

Benchmarking Lifelong Learning and eLearning in Regions: Measuring What Really Counts

Karsten Gareis

*empirica Gesellschaft für Kommunikations- und Technologieforschung mbH, Oxfordstr. 2,
53111 Bonn, Germany*

Tel.: +49-228-98530-0, Tel.: +49-228-98530-12, karsten.gareis@empirica.com

Abstract: Engaging the entire EU population in lifelong learning has emerged as a key policy goal in recent years. While it is clear that ICT-enabled eLearning can contribute considerably to reaching this objective, much of the public debate about the issue has failed to explore whether the advantages of eLearning will be sufficient to overcome those barriers which are most important for keeping participation in adult education low. This paper suggests that policy needs to take full account of factors related to access, competence and motivation when devising strategies for fostering eLearning. It reports from the findings of a major European population survey which analysed in a holistic way the role of user orientation in determining take-up of online services of public interest, including eLearning.

1. Introduction

There is plenty of evidence which suggests that eLearning can make learning activities more effective and efficient. It does so mainly by abolishing time and location-based constraints which tend to affect traditional types of learning. By providing access to learning content, tools and related infrastructure at any place and at any time, Internet-based learning opens up new possibilities for combining learning with other life activities in ways which are optimally adapted to the needs and preferences of the learner. Another factor which distinguishes eLearning is the use of dynamic databases in which information about all aspects of an individual's learning process is stored. This information can be utilised to tailor the course to the specific requirements of the user with regard to speed, content, depth of previous knowledge and so forth, thereby increasing efficiency of training provision and diminishing the likelihood that learners drop out for lack of course relevance and/or motivation.

These characteristics of Internet-based learning have attracted much interest among policy-makers. A common assumption is that eLearning will help solve one of the key challenges posed by the so-called knowledge society: how to ensure that the whole population engages, much more than ever before, in continuous learning across the entire lifespan. Discussions about eLearning are often embedded in the debate about lifelong learning, which policy has identified as a key factor to prepare Europe for the future. Notions of competitiveness play a key role in this regard.

As a consequence, regional policy is putting growing emphasis on the importance of eLearning for territorial development. This is all the more so since the notion of the "learning region" has entered the regional policy agendas. ICT-based learning is expected, in particular, to lessen the negative impacts of peripherality on a region's prospects for full participation in the knowledge economy. As soon as knowledge has been codified,

digitisation in combination with computer networks allows access – in principle – from any place connected to the Internet.

Given these expectations, it is necessary to remind ourselves that eLearning will need to achieve two things in order to have its potential exploited. First, it needs to improve the quality of learning activities, that means increase outcomes per learner and per unit of effort invested. Second, it needs to widen the reach of lifelong learning offers in terms of numbers of people who engage in structured learning. *If, however, eLearning related developments only succeed in meeting the first of these objectives (higher effectiveness and efficiency) but not the second (more people doing lifelong learning), then there would be a real risk that existing social divides widen as a result of (partial) implementation of eLearning.*

Against this background, it appears that much of the recent discussion about eLearning has failed to explore whether the advantages of eLearning will be sufficient to overcome those barriers which are most important for keeping participation in adult education low. There is much evidence that in addition to lack of access to learning provision, lack of motivation to engage in lifelong learning and lack of skills for self-learning are of huge relevance in this respect. What is more, interrelations between groups of hindering factors must be taken into account for devising policies towards universal involvement in learning activities.

This paper reports from empirical research into these issues which was carried out by the authors in the context of a study in the 6th Framework Programme of EC supported research. eUSER¹ is a recently finished research study which was concerned with user orientation of online services of public interest, including online offers in the area of lifelong learning for adult education. As part of the study, a population survey across ten EU countries was conducted to collect data about adult people's preferences, perceived barriers and facilitators with regard to lifelong learning and ICT-based learning. The survey was carried out in the Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Poland, Slovenia, and the UK. These countries together account for three out of four EU citizens. Survey samples were 1000 per country (Ireland: 800) and drawn to be representative for the total adult population living in private households (and connected to the terrestrial phone service) in the country.

