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ENHANCING QUALITY TEACHING THROUGH INFORMAL COMMUNITY LEARNING IN KNOWLEDGE CENTRES (CONCEPT)

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ABSTRACT

Teaching and learning have always been at the heart of the missions of universities. The growing interest nowadays to pay attention to the quality of higher education teaching results in initiatives such as the establishment of Teaching and Learning Centres (TLCs). The Academy for Learning and Teaching (ALT) at Eindhoven University of Technology (TU/e) has recently been created, and it is still under construction, with the purpose of promoting quality of teaching through engaging staff in interaction and in learning lessons from evidence-based educational practices and innovation in engineering education. Furthermore, ALT supports the professional development of faculty teaching staff through Learning Communities (LCs) as informal learning mechanisms that stimulate knowledge sharing about engineering education experiences across departments (and universities). LCs facilitate interaction with peers, discussions on educational practices, working in

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teams, and exposing academic and education support staff to have access to state-of-the-art research and information on educational issues. LCs are organized by themes, such as Digitalization, that cover topics relevant to innovative practices, e.g., Learning Analytics, Artificial Intelligence in education or Digital Assessment. The purpose of this study is to present the ALT model as a knowledge centre in engineering education that stimulates the advancement of quality teaching. Specifically, we analyze successful factors to constitute Learning Communities, as well as, the motivation of the teaching staff to participate in the LC associated to the TU/e ALT. ALT may serve as an inspiring model for other engineering and technical higher education institutions and universities wishing to promote professional development of teachers.

1 INTRODUCTION

The establishment of Teaching and Learning Centres (TLCs) has arisen in recent years worldwide with the purpose of encouraging better quality of education and teaching, but also to support research in education and innovations (Marbach-Ad et al., 2015). TLCs play an important role in the professional development of faculty, academic teaching staff and educational officers in higher education institutions (Gosling and O'Connor, 2006; Atkins et al., 2017). Research on the value of TLCs points out the benefits to help shaping the professional and academic cultures in addition to instructional practices in the universities (Behling, & Linder, 2017).

Literature on TLCs shows the relevance of setting up linkages and create synergies with institutions' wider communities as well as colleagues at other higher education organizations or TLCs. These linkages make sustainable the purpose of the TLCs, to foster transfer of knowledge and innovations and to promote exchange of activities that can enhance quality of education and teaching.

The outreach capacity of the TLCs aims at targeting not only the primary process of faculty, but also educational staff within a single organization. The functions of the TLCs vary in services and structure being the professional development of teachers; the support to carry out innovations (e.g., the design and implementation of teaching practices); and research in education, the most common activities (Marbach-Ad, et al., 2015).

At the heart of its mission TU/e aims to excel in quality of education and teaching. The three pillars of ALT are the LC as an informal platform for learning, research in innovations in education and the professional development of teachers. In the context of TU/e, innovations within the framework of ALT are meant to support learning from experiments in education, e.g. improving feedback as learning, activating students in large groups, use of technology in education to monitor students' learning, etc. The aim is to research innovations in education to provide evidences and create a culture of bottom-up to quality teaching. Therefore, the establishment of the Academy for Teaching and Learning (ALT) has a crucial role in raising the profile of the university to become an international renowned institution in educational innovation. In establishing ALT, it became important to investigate the factors that constitute an effective knowledge centre, such as:

1. RQ1: What are the successful factors that constitute the organization of Learning Communities (LC)?

2. RQ2: How to encourage teaching staff to actively participate in the Learning Communities?

In the coming sections, the theoretical considerations that frame the construction of ALT are presented. In addition, the methodology and approach to construct ALT is explained. Furthermore, results of the literature review and the participatory consultation are discussed that have given form to ALT. Finally, some reflections/considerations for further establishment of the LC are shared that contribute to further professionalization of the teachers.

2 THEORETICAL CONSIDERATIONS

'Communities of practice', 'learning communities', 'collaborative collegial groups', or 'networks of professionals', are oftentimes terms that refer to similar 'learning structures,' made up of groups of individuals who share common interests, dilemma's in educational practices or have a similar goals to improve their practice by interacting regularly with others and engaging in a process of collaborative learning (Wenger, 2006; Wenger, McDermott, and Snyder, 2002).

