Enhancing human capital in TEL research: A case study from the STELLAR Network of Excellence

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ABSTRACT

This paper analyses the case of the Theme Teams, i.e. one of the instruments used within the STELLAR Network of Excellence to develop human capital and support research capacity in the Technology Enhanced Learning (TEL) field. Qualitative and quantitative data about how this instrument worked are presented in the paper, with the aim to demonstrate its ability to promote integration of researchers in different countries and with different backgrounds, and to develop the researchers’ human capital by overcoming the traditional fragmentation of this specific research field.

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1. Introduction

In 2005 the European Commission (2005) explicitly stated that “well developed human resources in R&D are the cornerstone of advancement in scientific knowledge, technological progress, enhancing the quality of life, ensuring the welfare of European citizens and contributing to Europe’s competitiveness”.

This acknowledgement derives from already existing EU research policies, which since the 1990s have been aiming to create a European Research Area (Luukkonen & Hälikä, 2000), pushing forward new ways of doing research and new ways of collaboration among researchers (EC Synergies Expert Group, 2011; Primeri & Reale, 2012).

In this same line, more recently the ESF Member Organisation Forum (2012) has stressed the importance of providing continuous opportunities for researchers’ professional development and mobility. This is particularly urgent in interdisciplinary research sectors, often characterized – for their history and nature – by fragmentation and, in some cases, also by isolation: in these contexts, it is particularly important to foster and sustain researchers’ skills, such as the ability to collaborate, share ideas with others and build upon each others’ knowledge and experience.

Starting from these needs, this paper describes an experience aimed at developing researchers’ human capital and promoting cooperation, integration and research capacity among scientists belonging to different communities, countries and traditions in a specific interdisciplinary research area, namely the one of Technology Enhanced Learning (TEL). In particular, the discussion refers to the case of the Theme Teams (TTs), one of the instruments used by the STELLAR (Sustaining Technology Enhanced Learning Large-scale multidisciplinary Research) Network of Excellence (NoE) funded by the European Community within FP7 to overcome the fragmentation of the research community in the field of TEL.

Such fragmentation can be seen from different points of views: most evident is the dichotomy between technical and pedagogical focus, secondly, there is disciplinary fragmentation due to the classical separation of subjects in academic contexts (Bruhn, 2000; Meyer, 2011). This latter kind of fragmentation is at the core of a very lively debate, with most of the authors arguing that the imagined boundaries around disciplines often turn out to be more of a hindrance than a support (Felt, 2009; Moran, 2010; Porter & Rafols, 2009; Weingart & Stehr, 2000). Cultural barriers have also proved difficult to overcome (McDermott & O’Dell, 2011) while differences between the national educational systems play a major role at policy level (Keeling, 2006). Moreover, there is a significant gap between the objectives pursued and the methods used by the different stakeholders interested in research results (industry, academia, policy making bodies). Finally, since TEL research is intrinsically application oriented, the problems addressed and the solutions proposed are often context-dependent (e.g. higher education, school education or training).

By acknowledging this situation, in 2009 the STELLAR NoE was set up, aiming to strengthen research capacity, overcome fragmentation and identify a road map for future research in the field of TEL (Gillet, Scott, & Sutherland, 2009). To this end, several instruments have been defined and implemented.
In the following pages, the case of the TT instrument is described, thus providing an example that can be implemented to develop human capital, support research capacity and trigger researchers' collaboration in interdisciplinary fields. The data gathered about the TT implementation in STELLAR are presented and discussed with the aim to evaluate the effectiveness of the instrument and shed light on its strengths and weaknesses.

Even if this paper refers to a specific case, this study yields a more general interest, because the results and issues it discusses are not specific to the TEL field and thus provide useful elements of reflection whenever the problem of how to promote a synergy among different groups and research approaches is considered, whether this is for research policy and funding reasons or for researchers' capacity development.