The paper is structured as follows. Section 2 presents some survey findings on differences which exist among population segments with regard to their participation in lifelong learning, use of eLearning, and related attitudes and preferences. Section 3 introduces the ACM model, which was developed for structuring the key factors determining people's propensity to take up eLearning: By differentiating between access, competence and motivation related factors, the model draws attention to interrelations between these three dimensions, and how these can determine take-up of eLearning in a country or region. The final section 4 then discusses the implications of eUSER's findings for benchmarking at the regional level, and points out future research needs.

2. Factors Behind the Decision to Engage in Lifelong learning / eLearning

2.1 Lifelong learning

The eUSER data² suggest that population-wide lifelong learning is not fully established in Europe yet. There is still a strong association between youth, labour market activity and job status, on the one hand, and engagement in lifelong learning, on the other hand. The

¹ See www.euser-eu.org

² For detailed results from the survey on any of the mentioned topics, see [1]

negative correlation with age also shows in the minds of people: The expectations that learning can improve one's employability and workability (= outcome expectations), and the confidence in one's ability to learn (= self-efficacy), are decreasing considerably with age. While such perceptions are partly reflected in economic theory – the returns to learning investments can be expected to be the lower the shorter the time available for applying the knowledge acquired at work – they are also representative of the traditional way of thinking which associates the need to learn with the early stages of life. Policy needs to devise strategies that give a powerful message to older workers (and older people in more general) that learning matters regardless of age.

Even more worrying is the finding that the lower their educational attainment, job status and household income, the less likely workers are to engage in lifelong learning. This confirms findings from existing research, summarised by the OECD [5] as suggesting “that education and adult learning are complementary. Those who are more educated receive more training, participate in employment that requires high skills use, and therefore have a chance to reinforce their training”. Lack of training offered by employers plays some role, but the low-qualified are also considerably less likely to show interest in training, and are more likely to engage in learning only if this is considered “really necessary”.

Outcome expectations and self-efficacy both play a strong role in explaining attitudes towards lifelong learning. Respondents who expect learning to have a strong positive influence on their employability and workability, and also respondents who show high confidence in their learning capabilities, are both much more likely to participate in lifelong learning. They are also more likely, if they do participate, to spend more hours on learning and to be interested in extending current levels of participation. Among non-users, persons with high outcome expectations and self-efficacy are significantly more likely to voice interest in take-up. In comparison to these factors, intrinsic motivation plays less of a role.

Supply of adult education in Europe suffers from a number of shortcomings, which can be explored by looking into the extent to which barriers are perceived by would-be lifelong learners. These tend to be perceived in relation to traditional training courses, and as such have much relevance for the potential advantages to be derived from eLearning. The most important appear to be a lack of supply which is suited to persons with a tight time budget and with specific needs regarding the timing of training courses; insufficient employer-provided training; lack of attractive training offers available in general and in the proximity of would-be learners; and an intransparent adult education market which makes it difficult for interested persons to identify suitable offers.

