

TEACH-POT: Provide Opportunities in Teaching

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## ***TEACH-POT: Provide Opportunities in Teaching***

### **TEACH-POT: fornire opportunità di insegnamento**

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#### **Abstract**

This paper is aimed to describe and critically analyze the so-called “TEACH-POT” experience (POT: Provide Opportunities in Teaching) performed during the last few years at Politecnico di Torino. Due to career criteria, the effort and the time lecturers spend in teaching have currently undergone a significant reduction in quantity. In order to support and meet each lecturers’ expectations towards an improvement in their ability to teach, a mix of training opportunities has been provided. This consists of an extremely wide variety of experiences, tools, relationships, from which everyone can feel inspired to increase the effectiveness of their teaching and the participation of their students. The provided activities are designed around three main components: *methodological training*, *teaching technologies*, *methodological experiences*. A discussion on the findings is included and presented basing on the data collected through a survey. The impact of the overall experience can be evaluated on two different levels: the real effect on redesigning lessons, and the discussion on the matter within the entire academic community.

*Keywords:* methodological training, active learning, student-centered approach, lecturer role.

#### **Riassunto**

In questo lavoro si descrive e analizza criticamente l’esperienza “TEACH-

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POT” (POT: Provide Opportunities in Teaching), di recente condotta al Politecnico di Torino. A causa dei criteri che governano la carriera accademica, si sta contraendo l’impegno e il tempo dedicato all’insegnamento. Per sostenere e soddisfare le aspettative di ciascun professore in vista del miglioramento delle proprie abilità didattiche, è stato ideato un “pot”, cioè un ventaglio di opportunità, una varietà estremamente ampia di esperienze, strumenti e relazioni, cui ogni docente possa attingere stimoli per aumentare l’efficacia del proprio insegnamento e il coinvolgimento della classe. Le attività si articolano in tre macro-aree: formazione metodologica, tecnologie didattiche, esperienze metodologiche. I risultati dell’esperienza sono discussi a partire dall’analisi di un sondaggio. L’impatto può essere misurato in due dimensioni: quello diretto, che interessa la riprogettazione delle lezioni, e quello derivante dalla discussione con l’intera comunità accademica.

*Parole chiave:* formazione metodologica; apprendimento attivo; centralità dello studente; docenza.

## **Introduction**

The main core activities of university professors are three: Education, Research and Knowledge-sharing. Different training opportunities and seminars are organized in order to improve and keep up-to-date on the research side as well as in technology transfer, while very little motivation is provided to improve teaching skills and methodologies.

Considering the teaching approach, in the last twenty years the so-called “learning paradigm” has undermined the traditional methodologies. This face-to-face approach appears to be less effective in creating knowledge, as well as technical, and soft skills to fulfil professional roles (Ciappei & Cinque, 2014). For these reasons, professors need to face different challenges and opportunities aimed at transforming the students’ approach from passive to active learning. Moreover, these new methodologies require a review in the evaluation criteria (Nicol, Thomson, & Breslin, 2014).

Passive learning has been defined as the process in which students take on the role of “receptacles of knowledge”, where they do not directly participate. Active learning, on the other hand, is more likely to take place when students are doing something besides listening (Ryan & Martens, 1989).

Different classroom methodological strategies have been studied by educators in order to turn the current standard education approach into a student-centred one (Bonwell & Eison, 1991; Ambrose, Bridges, Lovett, Di Pietro, &

Norma, 2010; Coryell, 2017). In several Countries around the world, the implementation of these techniques has been assigned to the “Teaching and Learning Centers”, which are academic services for implementing teaching strategies and innovations. These facilities provide a wide variety of tools and methodologies with a generic significance. On the other hand, the teaching experience of each lecturer is influenced by a lot of endogenous parameters. One can cite, for example, the skills and attitudes of the teacher himself, the subject characteristics, the contents, and the formative aims of teaching, the composition of the classroom in terms of prior education, attitude and expectations. In other words, one faces the problem of “teach how to teach”.

In order to meet each lecturer’s expectations towards an improvement in their ability to transmit knowledge, it may be useful to provide them with a mix of opportunities. An extremely wide variety of experiences, tools, relationships from which everyone can feel inspired to increase the effectiveness of their teaching and the participation of their students.

This paper is aimed to describe and critically analyze the so-called “POT” experience (POT: Provide Opportunities in Teaching) performed during the last few years at Politecnico di Torino (PoliTo, Italy).