2. The STELLAR Theme Teams

STELLAR was striving to achieve its aims by addressing the actors involved in TEL research (researchers at various stages of their career, industry managers, teachers, trainers of the vocational education sector, policy makers) through different instruments. A two-fold approach was adopted. On the one hand, the road map and TEL research agenda were built in a top-down way, starting from three, very general “Grand Challenges”: Connecting Learners, Orchestrating Learning, and Contextualizing Environments & Instrumentalizing Contexts. According to this top-down approach, the three Grand Challenges were provided the framework for the main instruments and initiatives carried out within STELLAR.

On the other hand, STELLAR also used a bottom-up approach consisting of implementing a number of initiatives and instruments that allowed to gather input from the basis. The main results obtained thanks to these instruments were used to nurture back the Grand Challenges (Barak et al., 2010; Camilleri, Barak, Burgos, & Ullmann, 2010; Duval & Specht, 2011; Hofmann, Schulz, & Fischer, 2010; Plesch et al., 2010). In this way, influential stakeholders were involved in the definition of ‘Problems’ that needed to be faced within each Challenge. For each problem, a set of research questions was also identified.

Among the STELLAR instruments framed within the Grand Challenges and at the same time nurturing them, there were the so-called Theme Teams (TTs). The TTs were small groups of mid-career researchers that STELLAR supported to collaboratively explore and analyze emerging research topics identified within the Grand Challenge framework. STELLAR launched two calls for TT proposals (the first in Autumn 2009 and the second in Autumn 2010) and selected for funding a total of 9 TTs, that carried out their planned activities across approximately 12/18 months of work. Through this selection process, STELLAR recognized the need to invest on the topics chosen by these TTs.

As already mentioned, the TT instrument was intended to foster research capacity, support the integration of researchers belonging to different institutions, with different backgrounds and research approaches. In particular, it was aimed not only to stimulate scientific collaboration among STELLAR partners, but also to foster the involvement of researchers working for European laboratories and research units (including those in industry) that were not formally part of the STELLAR network but, having specific competences and interests, could contribute to TEL research and to the definition of its agenda by identifying and tackling new relevant themes.

The budget granted to each TT was rather small (16 K€) and aimed to cover travel and subsistence costs for face-to-face meetings and events, plus some publication expenses, while manpower was not funded. The STELLAR TTs were selected for funding according to the following requirements and criteria agreed upon by the STELLAR Scientific Capacity Committee (SCC) (both requirements and selection criteria were slightly different between the two calls, but the gist was the same).

The main requirements were:

- each TT must be composed of a small number of mid-career researchers coming from at least 3 different institutions (preferably from 3 different countries);
- each TT must include at least one non-STELLAR institution (more than one are welcome);
- each TT must include at least one STELLAR institution;
- each TT proposal was required to indicate the Grand Challenge it addressed.

The selection criteria included the following:

- overall quality of the proposal (organization of the work towards the foreseen output; management; monitoring plan; budget appropriateness).
- innovative, interdisciplinary character and relevance of the proposed topic in the field of TEL;
- team composition (interdisciplinarity, level of expertise on the topic, balance between STELLAR and non-STELLAR partners, etc.);
- type of expected output and its potential impact, kind of synergies it is likely to create/consolidate.

A board of evaluators was set up by the STELLAR SCC and each proposal was reviewed by three reviewers: one internal and two external to STELLAR. The procedures adopted to carry out the TT selection conformed to the principles identified by the European Science Foundation for peer review processes and commonly accepted at European level (ESF, 2011).

3. Analysis of the instrument

This section focuses on the evaluation of the TT instrument on the basis of data gathered through monitoring the whole process, from the calls for proposals to the conclusion of the work of the teams. The calls were disseminated through social media, mailing lists, conferences and all of the other means STELLAR made available to connect to its stakeholders.

The discussion we present is based both on qualitative and quantitative data, concerning: (a) the applications received; (b) the analysis of the funded TTs (composition, work carried out, outcomes, etc.). The data of the two calls are presented together.

3.1. Applications received

Considering that budget constraints only allowed funding a total of 9 TTs, the number of applications received (N = 34) allowed a good selection process, with a ratio of 26% proposals accepted. Overall, the proposals involved 191 people belonging to 27 different Countries.

