How to improve the regions’ ability to learn?
Processes of formal and informal learning as an impetus for regional development

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1 Introduction

The European regions are confronted with major economic, social, political and cultural challenges. European integration and expansion, and its integration into globalised economic processes and decision-making processes, are leading to economic shifts and restructuring. To combat these challenges, measures need to be taken at all political levels. Promoting knowledge and learning is a main cornerstone of these measures, as part of the European Union’s Lisbon Strategy.

This applies not only at a national level, but increasingly also at a regional level. Regions are confronting one another in the international competition between locations, and a region’s ability to find its way in these fast-changing conditions is becoming a decisive competitive factor. While traditional location factors were predominant in the past, today the decisive success factor can be seen as a region’s ability to learn and adapt.

The ability to use the knowledge available within a region and apply it purposefully to solve problems relevant to the regional economy is a prerequisite for improving a region’s learning aptitude. Knowledge and skills are acquired by means of learning processes. A distinction is generally made between three forms of learning: formal, non-formal and informal learning. As yet, little significance has been attached to the importance of informal learning for regional development. Yet informal learning is not only playing an increasingly important role in the field of education and management, but is also entering European strategies for lifelong learning.

The aim of this article is to reveal the contribution the different forms of learning can make with regard to a region’s learning aptitude; how learning processes can be promoted in a region; and which conditions need to be created to improve a region’s ability to learn. The aim is to add a new input to the discussion about regions’ ability to learn, focusing on informal learning. The example of universities is used to demonstrate how knowledge transfer can be brought about between regional actors with the help of the above forms of learning.

As an introduction, there is a brief examination of the theoretical background and the current state of research into regional science. In the subsequent chapters, the terms ‘knowledge’ and ‘learning’ are studied in the context of regional science, and the actors in a regional knowledge system are presented. Following this, examples are given of how universities, as regional knowledge-holders, can contribute to regional development using formal, non-formal and informal forms of learning. In the conclusion, the need is described for an empirical analysis of informal learning processes and their significance for regional development.
2 Current research status

In regional science, the question has long been discussed of which factors have a positive effect on a region’s success, how regions develop as they do, and why. Whereas in the past, this was examined from a static point of view, with traditional locational factors (transport situation, taxes, labour market), today the focus is moving towards a dynamic view of development processes. Recent theories do not so much examine production factors in the narrower sense, but instead interactive connections between institutions and actors. Thus, the viewpoint is changing from an exogenous to an endogenous perspective (cf. Thierstein & Walser, 2000; MacKinnon et. al., 2002; Moulaert & Sekia, 2003).

This new theoretical viewpoint makes use of insights from business administration, which deals with companies’ ability to develop. Competition between companies is shaped by technology and competition, by expertise and the acquisition of competencies. The success of a region can also be evaluated in terms of its ability to innovate and learn, and of its competencies. The learning aptitude of a region relates to the fact that locations need to be capable of adapting constantly to changing regional and global conditions by continually reconfiguring their economic structure to maintain their competitiveness (cf. Florida, 1995). A location’s success results not only from a regional concentration of suppliers, buyers, competitors and workers, or its institutes of education and research, but also from the institutional, political, social and cultural conditions which shape regional economic processes. Knowledge is exchanged between the individual actors and networks are created, which can help form competencies and create knowledge in a region.

Today, there is no longer one single central, comprehensive theory of regional science. Instead, different approaches are drawn upon to explain the success of a region extending beyond the quality of classic locational factors. Five basic approaches are of particular relevance in this respect, and are assigned varying significance in nearly all theories of regional economics:

- **Approaches centring around growth poles**: ‘Growth pole’ concepts mainly come from the approaches of Perroux (1950), Myrdal (1957) and Hirschmann (1958), which were originally polarisation theories. They work on the basis that various interconnections at a location set off a dynamic process of development, and that this can lead to (economic) growth, which also spreads to neighbouring regions (e.g. Lasuén, 1973; Schaetzl, 1988; Sternberg, 2001).

- **Approaches centring around networks and relationships between people**: The ‘social capital approach’ (e.g. Putnam, 1993, 2007; Florida, 2002) places social relationships in a region or community in the foreground. It focuses on the networks of contacts between the inhabitants of a region and reveals how this creates, or can create, solidarity and commitment for public affairs, and thus spur on the local and regional economy.