Theories on education such as situated and contextual learning (Lave and Wenger, 1991), refer to that context and learning should be embedded in a particular social and physical environment. Research shows that involving individuals to share common interests to bring about outcomes, contribute to develop an identity within a community and commitment among disciplinary or interdisciplinary groups. (Handley, Sturdy, Fincham, and Clark, 2006). Research reports about successful experiences of community activities by engaging teachers in problem solving, seeking experience, reusing assets, discussing developments, working together in creating a new curriculum or interdisciplinary courses, and mapping knowledge (Wenger, 2006).

Furthermore, research on the effectiveness of learning communities in promoting advancement of faculty members' development and in supporting innovation abounds in the literature (Cox, 2001). Harwood et al. (2005) describes the positive experience of faculty members engaged in community seminars to examine their pedagogical practices, as a vehicle to support personal and professional growth as researchers and teachers. Essentially, critical reflection of professionals about what works or does not work are also interesting LCs activities.

Grounded on these theoretical insights, we investigated the characteristics of the learning communities that can lead to a successful implementation. Moreover, we also looked into a model that can stimulate an active participation of the teaching staff in learning communities.

3 METHODOLOGY

The methodology for this study is designed to respond to the research questions (RQs). The methodology consisted of a two-fold approach: (1) Literature review; and, (2) Multi-stakeholders' consultation.

To answer the RQ (1) *What are the successful factors that constitute the organization of Learning Communities?*, a systematic literature review was conducted. In total 15 journal articles were reviewed. In this study, we only mention

the insights of the articles that meet the ALT goals, specifically the focus on LCs. The literature review process followed a systematic approach (Papaioannou, Sutton, and Booth, 2016) of:

- Making a preliminary selection of scientific journals in the field of education, collaborative learning in higher education; professional development; etc.;
- State-of-the-art selection of manuscripts on research on educational practices of learning communities was made within the range of years between 2000 and 2020.
- Search for manuscripts included a classification of words 'communities of practice'; 'learning networks'; 'professional groups in higher education'; 'communities of practices'; 'collaborative learning'; and alike.

To investigate the RQ (2) *How to encourage teaching staff to actively participate in the Learning Communities?,* a stakeholder approach was used consisting of interviews with CTLs, brainstorming sessions and discussions to converge into a model suitable for the context of the TU/e.

3.1 Participants

As a first step to address RQ2, interviews and discussions with staff in national and international CTLs in Europe, Australia and United States of America took place in order to learn from their experiences. Secondly, a Think Tank was organized to brainstorm about the teachers' needs, topics and forms to organize learning communities. Participants were selected by its relevant role in innovations throughout the university. Finally, a consultation and advisory working group was established to converge into a model that may motivate the university teaching staff to actively participate, and eventually, lead a learning community. Table 1 shows the activities and participants involved in this stage.

Table 1. Participants of this study

Participants	Activity
National and international CTLs	Interviews
Think Tank: Program Directors, teachers and education support N=6	Brainstorming about needs, topics and form for LC
Consultation and advisory group (university education management board and ALT management team) N=5	Participatory design of the ALT model

4 RESULTS

4.1 Findings from literature review RQ (1) What are the successful factors that constitute the organization of Learning Communities?

Literature on learning communities in higher education shows the benefits of teachers working in teams, discussing educational practices and engaging in an

ongoing cycle of questions that promote deep team learning. Research also points out the successful factors of disseminating innovation results, stimulating interaction and learning from colleagues, as an informal way to contribute to the professional development of academic teaching staff (Sims & Fletcher-Wood. 2021).

Furthermore, engaging teachers in collegial interaction to learn from peers, promoting team teaching activities, supporting co-creation activities and stimulating knowledge sharing in a community are strategies that foster change of culture in an organization and promote institutional-level innovation (Atkins et al., 2017).

Collaboration, sharing knowledge and peer interaction are intrinsic parts of the day-to-day practices of scientific staff and researchers. This way of working nurtures the systemic processes pertaining to a culture of excellence in quality of teaching in universities. Key characteristics from research on factors contributing to successful Learning Communities (LC) refers to (DuFour, 2005; Lutrick & Szabo, 2012):

- **Ownership** of newly acquired knowledge as a sense of empowerment attained as a result of leading a community, organizing meetings, conducting own research projects, etc.
- **Autonomy:** opportunity to select own topics for discussion.
- **Relevance:** topics for discussion are linked to teachers' needs, are relevant for their tasks and aligned to university or departmental strategic vision on education;
- **In-depth:** the value of studying a topic in more depth;
- **Inspiring leadership:** discussions with university/faculty members, being knowledgeable, experience in education and students' learning, acting as a facilitator, etc.
- **Collaboration:** building communities around specific themes is a powerful informal learning mechanism to stimulate collaborative learning among academics as well as to disseminate research. Also, it provides good opportunity to meet on a regular basis with other educators, including their colleagues and the university faculty; interaction; sharing knowledge, etc.
- **Assistance:** to organize and setting up regular meeting times and by keeping the groups focused and moving along.