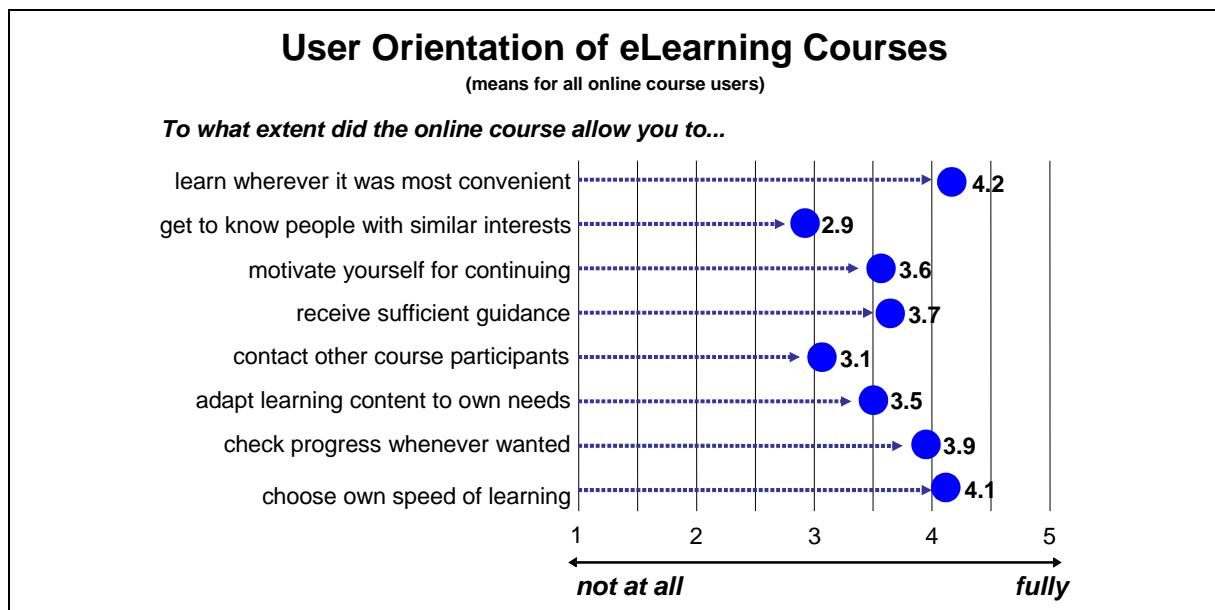
There is, thus, a need for supply-side measures focusing on improving provision of training offers which are suited to people with tight time budgets. eLearning offers obvious potential in this area. Moreover, local supply of attractive training offers, at low or no cost to the learner, needs to be improved – in addition to more training to be offered by employers. In general, supply side measures should strive to boost the attractiveness of lifelong learning activities as perceived by potential learners, since this could make engagement in learning more appealing vis-à-vis other leisure time activities. It is clear that the Internet opens up interesting potential for making training offers more attractive.

2.2 eLearning

The data from the eUSER survey shows that a large majority of those who took an online eLearning course in the last 12 months are satisfied with what they got from the service(s) they used. They overwhelmingly report about excellent usability and good user orientation of their online course when asked about aspects such as ability to learn at whatever place they found most convenient; ability to choose own speed of learning; possibility to check learning progress whenever wanted; ease of interface use; comprehensibility; and extent to

which content is well organised. Factors which are rated, on average, as least satisfactory are possibilities for personal interaction with co-learners and teachers/tutors and capability of the eLearning service to motivate for continuing with the course (see Figure 1).

Figure 1: User orientation of eLearning courses in 2005



Source: [2]

The experience from eLearning course users confirms that the social aspect of learning is diminished when it is done mainly online – even if most existing online courses appear to include elements of “blended learning”. While this is not necessarily of relevance to all users, evidence collected in this study suggests that the majority of would-be lifelong learners appreciate the social side of learning-related activities: The possibility adult education offers for meeting people, for making new friends, and for engaging in social interaction, have a key role to play in explaining resistance to the concept of eLearning among non-users. Overall, more than two out of three respondents consider the possibility to get to know people a major advantage of learning activities. This applies to the same extent across all ages and levels of educational attainment. It follows that the integration of presence learning with eLearning technologies does offer promising new options for making Internet-based learning interesting for larger parts of the population – without necessarily turning them into full-fledged “online only” learners.

A number of other reasons can be identified for explaining why people have not taken an eLearning course in the reference period. The three barriers experienced by the largest share of would-be eLearners are lack of suitable course offers, high costs, and – for people in work – lack of provision by the employer. Persons who have low educational attainment, a low occupational level, low household income, who are male and who are retired are considerably more likely to experience lack of interesting or suitable offers as a barrier. This confirms that an improvement of supply for people with low educational attainment and below average job quality are badly needed, since these are also those groups for whom upskilling is of most importance in order to increase overall rates of human capital formation in Europe. Costs are, as to be expected, primarily an issue for would-be eLearners from low-income households, with low occupational level and for the unemployed.

About one in four would-be eLearners states that uncertainty about the effectiveness of online courses is a major barrier, i.e. doubts whether learning online really works. This barrier affects, in particular, the unemployed and other not working, people with low

income, as well as young (18-24) and older (50-64) persons. Women are also more likely to doubt the effectiveness of learning online than men. All of these population segments would need to be targeted by measures which aim to raise awareness of the advantages and practical feasibility of eLearning. Barriers of a technical kind, i.e. unsuitability of available computer infrastructure and unwillingness or inability to deal with computer problems oneself are mentioned by 20% and 17%, respectively, of all would-be eLearners. Among them, groups whose endowment with digital skills is below average are over-represented.