Bearing in mind the requirement of at least one STELLAR partner in each team, the percentage of STELLAR potential participants (27%) against the non-STELLAR ones (73%), indicates that the TT instrument was rather successful in enlarging the original STELLAR network.

As far as the type of organizations involved are concerned, 134 TT members out of 191 worked in the academic sector, representing 70% of the total number of the proposal participants. The other organizations involved in the proposals were public research bodies, non-profit organizations, SMEs, large enterprise or training...
centers. These data are in line with the fact that this instrument was designed to reach primarily mid-career researchers and that the aims and modalities of work of a TT fit well with the needs and objectives of academic staff, but can also attract non-academic people.

The range of countries involved in the proposals was also quite satisfactory (see Table 1), including a number of non-European proposal participants and thus confirming the attraction power of the instrument even outside EC countries.

The UK was the country with most proposal participants, followed by Germany and Italy, with the same number of applications, and then by Spain and The Netherlands (see Fig. 1). Given that these countries are all the home of STELLAR partners, it is not surprising that the dissemination ability of STELLAR is stronger there than in other European countries.

The following is an overview of the topics and content addressed in the TT applications. The topic of mobile learning appeared in 5 proposals, where it was tackled by different perspectives. 5 proposals were concerned with personalized learning and contextualization, 2 of which paid special attention to recommender systems. It should be noted that contextualization was also one of the keywords of the third STELLAR Grand Challenges. The theme of the second Grand Challenge, learning orchestration, was another recurrent focus of the TT proposals. Collaboration (First Grand Challenge) was a frequent keyword too, with focus on its different aspects. Besides, other terms, such as knowledge representation and system adaptation, were recurrent keywords in several proposals. Similarly, the interest towards the analysis of multiple data streams (logs, utterances, gestures, gazes) was shared by different proponents. A couple of proposals addressed the issue of self-regulated learning (SRL) in TEL environments, another two were devoted to networked learning and web 2.0, two more were dedicated respectively to the use of epistemic and serious games in TEL and, finally, one to neuroscience and learning.

A more thorough description of the proposals received is provided in Pozzi, Bottino, and Persico (2012).

3.2. Funded Theme Teams

The analysis of the TTs actually funded provides information about the selected topics, the Team members’ profiles, the kind of relationships existing among members before the Teams were launched, the work carried out and the kind of outputs produced.

The data presented in this section have been obtained by monitoring the running TTs through three questionnaires (an initial, an intermediate and a final one) filled in by the TT members and by analyzing two scientific reports (intermediate and final) prepared by each TT Leader. The percentage of people who answered the questionnaires is close to 100%, while all the TT Leaders submitted their due reports.

3.2.1. Basic information

As already mentioned, a total of 9 TTs were selected through the two Calls. Table 2 contains some basic information about the funded TTs (title, leading institution and its country).

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Title</th>
<th>Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRLinTELEs</td>
<td>Self-regulated learning in technology enhanced learning environments</td>
<td>University of Cologne, DE</td>
</tr>
<tr>
<td>NTEL</td>
<td>Neuroscience, Technology and the Enhancement of Learning</td>
<td>Virginia Polytechnic Institute and State</td>
</tr>
<tr>
<td>Orchestrating TEL in FLS†</td>
<td>Orchestrating Technology-Enhanced Learning in Future Learning Spaces</td>
<td>University, USA</td>
</tr>
<tr>
<td>MUPEMURE</td>
<td>Multiple Perspectives on Multiple Representations</td>
<td>University of Saarland, DE</td>
</tr>
<tr>
<td>DATATEL</td>
<td>A Data Set Framework for Recommender Systems in Technology Enhanced Learning</td>
<td>Open University of the Netherlands, NL</td>
</tr>
<tr>
<td>LDG</td>
<td>The Learning Design Grid: Empowering educational practitioners as techno-pedagogical designers</td>
<td>London Knowledge Lab, UK</td>
</tr>
<tr>
<td>SoMobNet</td>
<td>Social Mobile Network to Enhance Community Building for Adults’ Informal Learning</td>
<td>University of Florence, IT</td>
</tr>
<tr>
<td>MuSoCoL</td>
<td>Multiple Surfaces for Collaborative Learning</td>
<td>University of Saarland, DE</td>
</tr>
<tr>
<td>GEL</td>
<td>Games Enhanced Learning</td>
<td>National Research Council, IT</td>
</tr>
</tbody>
</table>

* This short name was not chosen by the TT members, it has been chosen by the authors for the sake of this presentation.