- **Approaches centring around regional resources**: Endogenous regional development (e.g. Hahne, 1985) involves returning to the idea of a region’s (material and immaterial) resources and capabilities and reveals how necessary it is to use these to generate ideas and
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trigger development. Here, particular importance is attached to maintaining regional identity.

- Approaches centring around the knowledge and competencies of the regional actors and institutions: The ‘learning region’ (e.g. Florida, 1995; Butzin, 1996; Stahl, 1994; Thierstein, Schedler & Bieger, 2000; Schlaeger-Zirlik, 2003) underlines the importance of knowledge, qualification and the acquisition of competencies as the basis for a region’s economic development.

- Approaches centring around a region’s institutional and organisational capacities: The concept of ‘capacity building’, for example, works on the basis that social change is a complex process in which people in different roles and organisations attempt to make their living and working conditions efficient and effective (cf. UNDP, 2000). Institutional and organisational capacities are a vital prerequisite to being able to broach certain problems to be solved and make use of potentials.

Among the five concepts, there are many different overlaps, and elements of these approaches can be found to a greater or lesser extent in all approaches to regional economy. Approaches such as the industrial districts (Piore & Sabel, 1984; Becattini, 1990; Harrison, 1992) or innovative milieux (GREMI, e.g. Camagni, 1991) may start out with a different focus, but integrate reflections on the advantages of spatial proximity, relationship networks and regional culture. Discussions on the advantages of agglomerations and on clusters (Krugman, 1991; Porter, 1990, 1996; Venables, 1996) and Storper’s (1995) ‘untradeable interdependencies’ focus on direct relationships and networks between economic actors, as well as on relationship networks which go beyond direct economic contacts. Approaches such as ‘path dependency’ in regional development (Nelson & Winter, 1982), the quality of institutions (‘institutional thickness’, Amin & Thrift, 1994) and the ‘embeddedness’ of economic activities (Granovetter, 1985) unite approaches regarding regional resources, social capital and capacity building, among other things. And when Grabher (1993) and Roesch (2000) establish that regions have a life cycle, and the networks within a region may be responsible for whether or not regions develop positively or are held back or blocked in their development, these ideas contain approaches related to regional resources and cultural change, and also learning processes, regional networks and organisational capacities play an important role (see Figure 1).
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Figure 1: Layer to analyse regional economic development processes

Whichever regional economic ‘school’ one starts out from, for all the above concepts, the field of knowledge and competencies is of special significance for a region's development. As Richard Florida (1995) puts it: "To be effective in this increasingly borderless global economy, regions must be defined by the same criteria and elements which comprise a knowledge-intensive firm: continuous improvement, new ideas, knowledge creation and organisational learning. Regions must adopt the principles of knowledge creation and continuous learning; they must in effect become knowledge creating or learning regions." A region’s success crucially depends upon the extent to which it manages to use existing knowledge for its own development and to generate new knowledge with regard to current problems. A region’s ability to learn thus becomes a central success factor for its future development.

Below, the terms ‘knowledge’ and ‘learning’ are examined more closely and analysed in the context of regional development.
3 Knowledge and learning

The term ‘learning’, just like the term ‘knowledge’, is made up of various approaches. Looking back to Nonaka & Takeuchi (1998) and Willke (2004), in our model we distinguish between data, information, knowledge and competencies, describing the individual steps in an overall process of learning. Data is the raw material of knowledge; it is pure facts which are open to interpretation. Data becomes information when it is brought into a certain context and thus gains relevance for a topic. The step is taken from information to knowledge when actors integrate the information into the context of their personal experience, i.e. fit the information into their individual knowledge base and make it useful for themselves. This active, individual process of acquisition is the ‘bottleneck’ between much-discussed ‘information overload’ and the useful knowledge which is available. The step is taken from knowledge to competency when existing knowledge is put into use. The term ‘competency’ means having both the authority and the expertise to deal with tasks or problematic situations successfully. Every single step is a learning step which ends up with the use of the knowledge acquired, and thus the acquisition of competencies.

