

Smoothing the path to TEL 2020

Ways to recognize and take account of, or reduce, differences in TEL perspectives, and develop shared goals and roadmaps

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***Abstract**—This outline of the workshop and the accompanying briefing document (Foresight of Technology Enhanced Learning, by Hoel and Hollins) address how Stakeholders within the Technology Enhanced Learning (TEL) community view their own future scope to use advanced learning technologies. The briefing document discusses arguably problematic methodologies and processes used within TEL to predict the future.*

Keywords; Disagreement Management; Models; Roadmapping; Scenario Planning; Foresight; Road Maps

I. INTRODUCTION

In this paper and in the associated workshop, the phrase “TEL 2020” refers to the various kinds of learning technologies that are judged likely to be in use by 2020 by specific types of TEL stakeholder. The main stakeholders we are concerned with here include researchers, hardware and software developers, publishers, service providers (including libraries) and practitioners and users of all types (including self-directed learners, teachers and trainers). We are interested in what kinds of judgments are made by different stakeholders, both about the learning technologies they expect to be using in 2020, and about their predictions of what will be available to, and used by, other TEL stakeholders. We expect different judgments to be made by people who are today’s early adopters or drivers of TEL innovations, and people who are today’s late majority adopters or reluctant users of TEL that has become mainstream.

II. METHODOLOGIES

In the workshop, we explore some of the methodologies typically used to assess the views of those various stakeholders, both in relation to their perspective on likely TEL futures, and on what they, as stakeholders, could do to shape the future of TEL, for example by acting in concert to try to identify an achievable TEL future that is more to their liking, and to develop a plan for achieving that future through joint action. Hence the primary goal of the Workshop: to enable participants to identify and reduce barriers to the accomplishment of their individual and joint

goals for how TEL will evolve by 2020. This is reflected in the subtitle of the workshop: “ways to recognize and take account of, or reduce, differences in TEL perspectives, and develop shared goals and roadmaps”. The scope of the Workshop is ambitious: to explore how participants and their TEL communities might collaborate coherently and effectively to develop practical steps to get an overview of how TEL could develop in the medium term (between 2014 and 2020), and how they could have more influence on the direction of those developments.

To this end, the workshop encouraged participants to submit short position statements. The one we selected is attached, by Tore Hoel and Paul A. Hollins. In the workshop, we use it as the starting point for discussion of processes that we explore in the TEL-Map project:

- Disambiguation, or being sure that you are understood and that others understand you (“I know that you believe you understand what you think I said, but I am not sure you realize that what you heard is not what I meant.”)
- Conversation Mapping, to spot differences in what different sub-communities in TEL mean (eg, developers vs users; vendors vs customers);
- Disagreement Management, to identify and handle differences that matter;
- Horizon Scanning, to spot novel and emerging TEL trends;
- Sense-making, to identify significant consequences;
- System Modelling, to develop plausible visions of TEL futures;
- Dependency Mapping, to create viable roadmaps for those visions;
- Spotting TEL Trends (Weak and Strong Signals);
- Identifying Consequences and Refining Future Visions; and
- Developing Viable Roadmaps for those Visions.

REFERENCES

Key references for the initial discussion are in the following briefing document by Hoel and Hollins.

Foresight of Technology Enhanced Learning – How to see some light in the murky crystal ball?

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Abstract — *This short paper addresses how we make sense of future technologies within the Technology Enhanced Learning (TEL) community. The paper highlights a number of methodologies and processes available to those predicting the future and is illustrated by cases from European practice. The study identifies inadequacies of the process that could, arguably, limit their effectiveness.*

Keywords – EU projects; roadmapping; foresight studies; sustainability of technology enhanced learning; scenario planning; Future of TEL

I INTRODUCTION

Technology can have a transformative role in education, informal learning, and learning in the workplace. Learning technologies are emergent [1]; therefore, the trends, the critical challenges to prepare for, and the specific technologies to monitor are difficult to make sense of for those who should have a stake in strategic planning.

Observation, foresight, horizon scanning, technology watching, roadmapping, etc. are used in diverse sectors including health, water management, agriculture, city planning, labour market planning, etc.; and by many international organisations [2, 3]. In the late 1990's a number of foresight and horizon scanning initiatives were launched on the web in an attempt to engage their constituencies in information gathering and dissemination¹.

A cursory glance of these activities shows that the applied methodologies are discussed in general terms without attention to the detail and in particular as to how the findings are produced. As participation by key stakeholders is identified as a key component in most approaches the use of expert panels, expert work groups and expert surveys are identified as the primary method of validation.

In the TEL domain a fundamental challenge to projects is identifying and recruiting contributors to expert panels and surveys. The authors argue that the focus should be on developing more sophisticated approaches to solicit wider community engagement with the “end” users of these technologies.

II CONTEXT OF THE HORIZON SCANNING PROCESS

The EU supported Foresight Network for Regional Development Network has developed a practical guide to regional foresight [4]. This guide sees foresight as “a systematic, participatory, future-intelligence-gathering and medium-to-long-term vision-building process aimed at present-day decisions and mobilising joint actions” [4]. The guide explains that foresight arises from a convergence of trends underlying recent developments in the field of ‘political analysis’, ‘strategic planning’ and ‘future studies’. Foresight has five essential elements, according to the guide, - anticipation, participation, networking, vision and action [4]. This understanding of foresight activities has been adopted by a number of European projects, e.g., projects within the 6th Framework Program the European Commission [5].