![Fig. 1. Applicants’ country coverage.](image-url)
3.2.4. Contents

Looking at the topics addressed by the selected TTs, Fig. 3 shows how these were classified against the three STELLAR Grand Challenges by the applicants themselves.

The picture shows that they cover the Grand Challenges in an even distribution (with a slight predominance of Orchestration). The work carried out by each TT, as well as the research questions elaborated, were subsequently used by the STELLAR partners to revise the STELLAR Grand Challenge framework. In this way, the TTs work contributed to the final output of the STELLAR network, that is a strategic vision and roadmap for research in TEL (Sutherland, Eagle, & Joubert, 2012).

Table 3

<table>
<thead>
<tr>
<th>Subject degrees</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>10 (18.9%)</td>
</tr>
<tr>
<td>Psychology</td>
<td>10 (18.9%)</td>
</tr>
<tr>
<td>Computer science</td>
<td>10 (18.9%)</td>
</tr>
<tr>
<td>Engineering</td>
<td>5 (9.4%)</td>
</tr>
<tr>
<td>Languages, linguistic and language education</td>
<td>5 (9.4%)</td>
</tr>
<tr>
<td>ICTs</td>
<td>3 (5.7%)</td>
</tr>
<tr>
<td>Both Education and Computer science</td>
<td>3 (5.7%)</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2 (3.8%)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>1 (1.9%)</td>
</tr>
<tr>
<td>Pedagogy</td>
<td>1 (1.9%)</td>
</tr>
<tr>
<td>Philosophy</td>
<td>1 (1.9%)</td>
</tr>
<tr>
<td>Philology</td>
<td>1 (1.9%)</td>
</tr>
<tr>
<td>Physics</td>
<td>1 (1.9%)</td>
</tr>
</tbody>
</table>

3.2.3. Country coverage and interdisciplinarity

The country coverage of the Teams’ members was very close to the situation of the countries involved in the applications, with the UK strongly represented, followed by Germany, Italy and Spain. Overall, 16 different countries were involved and this confirms a good capacity of the selected proposals to network people across different countries.

As to the disciplines involved, the TTs’ members were asked to specify their field of work. Not surprisingly, almost half of the people declared to work in the field of Educational Technology (47%). The rest of the TTs’ members included people belonging to the Educational Sciences field (29%), people working in the Psychology area (17%), and people of the Computer Science sector (3%).

More interestingly, looking at the subject of their degrees gives a more in depth perspective on the TTs’ members background and competence (Table 3).

As one may note, there was a balanced distribution among educational, social sciences, psychologists and computer scientists (around 17% each). These are three categories that one would expect to be there, but it is interesting that they are equally distributed and none of them is over-represented. Then we have a fair number of engineers and an equal number of people who studied languages and linguistics (8%). Lastly, the other subjects are less represented in the funded Teams, but still they are there and this means that even subjects that could be in principle farther from the ‘traditional’ TEL subjects are involved in the funded Teams.

The interdisciplinary character of the TTs was also one of the aspects the reviewers were asked to rate during the evaluation process to select the Team proposals. The above table (Table 4) contains the average ratings obtained by each of the selected Team as far as interdisciplinary character is concerned (3 reviewers per proposal; 1 = low inter. character; 5 = very high inter. character). Looking at the figures, it seems that such character increased from the First to the Second Call (medians of the First Call tend to be lower than those of the Second one; nonetheless, due to the low number of subjects, the Mann–Whitney test does not reveal any significance (U = 4,500; p = .107; z = −.610; r > .50)).