## 1. Context

The Italian academic system is organized in a hierarchical structure. Climbing up the ladder of the academic career one can mention the following positions: PhD, Research Post-Doc Fellow (*Assegnista di Ricerca*), Temporary Contract Researcher (*Ricercatore a Tempo Determinato di tipo A – RTDa*), Tenure Track Researcher (*Ricercatore a Tempo Determinato di tipo B – RTDb*), Associate Professor (*Professore Associato – PA*), and Full Professor (*Professore ordinario – PO*).

The selection procedure to apply as Temporary Contract or Tenure Track Researcher is run locally by each Institution. The evaluation criteria are mostly related to qualifications in research. In order to apply for a professor position one needs first to achieve the so-called “National Scientific Employability” (*Abilitazione Scientifica Nazionale – ASN*), either for Associate or Full professor position. This is a national scientific qualification strictly based on research reputation, performances, and bibliometric indicators. Candidates qualified with the ASN can proceed to the following step and apply for an Associate or Full Professor position at a local university (European University Institution, 2018).

In recent years, the need for a new balance between research and teaching activities has come to light both in career development and in the professional

preparation of lecturers. Raising the overall quality is the prerequisite for attributing the right positioning to teaching and encouraging the active involvement in the processes of improving teaching activity (Felisatti, 2016), as it is stressed at a European and International level (OECD, EHEA, EUA). Universities must take on the task of qualifying and appreciating their teaching at a didactic level (High Level Group on the Modernisation of Higher Education, 2013). As far as the Italian context is concerned, the Prodid project (Preparazione alla professionalità docente e innovazione didattica) by University of Padua has identified some guidelines for an “Italian way to qualify for university teaching” (Felisatti & Serbati, 2014; Felisatti, 2017). The structuring of a Teaching Learning Center (TLC) and the presence of some key factors are important: clarity of vision, quality of the training proposals, link with innovation and research in the field, systemic approach. The QUARC\_Docente Document of ANVUR (ANVUR, 2017), developed by a group of Italian and foreign lecturers, identifies training as a necessary strategy for didactic innovation, to be connected with professional quality recognition systems and to be considered as a structural network. Following this approach, several universities are experimenting with new training models (Nigris, 2018; Coggi & Ricchiardi, 2018): constructivist, experiential and reflective, experienced within the learning community (Serbati, Felisatti, & Dirks, 2015) and often linked to the use of technologies in teaching (Ranieri, Raffaghelli, & Pezzati, 2018).

At PoliTo, the selection procedures of applicants to academic roles primarily evaluate the qualifications on research, while taking into consideration also Technology Transfer and Teaching experiences. Therefore, no evaluation of the candidate’s teaching skills actually takes place. This entails an increasing effort in improving research outputs while real engagement in teaching is lacking.

The situation in Italy is very similar to what Amundsen and Haakstad (2017) refer about Norway University professors. They describe four teaching roles:

- *anti-reform teachers*, who consider changes as a threat to academic freedom and to the autonomy of the discipline communities;
- *unwilling teachers*, who believe that only research defines status, promotion and career;
- *conservative teachers*, who focus on discipline knowledge and rely only on traditional methods based on knowledge transfer;
- *lonely teachers*, who undertake little cooperation with other teachers, because they consider themselves a lonely king in his own teaching realm.

The Italian universities usually supply basic training and project works for the development of research skills starting from the PhD study level, whereas the teaching training is assumed to be self-learned and is almost completely absent on the institutional level (Serbati, Felisatti, Da Re, & Tabacco, 2018).

Moreover, in the last decades, the turnover in professorships has been very low due to national policies related to the Italian national debt. In particular, the number of professors with permanent contracts at PoliTo is decreasing year by year and is only balanced by the amount of external professors with temporary contracts (Ballatore, Montanaro, & Tabacco, 2018).

This results in a significant age gap between current professors and the new comers. This difference in age has caused an interruption on the transmission of the didactical skills. In fact, previously new professors used to shadow the more experienced one in order to learn from them and improve the teaching methods by preparing slides or being in charge of small pieces of lectures and training sections. Nowadays, due to the high workload each professor has to face, this peer-to-peer training is no longer possible. This implies a lack of attention on the teacher role preparation.

Moreover, also the age gap between students and current professors is a relevant matter. As the National Agency for the Evaluation of Universities and Research Institutes (ANVUR) report on the research describes, the average age of teachers is increasing: only 0.2% of full professors are under 40 years old, while half of the academic population is over 60 years old. Even the researcher category is ageing, with the average age standing at 39.4 years (ANVUR, 2018).