In 2004 the European Commission's Directorate General Joint Research Centre, that has been instigating much of the foresight activities, organised a EU-US scientific seminar to discuss methods of future-oriented technology analysis. Scapolo reported “one of the main issues introduced was methodology selection and the perennial conflict between the search for methodological perfection and ease of implementation” [6].

Roadmapping activities have been part of a number of European TEL projects (e.g., Prolearn, ICOPER, TEL-Map). Each project has developed unique methodologies and approaches to solicit information and engage their communities; and each arguably appears to have prioritised methodological rigour over concerted effort to engage with their communities.

III HORIZON SCANNING PROCESS AND ACTIVITIES

In 2010 the UK Joint Information Systems Committee (JISC) established a Technology observatory facility for the UK Higher and Further Education sector. The facility was jointly managed by two of the JISC Innovation Support Centres, JISC CETIS and UKOLN.

The purpose of the activity was to provide verifiable evidence of emerging and future technologies and speculate as to their future impact on the sector. The explicit objective of the work was to produce detailed outputs by way of technology reports to help inform future priorities for JISC

¹ Foresight websites (in order of Google hits): iknowfutures.eu, euroscan.org.uk, foresight.gov.uk, millenium-project.org, foresight-platform.eu, horizonscanning.gov.au, efmn.info, foresight.jrc.ec.europa.eu, techcast.org, shapingtomorrow.com, unido.org/foresight, forlearn.jrc.ec.europa.eu, sesti.info, forwiki.ro, horizonscanning.defra.gov.uk, sigmascan.org, wfsf.org, farhorizon.portals.mbs.ac.uk, innovation-futures.org, and hsc.gov.sg.

investment by way of programmes and future innovation project activity.

One of the first activities of the Observatory was to commission the New Media Consortium (NMC) [7] to produce a UK specific version of the NMC Horizon scan. Since 2002 NMC has produced a number of International TEL Horizon scan reports, including region and more recently sector specific versions for Australia, Africa and Asia. In order to address the issue of direct practitioner engagement NMC employ a Delphi process. The Delphi process is premised on the principle that the forecasts and collective intelligence from structured groups are more accurate than those from unstructured or ad hoc processes. The process, which is primarily a communication activity, is mediated through a wiki based technology platform.

The technique is widely employed in technology future forecasting including the Techcast project [8]. This project employs Delphi techniques in order to forecast and track the “technology revolution” and in particular what is termed strategic breakthroughs. These are identified and selected technologies that have economic potential, profound social implications, or are of scientific interest.

In 2011 the JISC commissioned through NMC a UK Tertiary Education specific report. The report examined emerging technologies for their potential impact on teaching and learning and creative enquiry within the domain. The project employed the tried and tested NMC approach of appointing an advisory Board and the establishment of a wiki to facilitate the development of the report and identify key trends [9]. The advisory Board was established by NMC with input from the JISC via its Innovation Support Centres JISC CETIS and UKOLN.

The report findings were published in 2011 [10]. One of the key criticisms of the project was in the establishment, or more accurately, in the criteria for membership of the expert group. The group consisted of 108 “experts” in the domain selected by NMC and JISC, but how representative of the sector were these “experts”? It became clear that experts in “creative enquiry” were underrepresented and consequently the identified technologies were focused on the learning and teaching domain with research, arguably underrepresented. There seems to be a consistent issue in establishing representative groups. How representative should or could they be?

The technology platform underpinning the process provided adequate functionality. The mediated discussion on the wiki was extensive and vigorous but participation levels can be low and restricted to groups of enthusiasts with highly specific agendas.

IV DISCUSSION

A number of projects have shown that solicitation of structured group responses is work intensive and a potentially flawed way to assess the collective intelligence of the TEL users. With pressure on senior industry management due to the current economic environment, it has proved difficult to solicit meaningful input from the wider community. The, often bespoke, instruments, tools and strategy for engagement offered by many of the foresight projects have user designs that are incomparable

with many of the tools available on the Internet. It is evident that a combination of economic pressures and user experience issues are significant barriers to achieving the necessary stakeholder engagement prescribed in the foresight methodologies. Is striving for methodological rigour /purity at the expense of securing wider stakeholder input when “Just Enough” may be good enough and in doing so recognise the limitations of all methodological approaches to observation, future gazing and horizon scanning?

Are there viable alternatives to the existing methods and technologies that could be explored to ease the perennial issue of perfection vs. smooth implementation?

The Open source software community could offer a solution. Examples such as the Apache foundation [11] solicit community input in to activities in a highly effective manner, all be it from a restricted community; the key being that all involved seek to benefit from both the process and importantly the output. Arguably the keys to stakeholder engagement are both trust in the process and desire for the output.

V Conclusions

This short paper has identified an ambition gap between the prescribed methods for foresight analysis within the TEL domain and, highlighted by the experience of a number of projects, a lack of wider stakeholder engagement.

The authors argue that greater effort should be directed towards securing engagement and input from the practitioners of TEL; moreover that methodologies that inadvertently restrict participation to those academics and agencies directly funded to undertake the work could produce flawed results.

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