3.2.2. Pre-existing networks

The type of pre-existing relationships among Teams’ members varied: TTs were used in some cases to consolidate pre-existing relationships among networks of people who had already worked together (MuSU, staff; LDG; GE; see case a in Fig. 2); in other cases the Teams were completely new or formed by people who were hardly connected before this experience (NTEL; MUPEMURE; Orchestrating TEL; see case c in Fig. 2). In other cases, the instrument helped to enlarge already existing groups, by attracting new people (SRLinTELEs; dataTEL; see case b in Fig. 2).

According to what the Theme Team leaders declared at the end of the activity.

The total number of TT members, according to the application forms, was 61, and the respondents to the initial questionnaire were 59, belonging to 46 different institutions. However, the active membership of the 9 TTs was 58. (with a mean of around 6 persons per team).

In relation to gender distribution among the team members there is a slight predominance of males (59% against 41% of females). As to age, the majority of them (44%) were between 31 and 40, while 29% of them were between 41 and 50. This reflects the profile of mid-career researchers required by the Calls.

Apart from the official Teams’ members, most of the Teams demonstrated a strong capacity to involve in their activities people which were originally not part of the Teams. As further explained below, by organizing events (conferences, workshops, etc.) or launching calls for publications (special issues, books, etc.) the Teams attracted hundreds of people, thus highly contributing to strengthen the NoE impact on the TEL research field.

Fig. 2. Exemplar TTs’ social networks.
3.2.5. Nature of work and outputs

Coming to the nature of the work carried out by the TTs within the funding period, as well as the types of outcomes produced, here follows an analysis based on the data gathered though the intermediate and final reports.

Generally speaking, interactions among TTs’ members occurred both online and face-to-face. As far as the online interactions are concerned, these occurred, on average, fortnightly or monthly; the main channels used to interact and communicate within the TTs are: primarily e-mail, followed by web 2.0 tools, video-conference, and the TELeurope social platform. Interactions internal to the Teams usually involved the whole group rather than a sub-set of the team. Aims of these online interactions were primarily the organization of events, then the scientific exchange around the TT topic, the sharing of information, materials, and references, and the joint writing of papers. The face-to-face events organized by the Teams were mainly of two kinds: (a) internal meetings, aimed at the scientific exchange and debate around the topic and at sharing information, materials, references, and the joint writing of papers.

Apart from the publication typology, we can distinguish among three different kind of publications:

- ‘single institution publications’: during the funding period a total of 21 single-institution papers were published or presented by TT members, often at one of the events organized by the TT itself. These kinds of publications may have one or more authors, but in case of multiple authors they come from the same institution, thus here they are considered at ‘a low level of integration’ in respect to papers co-authored by people coming from different institutions (see below). These publications are 43% of the total publications of the TTs. Examples of these are Bodemer (2011), Delfino and Persico (2011);

- ‘joint publications’ (tot.: 24), that is to say papers co-authored by people coming from different institutions, thus demonstrating ‘a high level of integration’. These are 49% of the total publications. Authors are typically all members of the Teams, except for 2 papers, which were co-authored by one member of the Team together with people belonging to institutions not officially a partner of the Team and other 4 papers, where a group belonging to the Team was joined by other people external to the official Team to produce a joint publication. Examples of these are: Howard-Jones, Ott, Van Leeuwen, De Smedt (2010), Persico et al. (2013) and Ranieri, Manca, and Fini (2012);

- ‘collections’ (tot.: 4), i.e. book proceedings (1), edited books (1) and journal special issues (2) collecting (either individual or joint) contributions; collections here are considered as having ‘a medium level of integration’: even if collecting different contributions may mean a certain effort towards integration of the content, a collection per se does not guarantee a high level of integration and, in order to assess the real level of integration, one should look at the single