The extent to which barriers are perceived by would-be eLearners is strongly correlated with their previous experience in using the Internet, their endowment with eSkills, and the importance they attach to the Internet in their private life. This suggests that attitudes towards eLearning are determined to a high degree by previous user experience with the Internet. Advanced Internet users are more demanding when it comes to the availability of interesting course offers, but they are less likely to be put off by doubts that eLearning would not work or would not be worth its cost. We can assume, based on these results, that awareness of the relative advantages of eLearning vis-à-vis traditional learning methods will increase steadily, in line with the projected growth in Internet uptake and usage intensity. Among people who are interested in lifelong learning, uptake of eLearning is therefore very likely to grow in the years to come.

3. Access, Competence and Motivation

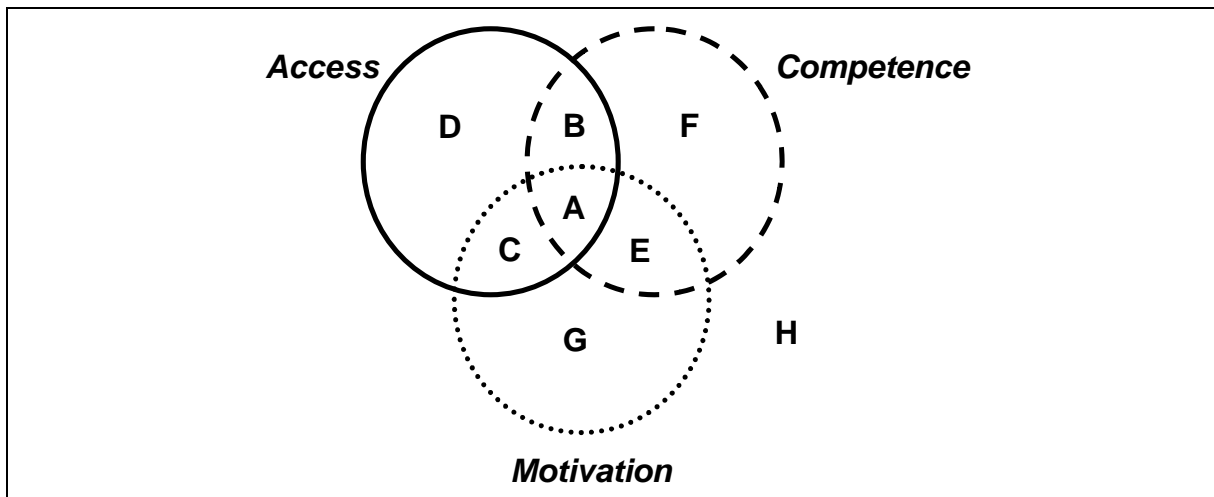
3.1 Operationalisation

The factors which explain people's likelihood of engaging in lifelong learning and eLearning, described in the previous section, can be subsumed into three main categories [7][3]. These are access (to providers of training, to the Internet as distribution channel), competence (in using the Internet, and applying it for self-learning), and motivation (for engaging in learning activities, and for using the Internet for this purpose). Any attempt to group the adult population according to their propensity to becoming a user of eLearning needs to take account, more than anything, of these three dimensions.

For the statistics presented in this paper, *access* is defined as home access to the Internet or, alternatively, access elsewhere which is considered as being "sufficiently good" by the respondent (e.g. PAPI, friend's place). In addition, access is given only if the person is not *severely affected* by functional restrictions regarding dexterity and vision, since these tend to be associated with limited usability of online applications. *Competence* is defined as at least medium self-efficacy – i.e. the degree to which persons have confidence in their own ability to learn – plus at least moderate eSkills – i.e. the extent to which a person knows how to use the Internet. *Motivation* is defined by actual or at least intended participation in structured, purposeful learning in the reference period (last 12 months). Maximum propensity is assumed to apply for persons who are endowed with all three: full access to eLearning infrastructure (the Internet), the necessary digital skills and learning capabilities to use the Internet for lifelong learning, and the motivation to engage in training activities.

The typology derived from these factors allows us to estimate how the population is distributed across the eight possible combinations of access, competence and motivation (see Figure 2). Such a distinction is of high relevance for policy-making since each group requires very specific policy measures if these are to support the utilisation of ICTs for lifelong learning.

