

Midterm Review 2010
Eindhoven School of Education (ESoE)

April 2010

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Mission

The evaluation committee would like to express its appreciation for the mission of Eindhoven School of Education (ESoE). As stated in the self-assessment report, ESoE wants to be a centre of expertise that generates, by bringing together theory and practice, empirically founded knowledge that supports the professional development of teachers and educational innovations. Bringing together the expertise of both directions gives an added value. The evaluation committee recognizes that this is a demanding goal. ESoE wants to create “synergy between practice, research and innovation of education”. This view is shared and supported by both participating institutions: Eindhoven University of Technology, interested in science and technologies and Fontys University of Applied Sciences, with a strong connection to practice. Taking all this into account the overall mission is sound and makes a lot of sense.

The following reports about the sections education, research and innovation are based on the self-assessment report 2007-2009 and on the on-site evaluation during the visit March 17th and March 18th, 2010.

Report on the education section

General remarks

The overall mission of ESoE as it is mentioned above is trying to bridge theory and practice in the “search for scientific knowledge with a strong orientation towards educational practice and innovation. However, it is the impression of the evaluation committee, that this mission is reflected in the curriculum of the Master of Science in Science Education (MScSE), but that it needs to be more reflected on the work floor (teaching staff).

Aims and objectives

The Master of Science in Science Education is officially accredited as a 3TU master’s degree. ESoE succeeds in covering crucial aspects of the MScSE including research orientation and practical advice, bringing together quality in research and expertise in teacher education. The aims and objectives integrated in the curriculum of the MScSE cover the subject requirements and the requirements for beginning teachers (the SBL competences) and the master-competencies as well as the interdisciplinary nature of the teaching profession.

Curricula

The evaluation committee concludes that the curriculum is coherent and incorporates the aims and objectives mentioned above. The curriculum is well balanced and consistent. We refer to the table on page 10 of the self-assessment report: 30 ECTS for discipline subjects, 30 ECTS

for an integrated research project (a combination of subject matter and educational aspects), 30 ECTS for workplace learning and 30 ECTS for pedagogical and didactical education. The evaluation committee supports the integrated view offered by ESoE on the inseparability between education and research and the integration of different disciplines as they are made concrete in “science didactics”. Also the integration of special and general didactics is a good initiative, but this can also be a pitfall. There is a risk of putting too much emphasis on domain specific didactics and forgetting the more general didactical or pedagogical component. After all, the realization of this integrated vision depends on the expertise of the teaching in specific and general didactics.

The underlying pedagogy of teacher education is reflected in an emphasis on self-directed learning (portfolio, reflection and course assignments) and the integration of theoretical and experiential learning. This is an excellent basic approach, but the evaluation committee remarks that there are some problems in the realization of this objective, because there are four different trajectories. Students of the different trajectories have different “needs”. It seems that the program is particularly constructed for those students who choose the total two-year master’s program after their bachelor.

However, many students choose the one-year trajectory and combine the program with a job as a teacher. Especially master’s students having a teaching job face a complicated situation and are not really motivated to do theoretical studies. ESoE is searching for a balance between an academic and a professional orientation. Students, however, feel that this balance is lacking. They find that the program cannot give the answers to the daily problems they are confronted with as teachers (classroom management, how to handle difficult children, ...). They find that what is taught is not sufficiently applicable to their needs. They expect more training concerning hand-on skills. On top of that, the combination of working and learning results in a high study load.

The evaluation committee suggests working out a different trajectory for students who are teaching and to redesign the program in order to realize the SBL-competences. In that way, the pedagogy of teacher education can be more oriented toward the concerns of those beginning teachers and bridge the gap between theory and practice through reflection on this practice. One of the prior objectives in rethinking the program for those student teachers is to restore their learning and studying motivation, so that they become receptive again to a broader vision of teaching and to an academic orientation.

Another problem is related to learning at the workplace. Support for the students in the two-year trajectory is very well organized in terms of their school contracts through which schools oblige themselves to make the workplace a learning environment and to provide supervision, guidance, and possibilities for intervision in the schools. In many cases, workplace learning

takes place in so-called “professional development schools” (in Dutch: academische opleidingscholen). Educating student teachers is part of the regular work of these schools.

This is not always the case in “regular” schools. The students of the one-year trajectory already have a job as a teacher. These student teachers describe their progress with the SBL-competencies in their portfolio and complete their assignments. Those assignments are evaluated by the students as not always related sufficiently to their job, and the students need more feedback on this work on a regular basis. In addition, they need more thorough guidance on the work floor, in their own school. ESoE needs to improve coordination and integration of all partners in teaching, e.g., in connection with workplace learning. Sometimes the partners are not reporting to each other, or, e.g., the teachers do not observe the practical work of their students. ESoE must explore the possibilities for more direct contact between the teaching staff of ESoE (especially the teaching staff of the domain-specific didactics) and the schools the student teachers work in. The support student teachers get from Fontys University of Applied Sciences is evaluated as insufficient. There is no link between ESoE and the school supervisors of Fontys. The way student teachers are supported by Fontys for their learning in the workplace must become more formalized.