This generational difference is further accentuated by the increasing use of technologies. Nowadays students belong to the so-called “digital natives” community, consequently, the didactic dialogue suffers also from this gap. In fact, as long as the shadowing training was in place, the young professors used to implement some innovation in the classrooms of the experienced professors (bidirectional win-to-win interaction). For example, one can mention the use of slides instead of the transparencies. These innovations turned out to be extremely helpful in filling the age gap by adapting the language of the lessons to the language of the audience.

## **2. Aim and methodological approach**

Each professor has their own perception, therefore also a specific approach to teaching. Moreover, the classroom environments and the contents of each course require a methodological tailoring, as well as giving approaches and tools in knowledge exchange.

In order to fulfil the large variety of teachers’ expectations and necessities, at PoliTo the so-called TEACH-POT was designed. Like a culinary pot, different inputs on methodological approaches, teaching tools, and technologies have been put in place. From this portfolio of resources, each professor can choose

what to adopt and how to implement the newly learned findings into their own courses. The pot variety goes beyond the specific personal experience of each professor because it generates a global debate on the teaching mission.

The TEACH-POT was designed by taking into consideration the recommendations of the “High-level group on the modernization of higher education” (European Union, 2013) as well as the statements of the European ministers at the end of the Bergen (Area, 2005) and of the Yerevan (The European Higher Education Area, 2015) Conferences on the quality of teaching and the preparation of teachers.

The TEACH-POT consists in three main components:

- *methodological training*: people can learn and discuss new approaches and methods to implement in their lessons;
- *teaching technologies*: moments dedicated to some valuable insights into the opportunities offered by new technologies;
- *methodological experiences*: best practices are shared and some occasions to put in place new methodologies are organized.

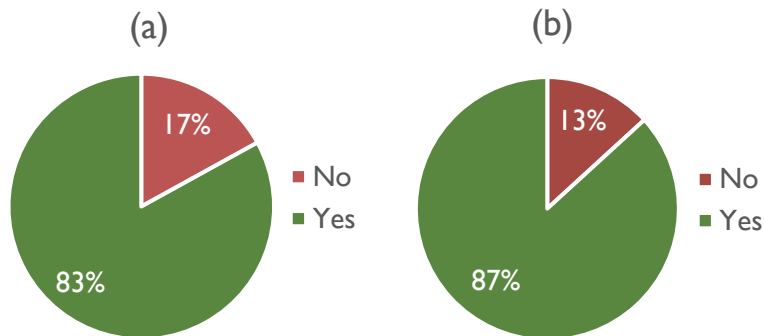
A survey on the general impact of the TEACH-POT has been submitted to professors working in all departments of PoliTo, from any educational field and with different career paths. This has helped defining the impact of this “melting-pot” approach compared to a more traditional one.

### 3. Key findings

The activities were opened to the entire academic community. However, for some of them, a maximum of participants was set, depending on the nature of the activity. A limit of about 25-30 people was set for all the projects and group work activities, this ensuring a very high degree of interaction and discussion. For all the conferences and plenary meetings, on the other hand, the number of attendees ranged between 100 and 250 people. The professors who attended at least one activity were around 400, with a majority of researchers, either with a Temporary Contract or Tenure Track ones.

All participants were invited to fill in a questionnaire designed to solicit their feedback on the effectiveness of this approach.

Fig. 1 - Pie charts about survey results on the questions: (a) Were the contents exciting (b) Were these moments on teaching training useful for you?



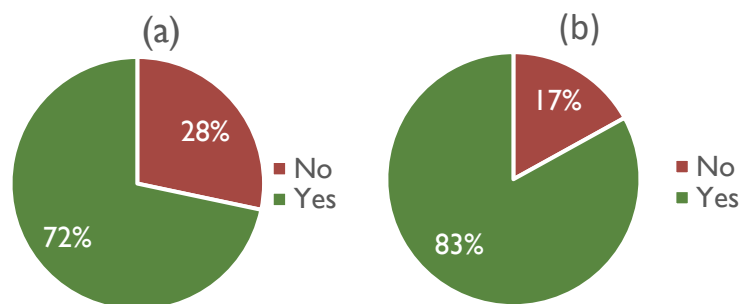
Regarding the activity contents, 83% of professors found them exciting and 87% also useful (Fig. 1).

Moreover, 72% of attendees stated that they have changed their teaching methodologies and tools accordingly to the inputs received during the training (Fig. 2a).