Figure 2: Propensity to take up eLearning – A typology



Source: based on [7]

Moreover, the model can be used to estimate the effects of policy measures on estimated overall rates of take-up. These effects depend, to a large extent, on how specific target groups are composed in terms of combinations of access, competence and motivation-wise “preparedness” for eLearning. For example, if the objective of a policy measure is to provide a certain share of the non-user population with eSkills, how much the initiative is likely to increase take-up of eLearning depends on the composition of the targeted group in terms of self-learning skills, motivation for lifelong learning and home access to the Internet.

3.2 The Empirical Picture

Defined as outlined above, the survey found that 35% of all respondents suffer from lack of access to eLearning, 72% from a lack of competence and 37% from a lack of motivation. In contrast, 21% are already “eLearning-ready” (see below).

The table below presents mean values for the size of each of the eight possible combinations of (lack of) access, competence and motivation to use online eLearning. The table also lists some of the main policy challenges for each of these groups.

21% of the overall sample are of type A, i.e. they are closest to becoming a user of eLearning; in fact, many of this group have already participated in an online course, or at least used the Internet in the context of more traditional learning activities. Supply-side improvements can be expected to lead to direct increases in take-up among members of this group. Existing research suggests that improvements in the quality of online learning services, together with increasing visibility and perceived utility, are of particular importance in this regard [4].

The group of type B, people who have the necessary degree of access and competence but lack motivation, is small (4% on average). Most people who (have access but) lack motivation are also insufficiently endowed with competence (type D) – 13% belong to this group. Type D comprises high percentages of non- and low-intensity Internet users who live in households in which another person is the main Internet user (e.g. partner, children).

The largest group, on average, are of type C: They have full access to the Internet and also the basic motivation for lifelong learning, but they lack competence – many do have few eSkills, but the larger number miss the self efficacy necessary for feeling confident to learn. Types E and F are of negligible importance as far as numbers are concerned. Persons of type G, 13% of the total population, are motivated to participate in adult education, but they neither have unrestricted access to the Internet, nor do they have the necessary eSkills

and/or self efficacy. This group comprises many older learners who have not yet taken up the Internet. To the extent as these persons satisfy their training needs through traditional channels, it appears doubtful whether they should be encouraged to take up eLearning, as the effort of mastering computer and the Internet is likely to be very big in comparison to the advantages to be had from learning online. A noticeable exception, of course, are training activities which are about the Internet itself. Finally, type H persons have the smallest propensity to take up eLearning, since neither access, nor competence, nor motivation are in place. 19% of all respondents fall in this category.

Table 1: Propensity to take up eLearning, and key policy issues

	Share in total sample	Description
A	21%	Has all three factors – access, motivation and competence. Improvements in supply would be likely to make this type start using eLearning in the near future – if they are not doing so yet.
B	4%	Lacks motivation but has access and competence. Efforts to increase motivation may be beneficial. They can focus on intrinsic motivation, but boosting outcome expectations may prove easier in the short run. A supply of eLearning services, coupled with promotional activities, which put emphasis on the immediate gains to be had from eLearning appear critical.
C	26%	Has access and motivation, but lacks competence (learning skills and/or computer skills). If mainly technical skills are missing, training in necessary skills is likely to be very beneficial. Persons whose self efficacy is insufficient are harder to reach by political measures. For people in an employment relationship, employer-provided (compulsory) training should be extended.
D	13%	Only has access, but not competence nor motivation; both motivational and training interventions will be needed. Intermediaries can be expected to play a particularly important role for this group, i.e. household members or friends who are able and willing to provide the required technical help in accessing online services and applications.
E	2%	Only access is missing; depending on the circumstances different interventions may be needed, such as financial supports, public access points or assistive technology.
F	0%	Only has competence. Very little numbers in this category, as most relevant eSkills are acquired via day-to-day use of the Internet, i.e. rely on access.
G	13%	Only has motivation; will require both infrastructural and training interventions. It should be explored if traditional channels are not more appropriate to provide this group with training. This may be the case for older citizens who have never used the Internet.
H	19%	None of the three conditions exist; multi-dimensional interventions will be needed.