Concerning the Minor’s program, the evaluation committee judges that the program is well balanced and consistent, and there is evidence that the aims and objectives are fulfilled. The study load is feasible. Students taking this program are satisfied.

Teaching staff

As stated in the self-assessment report, the networking character of ESoE offers great opportunities, but also poses some serious challenges. The evaluation committee remarked that all staff members have strong backgrounds in their respective fields of expertise, but due to the part-time presence of most of them, they cannot take enough time for sharing ideas and experiences. It is important that the management team of ESoE acknowledges this problem. Part-time committed colleagues find it harder, understandably, to identify themselves fully with ESoE. This exerts some pressure on the presence and visibility of ESoE in external participatory networks, i.e., in both professional networks and in network activities of secondary schools. The teaching staff is conscious of this problem. ESoE needs to a larger extend full-time staff for the core business.

ESoE has chosen the option for an integrated program combining subject-related expertise and pedagogical knowledge. This means that ESoE has to create more opportunities for the teaching staff’s learning activities in the direction of a new pedagogy of teacher education that supports this integrated program. More support and space to carry out research in domain-specific didactics would also strengthen these learning opportunities. Without staff members

conducting any research in this area it is a concern that the quality of academic teaching would be rather low.

The evaluation committee also has some questions on the number of students in the different disciplines of the MScSE. When the group of students becomes too small - especially in chemistry- an optimal recruitment policy in the domain-specific didactical courses is obstructed. In this matter the management team of ESoE has to consider more intensive cooperation or arrangements with Fontys University of Applied Sciences or other institutions. Capacity should be up to 60 to 80 students for the whole program.

Services

The evaluation committee has no special remarks on the facilities. The building housing ESoE is rather new, the rooms are pleasant, and the students and the teaching staff can use all facilities of TU Eindhoven. The committee supports the suggestion of ESoE to expand the library.

The students are satisfied with the support they get in general for their study plan, but, as mentioned above, they need more support in the workplace.

Quality remarks

As we can expect from a professional organization, ESoE employs a procedure to systematically gather feedback and to discuss progress in the “education committee”, in line with the policy of the TU/e Central Committee on Quality Assurance.

Results

Since the program has only been running for almost two years, the number of students who have entered and completed the master’s program is still small. ESoE has to be aware of the possibility that a small number of students in some subjects can cause problems for some of specific didactical courses in some of the disciplines.

Report on the research section

General Description

The research programs of ESoE can be seen as quite ambitious as it tries to pair “the search for scientific knowledge with a strong orientation towards educational practice and innovation”. The areas of interest are teacher learning on the one hand and science and technology education linked with curriculum innovation on the other hand. Along the

research line PhD research plays an important role, being integrated in the Dutch national research school (ICO).

The concrete research program, with the interests in professional teacher development and education in science and technology, puts emphasis on the learning of teachers in all phases of their learning career, but mostly at the workplace. The research program includes certain in house (at ESoE) activities as, e.g., regular meetings of all PhD students, exchange of ideas in a so-called “Kenniskring” and colloquia as well as regular consultations. This way, the students spend one or two days per week at ESoE. Supervision is carried out by the academic staff of ESoE which can be looked at from two different perspectives: the number of people at different levels and the extent (in Man Year Equivalent, MYE) to which they are working for ESoE. Four full professors (3.3 MYE) and six associate or assistant professors (3.3 MYE) are mainly responsible for supervising the research. If one looks at the time spent on research as shown in the ESoE self-report, only 1.3 MYE of full professor time and 1.3 MYE of associate and assistant professorship time is left. Unfortunately this seems to be a realistic estimation, as a lot of administration and strategic work in developing ESoE has to be done and is equally important for the quality of ESoE as a whole. A very special feature in the research program is the interaction of the PhD students with Fontys teachers (in Dutch: lectoren), who are not part of ESoE but participate in the research program by acting as “daily supervisors” of the PhD students who themselves are employed and generously paid by Fontys also – generously at least compared to PhD students elsewhere. In principle all this seems to be quite a good system of cooperation in many respects:

- in striving for scientific and practical relevance at the same time,
- in looking for research questions that are rooted in problems or issues in teaching practice, and
- in bringing a strong research orientation into Fontys as a University of Applied Science.

The list of the concrete research themes of Fontys lectors as listed in the ESoE self-report are interesting examples, ranging from “School Development” to “Evaluative activities in special education”.