In addition, the TEACH-POT has generated an effective place of common discussion and sharing of teaching experiences among professors, as confirmed by 83% of attendees (Fig. 2b).

In the survey, few professors have described their participation in the training activities as a waste of time due to what they considered a too low valorisation of teaching duties in their academic career.

Fig. 2 - Pie chart referring to the question: (a) After attending the TEACH-POT activities have you changed your teaching methodologies? (b) Has the TEACH-POT training encouraged the teaching discussion and dialogue with your colleagues?



In addition, some simple meta-analysis on the questions with an open comment is been performed and the result will be discussed in the following section.



#### 4. Discussion

For a better understanding of the results, it is important to first and foremost describe some components of the “pot”.

The participation in the methodological training is highly recommended to younger professors. The two main activities in this field are the courses “English as a Medium of Instruction (EMI)” and the “Learning to Teach in the Higher Education” (Apprendere a Insegnare nell’Higher Education). The EMI is a structured path in 4 units that aimed to strengthen the use of technical English for the transmission of scientific knowledge. In particular, the linguistic objectives of the course are dealt with at the same level both in Italian and in English, developing familiarity to spontaneously interacting with the students in the classroom, explaining the same concept in different ways, and performing assessment expectations in a non-native language. In addition, a one-to-one consultancy service was made available. On the other hand, the “Learning to Teach in the Higher Education” is divided into 5 units, each dealing with different themes starting from the students’ centrality perspective to continue with the learning outcomes, didactic methodologies, active learning and learning assessment. The goal is to provide professors with teaching tools, but also inputs and food for thought on training (Serbati, Felisatti, Da Re, & Tabacco, 2018).

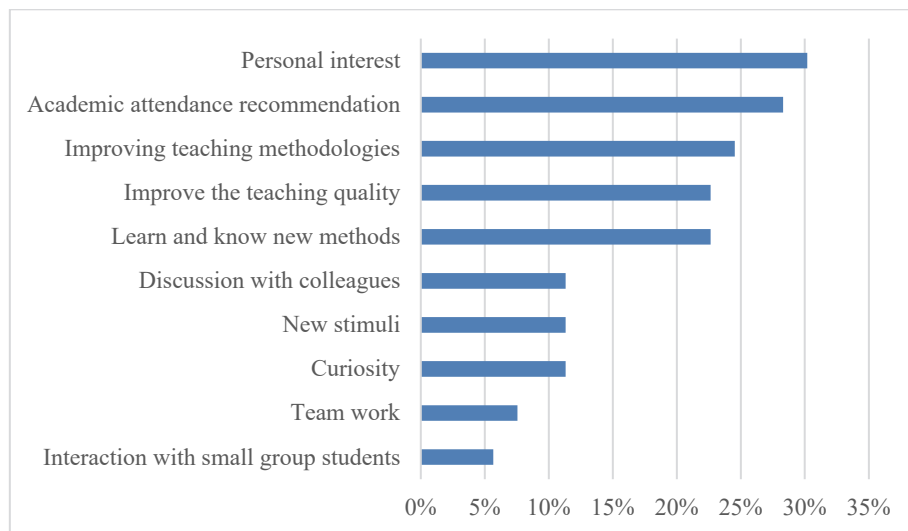
The second component consists in teaching technologies that include, for example, the conference about best practices (“Esperienze PoliTo”, PoliTo experiences), the creation of dissemination videos on different technical subjects (“Pillole Online”, Online Pills), and the future course “Open Education Resources - OER”. The purpose of the “Esperienze PoliTo” is to disseminate best practices and to monitor what is already underway among the PoliTo community, in particular on the field of e-learning and MOOC. The idea of the “Pillole Online” stems instead from the need to strengthen effective communication between the university and both current and prospective students. Some professors were supported in the creation of dissemination videos, lasting a few minutes. The treaties vary from the scientific contents to those about the services available at the university. Another example is the openness attitude of the PoliTo community (Nascimbeni, Burgos, Campbell, & Tabacco, 2018); taking into account the results an OER courses will be made available in the near future (OPENMed project, 2017).