4.2 Findings from consultation with advisory working group RQ (2) *How to encourage teaching staff to actively participate in the Learning Communities?*

Interviews with national and international CTLs revealed trends in establishing learning communities considering fellows, teaching staff, as an important mechanism to empower academics, but also to foster to professional development. In addition, the construction of these learning niches with a bottom-up approach contributes to a sustainable form to connect people and create networks of knowledge sharing across the university and outside.

Following the findings on successful factors in the construction of CTLs, the ALT model at TU/e, focuses on creating a bottom-up niche, the so-called Learning Communities, for academic as well as for the university educational support staff as a whole, to meet informally, learn and talk about education, the challenges in

teaching and learning, in addition to the current developments in innovation in engineering education (See Figure 1).

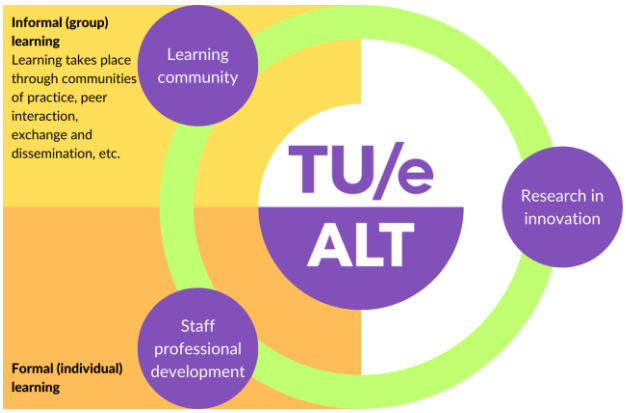

Figure 1. Overview LC informal learning structure.

In the ALT model, a role of fellow is included. Fellows are teaching staff motivated to deepen knowledge in specific educational topics and enhance professional development through educational innovations. Moreover, the approach of selecting fellows, to lead the LCs, follows the rationale to empower teaching staff to develop their vision on education and boost their professional development.. The task of the fellows is to create linkages with departmental academic colleagues, and possibly, across the departments. Fellows lead a thematic LCs and prepare an annual agenda for activities (e.g. get together to solve educational dilemmas, organize seminars, discussions, workshops, webinars with experts/guests from national and international organizations on relevant topics, etc.) and create linkages with national and international LCs. The expected time spent by fellows in ALT activities is at least half a day per week.

ALT learning communities are an interesting opportunity to connect and engage teaching and education staff. Therefore, to realize informal learning in the LC as visualized in the previous figure, the following activities are envisioned (but not limited to) (See Figure 2):

(1) Stimulate consultation, peer interaction and promotes dialogue;
(2) Promote knowledge and experience sharing, information;
(3) Provide mentoring and coaching to (re-)design innovations and put in practices new ideas;
(4) Present research and support in innovations, e.g., how to write an innovation proposal, or how to carry out research on innovation in courses, etc.
(5) Support dissemination of innovations and experiments;
(6) Motivate reflection on vision on education.

Figure 2. LCs opportunities: connecting and stimulating teachers' knowledge sharing

5 CONCLUSIONS

The establishment of ALT is an exciting and challenging undertaking. The benefits of participating in ALT Learning Communities lies in the possibilities to engage in university-wide innovations in education and learn from colleagues from other departments. Opportunities to broaden the scope of practice in innovations in engineering education and to reflect upon results from experiments, lessons learned and research are provided in the round tables, discussions on dilemmas in classroom practices and alike, organized within the LC events.

Moreover, the fact that teachers and education staff from different departments will attend the LC will facilitate the transfer of knowledge and information to own departments contributing, therefore, to stimulate the cross-pollination effect across disciplines, staff and beyond the borders of the departments.

Ultimately, Learning Communities can contribute to promote the quality culture of the organization and nurture the culture of change by participating in enriching and updating the university vision on education with new insights. Leading a Learning Community can also create an impact on teachers' professionalization in education.

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