdrage aan deze nieuwsbrief zijn in de rol van coördinator van de master. Ik heb onlangs aangegeven dat ik graag wil concentreren op mijn taken rondom Bètadidactisch Ontwerpen, de ontwikkeling van het vak Natuur, Leven en Technologie en de professionele ontwikkeling van 21e eeuwse bètadocenten. Ik wens mijn opvolger als coördinator van de master veel succes!

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Uit de Opleidingscommissie

Martine Schüll
Ik ben Martine Schull, 25 jaar oud en woonachtig in Eindhoven. In december 2013 heb ik de master Real Estate Management & Development aan de TU/e afgerond, waarna ik gestart ben als zelfstandig ontwerpster. Ik volg de master SEC, richting O&O / NLT en wiskunde, om mijn ontweractiviteiten te kunnen combineren met het leraarschap. Als studentlid van de Opleidingscommissie wil ik me inzetten voor optimaal onderwijs, goede informatievoorzieningen en het verbeteren van de zichtbaarheid van ESoE.

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Uit de opleidingscommissie

Peter Baas
In september 2014 ben ik gestart met de Masteropleiding SEC (wiskunde) aan de ESoE. Omdat ik in het verleden Technische Wiskunde gestudeerd heb aan de TU Delft volg ik het verkorte traject. Na mijn studie ben ik 20 jaar werkzaam geweest in het bedrijfsleven. Ik heb gewerkt bij NS, TNO en adviesbureau Goudappel Coffeng, veelal als projectleider in het vakgebied mobiliteit, verkeer en vervoer.

Het is goed als een organisatie haar eigen functioneren kritisch bekijkt. Voor ESoE is het de opleidingscommissie die bewaakt of de kwaliteit van het onderwijs nog steeds voldoende is, en geeft, daar waar mogelijk, adviezen over hoe de opleiding verder verbeterd kan worden. Als studentlid neem ik de signalen van mijn medestudenten mee naar de opleidingscommissie zodat we die om kunnen zetten in concrete acties.

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Uit de Opleidingscommissie

Amy Berendsen

Ik ben Amy Berendsen en ik studeer Biomedische Technologie op de Technische Universiteit Eindhoven. Ik zit nu in mijn derde jaar en in mijn keuze ruimte volg ik de Educatieve Minor met als doel mijn tweede graads bevoegdheid Natuurkunde docent te halen. Sinds september zit ik in de Opleidingscommissie als studentlid.

Ik zou mijzelf omschrijven als enthousiast en leergierig. In mijn vrije tijd geniet ik erg van dansen (klassiek ballet, stijldansen), taarten bakken, en theaters en concerten bezoeken. Als bijbaantje werk ik bij de Starbucks op Centraal Station.

Alumni column

Bas de Waal

Als verstokt werktuigbouwkundige heb ik mijn hart in het derde jaar van mijn opleiding verpand aan het onderwijs. Waarom en hoe het me sindsdien vergaat doe ik in onderstaand stukje uit de doeken.

In het derde jaar van mijn opleiding werktuigbouwkunde werd duidelijk dat een toekomst in die richting minder in mijn straatje past. Ik verwachtte dat er in het onderwijs meer persoonlijk contact zou zijn en ik mijn talent om mensen kennis over te brengen meer in te zetten. Op dat moment kwam de ESoE in beeld. Een eerste meeloopstage op het College Cobbenhagen en vakken als onderwijs- en vakdidactiek gaven de doorslag, dit past nog beter bij mij dan werktuigbouwkunde! Gelukkig kon ik mijn master werktuigbouwkunde en 1e graads natuurkundeopleiding goed met elkaar combineren.

Na het afstuderen bij werktuigbouwkunde vond ik snel een baan op het Theresialyceum in Tilburg. Daar geef ik nu met veel passie en plezier les aan klas 2 t/m 6, zowel op havo als vwo niveau. Het is mijn doel om leerlingen een beter beeld van bèta te geven en het onderwijs levendig te maken door contextrijk onderwijs aan te bieden, zowel in als buiten de les. Als bètacoördinator sta ik dan ook in nauw contact met het bedrijfsleven en hoger onderwijs om mijn leerlingen een brede ervaring te geven en ze buiten de deur te laten kijken.

In mijn vrije tijd speel ik graag piano en dans ik salsa. Ook ben ik al vanaf mijn achtste helemaal Porschegek, helaas is de auto op de foto (nog) niet van mij!

Remember:

facebook.com/esoelerarenopleiding
@Tue_esoe

Happy?!