Finally, for the methodological experience parts following activities have been organized: a cycle of dissemination conferences, a teaching project on talented students’ valorisation, and support and mentorship on Students’ teams in technical and transversal subjects. Talking about dissemination conferences different typologies have been put in place. For example, “Costruire il futuro – da un’idea di Piero Angela” (To build the future, from a Piero Angela’s idea, a

very well-known Italian communicator), an event that includes 15 scientific and futuristic meetings allowing the dialogue with experts of international relevance. The idea arises from the rapid changes we are experiencing. Other activities were the “TeatroScienza” (Teather&Science), in which some comedies and theatrical performances about scientific themes were organized, and the “GiovedìScienza” (Thursday on Science), a weekly cycle of conferences held by professors on specific technical and innovative subjects (events with free entry for the whole community). Whereas some hybrid activities moments, dedicated to talented students (top 4%), are special learning moments. Professors have the opportunities to experiment new learning methodologies with a small class of well-responding students (Ballatore, Montanaro, & Tabacco, 2019). Last but not least, the tutoring on Student teams is a great occasion to review the way on exchanging knowledge with a high level of scientific contents.

Regarding the motivations for attending at least one activity, professors were driven mostly by personal interest, academic attendance recommendation and a desire to improve both teaching quality and methodology. A brief summary of the key-words occurrence is shown in Fig. 3.

Fig. 3 - Meta-data analysis on the question: What motivated you to participate in training section/s?



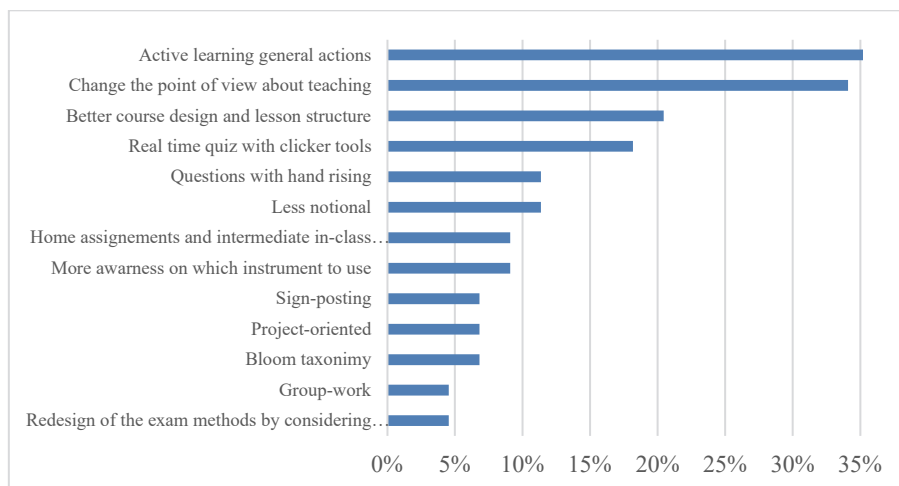
The participants’ expectations were mainly related to the improvement and suggestions for communication, teaching methodologies, and technologies. In particular, they wanted to learn from experts. In the meantime, some of them were curious about best practices and teaching redesign, as well as interactions

with small groups and team works. Only a few had low expectations, although, in the end, they all find it useful to attend.

The impact of the overall project can be evaluated on two dimensions: the real effect on redesigning lessons, and the discussion on the matter within the entire academic community.

Looking at the survey results, the majority of professors stated that they changed their teaching methodologies. Thanks to the meta-analysis performed on the question “How did the participation change your teaching experience?”, it is possible to have a picture on the innovation that the TEACH-POT is creating in PoliTo. In general, lessons are becoming more interactive with the introduction of different active learning actions like the real-time quiz with clicker tools. On the other hand, the point of view about teaching is changed with a higher degree of awareness on which tools is better to use in certain occasions. These content and methodological considerations lead to a revision on course design, lesson structure and exam typologies (Fig. 4).

Fig. 4 - Meta-data on the question: How did the participation change your teaching experience?



While considering the impact on the entire academic community, the interaction between participants of different disciplines and career levels has also affected the behaviour of professors not attending the activities. The discussion focuses on the role of teaching in general with a specific attention to the active learning actions implementations.

On the other side, the institution had also ensured the availability of technologies and started to reshape the environment in classrooms.

## 5. Conclusions & recommendations

By providing opportunities in teaching, professors were able to choose a tailor training path. The different activities available inside the POT were related to methodologies, technologies or experiences on teaching. The number of participants was high as well as their motivations and expectations.

These experience outcomes were a significative improvement on the awareness of the topics concerning the Education core with a diffuse discussion within the academic community and a revision on the used methodologies and technical tools support. The community dialogue helped sharing good practices and innovation, although also career evaluation discussion was erased. If teaching is only an obligation, but it has no direct impact on career, the quantity of effort spent on those activities will be as low as possible. These considerations lead the modification of the local selection procedures among which more attention to the teaching experiences is now included.

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