### Table 4

<table>
<thead>
<tr>
<th>Theme Team</th>
<th>Mean/St. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>First call</td>
<td></td>
</tr>
<tr>
<td>SDLinTEL</td>
<td>3.3 (±0.58)</td>
</tr>
<tr>
<td>NTEL</td>
<td>4.3 (±0.58)</td>
</tr>
<tr>
<td>MUPERMU</td>
<td>3.7 (±0.58)</td>
</tr>
<tr>
<td>Orchestrating TEL</td>
<td>3.7 (±0.58)</td>
</tr>
<tr>
<td>dataTEL</td>
<td>3.0 (±1.00)</td>
</tr>
<tr>
<td>Second call</td>
<td></td>
</tr>
<tr>
<td>LDG</td>
<td>4.7 (±0.58)</td>
</tr>
<tr>
<td>SoMobile</td>
<td>4.0 (±0.00)</td>
</tr>
<tr>
<td>MueSocCOL</td>
<td>4.3 (±0.58)</td>
</tr>
<tr>
<td>GEL</td>
<td>4.3 (±0.58)</td>
</tr>
</tbody>
</table>

### Table 5

<table>
<thead>
<tr>
<th>Type of publication</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral papers presented at conferences/symposia</td>
<td>15</td>
</tr>
<tr>
<td>Papers in journal</td>
<td>11</td>
</tr>
<tr>
<td>Papers in proceedings</td>
<td>10</td>
</tr>
<tr>
<td>White papers</td>
<td>3</td>
</tr>
<tr>
<td>Posters</td>
<td>2</td>
</tr>
<tr>
<td>Edited books</td>
<td>2</td>
</tr>
<tr>
<td>Special issues</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>

Apart from the publication typology, we can distinguish among three different kind of publications:
contributions and evaluate whether they are ‘joint’ or ‘individual’ ones. Examples of these are Bartolomé, Bergamin, Persico, Steffens, Underwood (2011); Pachler, Ranieri, Manca, Cook (2012).

Public events, i.e. workshops, symposiums, conferences, round tables, etc. (the TT were completely free to chose the format). In total the 9 TTs organized 17 events, 12 of which were workshops, 1 conference, 2 symposia and 2 round tables. 13 of the above mentioned events were organized in conjunction with larger events (3 of which at the STELLAR Alpine Rendez Vous 2011; 2 at ECTEL 2011; 2 at the CSCL conference 2011, etc.), while few others (4) were ‘stand alone’ events. The ‘stand alone’ kind of events had the capacity to attract overall around 150 participants (internal + external to the Teams), while for the other kind of events a realistic estimate is around 25 people per event. Thus a total of around 500 people were involved in one way or another during the TT events, possibly slightly less in case some of people involved in more than one event.

Creation of virtual spaces: all the teams created websites or online groups/communities/spaces of some kind, using in some cases the tools provided by STELLAR (i.e. the TELeurope social platform), and in other cases common social networks. For some of them (MusSuCOL, LDG, GEL, etc.), the website contained also a repository of resources, which was one of the main outputs of the Team itself (URLs of all the websites published by the Teams are provided in the next section). In addition, most TTs produced also podcasts.

Project proposals: a couple of Teams prepared joint project proposals during the funding period, involving the whole team (LDG) or a subgroup (GEL, SoMobNET).

As to the composition, age and competences of the members of the selected TTs, it has been proved that these were rather diversified and indicate that the Teams acted as unifying agents, even across disciplines. It is noted that Educational Technology is the most common definition chosen by the TTs’ members for their work field. Since Educational Technology is an interdisciplinary area, this is a good starting point to build upon in view of the objective of overcoming disciplinary fragmentation. Such interdisciplinarity is reflected by the data concerning the subject degree of the Teams’ members, who came from both the humanities and scientific sectors, thus confirming that the TTs served the purpose of connecting people with different background, under the flag of their common scope.

The kind of activities carried out and outputs produced are a consequence of the nature of the TTs: they were not aimed at carrying out research projects (the limited budget would be insufficient), but rather to integrate and build upon scattered research results obtained by different people in different contexts and countries. Thus, TTs were mainly interpreted and used to foster the researchers’ capacity to work on common research topics and questions, with joint publications, co-organization of events and co-writing of project proposals playing the role of catalyzers of their efforts. This may seem a meagre result, but it should not be underestimated, since it is a necessary first step to overcome fragmentation.