Resources of ESoE consist of rooms on the third floor of the Traverse Building of the Technical University of Eindhoven (TU/e) and access to the entire technical infrastructure of the TU/e. The core financing in 2009 was 848 KE, coming from TU/e and Fontys. Additional funding from NWO (51 KE) is also relevant for the research area. The additional contract money (“derde geldstroom”) is mainly relevant for the so-called practical “innovation projects”. The status of funding in 2009 can be considered as a base for a “slim” organisation of teaching and supporting research, but is also a minimum amount to develop such an ambitious concept as that of the ESoE.

ESoE has documented in its self-report affiliations outside the institute and listed a number of external PhD students. Probably the most important one is the participation in ICO. This national center is not only organizing courses for PhD students but also feels responsible for a high quality level of its participating members.

The other affiliations include cooperations with other Dutch universities at Leiden and Utrecht and also with relevant research groups, e.g., in Germany, Finland, Sweden, Australia, the USA and England.

Evaluation

If one takes into account that ESoE has existed for three years only, it is quite impressive to see what a good standard of applied research has already been achieved. There is even potential to improve the research area to reach an even higher level.

The mission and strategic positioning of ESoE in cooperation with TU/e and Fontys mentioned above is an innovative approach to foster applied research concerning science and technology teaching. It is not only innovative; it is set up in a sound way and offers benefits for the two funding institutions. TU/e can profit in the long run from having a better science and technology education, probably encouraging more school students to study subjects in this area and thus to join a technical university like TU/e. By supporting ESoE, Fontys can incorporate a strong applied research line and even motivate PhD students to continue their career and their scientific work in a job at Fontys. Looking at the research activities and results at this moment, it is obvious that, in accordance with the ICO standards, research is done on a qualitatively good level. Additionally, in strong cooperation with Fontys, the research is inspired by questions coming from practice, and the results are relevant for practical application.

The working conditions of the students are excellent, because they receive generous financial support during their PhD time and have the offer to continue to do applied research at Fontys on a postdoc level.

Discussing the conditions of doing research at ESoE with the PhD students during the on-site evaluation confirmed for the evaluation committee that the students really appreciated having such a good environment to do their PhD at ESoE. The very positive climate of this conversation underlined this impression.

However, from a more critical point of view, some aspects should be mentioned which could be addressed to improve the research line at ESoE. Most of these points have become obvious either from discussing the conditions for research at ESoE within the evaluation committee or from the discussions with the PhD students during the on-site evaluation.

- The way PhD themes are generated should be organized in such a way that more synergy and cohesion are possible, so that PhD students could profit more from working together.
- The one or two days per week at ESoE does not provide enough time to have a kind of social and informal exchange, which quite often is a basis for successful cooperation and mutual benefit within the group of PhD students at ESoE.
- Even if there is a good connection to practice, some general interest was brought up by the PhD students to have even more possibilities to apply these results in practice.
- In addition to training offered by ICO, some training courses especially devoted to the needs of the ESoE PhD students should be offered by ESoE staff. This would also deliver opportunities for them to meet and to build up more coherence, thereby developing more of a corporate identity.

Despite some critical points, the research line and especially the PhD program have to be valued very positively. Positive appreciation is also justified because of the research output in form of national and international publications, including those in well recognized international journals.

Report on the innovation section

A special feature of ESoE is the strong interest in innovation as part of its mission. Therefore, the self-report contains a separate section devoted to “Innovation at ESoE”. This part stresses the direct application of knowledge at ESoE to practice in terms of

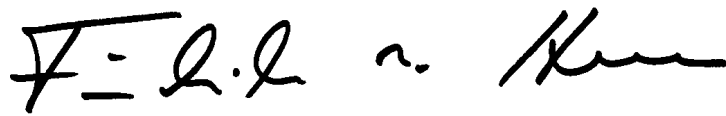
- participation in training of teachers in science and technology education,
- developing and implementing educational material, and
- introducing new and experimental approaches in teaching science.

The projects are financed mainly with contract money (“derde geldstroom”) and carried out in close cooperation with the contract partners.

For the evaluation committee this is in line with the overall research orientation at ESoE and does not need to have a separate evaluation. However, the concrete nature of reported projects and the on-site discussion with the contract partners from these projects in the innovation section brings in an interesting added value to ESoE, as direct implications of applied research become visible. Obviously ESoE has managed to set up an interesting network of partners from practice fields with a strong interest in ESoE expertise and research results. These partners share a strong acknowledgement of expertise at ESoE and are highly interested in using this expertise for innovative practice.

Final comment

Overall ESoE has started a highly innovative approach as formulated in its mission. Already after two years all sections are operating successfully and one can expect that ESoE will be able to face the demands pointed out in this report. A crucial point for the future will be to have excellent people on the full professor level again to lead ESoE in continuing this mission.

A handwritten signature in black ink, appearing to read "F. L. L. n. K. M." with a stylized flourish at the end.

(Chair of the Midterm Review Committee)