Source: based on [1]

The data can be used to highlight the likely effect of potential policy measures for fostering eLearning. For example, supplying the population (including those with functional impairments) with full and universal access to the Internet will not necessarily have much positive impact on eLearning uptake, since people also need to acquire the necessary skills and confidence for using the Internet in the course of learning activities. Using the numbers quoted here, a strategy which would merely provide access to everybody would only increase the share of people in group A (= “eLearning-ready”) by 2 percentage points – in spite of the fact that a total of 35% are suffering from lack of access!

As opposed to strategies which prioritise material access, the evidence collected suggests that policy-making would be better advised to focus on the competence factor. By fostering self-learning competence and eSkills among those Europeans who have access to the Internet already, and who are also sufficiently equipped with motivation for lifelong learning, policy could make a potentially much bigger positive impact.

In a subsequent step, this typology can now be given a dynamic component by integrating additional assumptions and variables. For example, it appears plausible that many eLearning applications depend on broadband access to the Internet. To assume so means that the share of people who have access to eLearning infrastructure would be noticeably smaller. On the other hand, if we assume that eLearning services will soon also

be available via mobile phones or even home television sets, the share of the population that is affected by access barriers would decrease.

4. Implications for Regional Benchmarking and Conclusions

The significance of lifelong learning for policy-making at the regional level is undisputed. In this situation, the possibilities opened up by eLearning provide new impetus for a discussion about the need for policy action. Benchmarking regions success in making best use of ICT-based learning plays an important role in this respect.

In this context, the ACM model described in this paper appears to be very useful for comparing regions. Its main contribution is to highlight regions' specific strengths and weaknesses. In addition, it offers clear insights as to what kind of policy actions will be required to have the biggest positive effect. Using national level data, evidence suggests that there are sizeable differences across Europe in this regard.

The applicability of the ACM model for region-level benchmarking will be explored in more detail in TRANSFORM, a 30-month project which has started in early 2006. It seeks to develop a set of indicators on the "transformative" use of ICTs in European regions and test them through in-depth qualitative research at regional level.

Whereas the focus of the eUSER project was on purposeful, structured learning activities, it is useful to remind ourselves that most human learning takes places in the form of incidental or experiential learning, through activities that are not consciously identified as learning. Learning-by-doing is of great importance in this regard. This applies, in particular, for acquisition of eSkills, as van Dijk has pointed out [6]. Measurement of the extent to which individuals are involved in processes of incidental/experiential learning has not been carried out successfully yet. Obtaining more insights into the issue, and the development of suitable indicators and methods of measurement, are obvious areas for future research.

References

- [1] Gareis, K. (2006), eLearning, eUSER Project, Report on Current Demand/Supply Match and Relevant Developments. <http://www.euser-eu.org> (retrieved 26 June 2006, 15:05).
- [2] eUSER Project Consortium (eds)(2006), eHealth, eLearning and eGovernment for All: Recommendations from the eUSER Project. <http://www.euser-eu.org> (retrieved 26 June 2006, 15:15).
- [3] Gareis, K., Cullen, K. & Korte, W. B. (2004), Putting the User at the Centre – Implications for the Provision of Online Public Services, Cunningham, P. & Cunningham, M. (eds), eAdoption and the Knowledge Economy - Issues, Applications, Case Studies, Amsterdam et al: IOS Press, pp. 611-618.
- [4] Milicevic, I., Gareis, K., Korte, W.B. (2005), Making Progress Towards User-Oriented Online Public Service Provision in Europe, Cunningham, Paul u.a. (eds), Innovation and the Knowledge Economy, Amsterdam, Berlin: IOS Press.
- [5] OECD (2004), Lifelong Learning, OECD Policy Brief, Paris: OECD Publications, http://www.oecd.org/publications/Pol_brief (retrieved 24 March 2005: 13:30).
- [6] van Dijk, J.A.G.M. (2005), The Deepening Divide. Inequality in the Information Society, Thousand Oaks et al.: Sage Publications.
- [7] Viherä, M-L, Nurmela, J (2002) Communication Capability Is an Intrinsic Determinant for Information Age (NESIS Working Paper). <http://nesis.jrc.cec.eu.int> (retrieved 15 January 2003, 15:45)