Most of the Teams demonstrated a certain ability to enlarge themselves, i.e. to involve other, non-official partners in the activities. In most cases the production of outputs (especially in case of public events, special issues, edited books, etc.) even strengthened the power of attraction, as, through these outputs, hundreds of people external not only to the Teams, but to the whole NoE, were involved in one way or another, thus highly contributing to increase the impact of STELLAR on the TEL research field.

In particular, the paper uses the case of the STELLAR TTs to show how funding small teams of researchers can be an effective and pragmatic way to promote their connections and integration. STELLAR decided to use this instrument to build scientific capacity and defined suitable funding criteria to achieve an expansion of the network itself. The goal of the TT instrument is to overcome the fragmentation of this research sector through the creation of international, interdisciplinary research teams aimed to identify and study promising, cutting edge topics that could inform the definition of the future research agenda. It stands to reason, thus, that this kind of approach is of particular value for research fields where fragmentation is identified as a problem, such as, for example, where there is a gap between theory and applications. Besides, the TT instrument contributed to the acknowledgement of topics (e.g. neuroscience, serious games), which had not been originally considered by the network but are of interest for TEL research.

Looking at the number of applications received, institutions involved, and country coverage of applications, the TT instrument confirmed its ability to attract several actors, not only academics, even outside the network where this has been conceived. The rate of 73% people from outside STELLAR can be considered a positive sign of the outreach power of this kind of instrument. Interestingly, the data show that the TT Calls attracted both already existing groups (composed of people who were already connected in some way), as well as completely new groups (mainly made by people who shared a common research interest but did not know each other). Considering that it is easier – for an existing team – to prepare a proposal, this data can be regarded as a positive affordance of the tool.

4. Discussion

Cooperation between institutions is usually considered crucial to reach research excellence across countries, to attract researchers and develop their human capital and to maximize impact. Collaboration across institutions based in different countries is not easy to achieve and building this kind of capacity across disciplines is even more difficult. The EC has funded Networks of Excellence with the aim of overcoming such difficulties and creating favorable conditions to foster and direct further research, especially in interdisciplinary fields (Bottino & Kynigos, 2009). This paper provides some practice-based reflections on how the Networks of Excellence can strive to achieve such objectives.

questions of the final questionnaire, highly appreciated the instrument, its affordances and the way they were implemented. All in all, based on the STELLAR experience, it seems that sustaining small groups of researchers working on one specific topic with a small amount of money to cover travel expenses for about one year can be a good way to foster integration, sustain research capacity and thus develop human capital in one well focused research field.

Looking at this experience from a more theoretical perspective, we can claim that the TT instrument served to start up and nurture small ‘communities of practice’, in such a way that from now on they can evolve into different forms of communities.

This is de facto what happened to many of the funded Teams, who in the end found other, alternative ways to sustain themselves for the future.

Drawing on the STELLAR experience, it is possible to state that the TT instrument is a valuable tool, worth to be maintained and sustained in future funding programmes. Although similar funding mechanisms may already exist, one important advantage of having it handled by a NoE is that the obtained results are immediately taken into by the research community and that the team’s efforts gain visibility thanks to the coordination actions carried out by the same community.

5. Conclusions

This paper provides an overall analysis of the TT instrument, as this was implemented within STELLAR to build research capacity and develop researchers’ human capital in the field of TEL.

The paper presents the instrument, the way it was managed and then focuses on the 9 TTs funded by the STELLAR Network of Excellence. By presenting the way the Teams worked and the main results obtained, the paper shows that creating small communities of researchers around common topics of interest and sustaining them for a while can be very productive in terms of integration at different levels (geographical, disciplinary, etc.) of scattered research areas, development of human capital and, ultimately, increasing research capacity.

Based on this experience, it is recommended that instruments similar to the one described here are adopted in future NoEs and in international funding programmes, since this kind of instruments is one of the cases where a limited fund investment can generate great value in terms of human capital. More specifically, the instrument has demonstrated to effectively support the integration of groups of researchers on circumscribed topics and to appropriately promote researchers’ development and capacity.

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References