Figure 2: Knowledge and learning - a model of steps and results

One aspect of particular importance in connection with regional development processes is the differentiation between explicit and implicit / tacit knowledge, which goes back to Michael Polanyi (1967). Explicit knowledge is intellectual knowledge, tied to communication and documentation, whereas implicit knowledge is unspoken or limited to an individual person (Roehl, 2002: 20f.). Implicit knowledge is a non-transferable potential for achievement (Clar et al., 1997) which is mainly acquired by means of informal learning geared towards problem-solving. Implicit knowledge can be made available to others to some extent by a process of explicitation (see Figure 3).
The acquisition of knowledge is tied in with learning, as a process of passing on and transferring knowledge. Taking the division into implicit and explicit knowledge, learning is primarily the transferral of explicit or implicit knowledge to become implicit knowledge. It is the process which causes an ‘inner’ change in people, an increase in competencies and abilities of varying permanence (cf. Back et al, 2001).

The acquisition of knowledge and competencies by means of learning processes can take place in various ways, with the context in which learning processes take place playing an important role. In accordance with the definition by the European Commission (CEC, 2001: 32, 33) a distinction must be made between formal, non-formal and informal learning (cf. Brettschneider, 2004):

- **Formal learning** means ‘Learning typically provided by an education or training institution, structured (in terms of learning objectives, learning time or learning support) and leading to certification’. Formal learning is intentional from the learner’s perspective.

- **Non-formal learning** means ‘Learning that is not provided by an education or training institution’ and typically does not lead to certification. It is, however, structured (in terms of learning objectives, learning time or learning support). Non-formal learning is intentional from the learner’s perspective.

- **Informal learning** means ‘Learning resulting from daily life activities related to work, family or leisure’. It is not structured (in terms of learning objectives, learning time or learning support) and typically does not lead to certification. Informal learning may be intentional but in most cases it is non-intentional (or ‘incidental’/random).

Depending on the form of learning, there is also a difference in the type of knowledge transferred, as well as the degree of formalisation and individualisation. By means of formal learning processes, explicit knowledge is passed on in a formalised manner; it is not possible to pass on implicit knowledge by means of formal learning processes. Informal learning enables implicit knowledge to be transferred in a very individualised manner. Using non-formal learning processes, both explicit and implicit knowledge can be passed on with a low degree of formalisation (see Figure 4).
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Figure 4: Characteristics of different kinds of learning

<table>
<thead>
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<th></th>
<th>Formal learning</th>
<th>Non-formal learning</th>
<th>Informal learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange of explicit knowledge</td>
<td>+++</td>
<td>+</td>
<td>- - -</td>
</tr>
<tr>
<td>Exchange of tacit knowledge</td>
<td>- - -</td>
<td>+ + / - -</td>
<td>+ + +</td>
</tr>
<tr>
<td>Formalisation</td>
<td>+ + +</td>
<td>- -</td>
<td>- - -</td>
</tr>
<tr>
<td>Individualisation</td>
<td>- - -</td>
<td>+ + / - -</td>
<td>+ + +</td>
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</table>

In the discussion on regions’ ability to learn, all forms of learning are equally important and must complement one another. However, when it comes to practical implementation, formal and non-formal learning are often the focal points, as institutes of learning exist in this context as suitable cooperation partners. Understanding learning processes and forms of knowledge facilitates well-founded discussion on learning regions, as the dynamics of learning and knowledge is a decisive factor in innovation and regional development.
4 Regional stakeholders as knowledge-holders

With regard to a region’s ability to learn, both learning processes and the stakeholders involved, as knowledge-holders, play an important role. Within a region, moves are made by people and institutions from different sectors, who, thanks to their specific tasks and roles in each case, can contribute knowledge from different fields. These may be actors from business, politics and government, or from civil society, culture, education or science. Consciously or unconsciously, they form an informal system of knowledge held together by shared or overlapping spheres of interest and remits, one example of this being regional development. The knowledge-holders’ relationships with one another differ in their intensity; they influence one another and are (sometimes) dependent upon one another. The regional system comprises all actors who, as knowledge-holders, influence the task of regional development by contributing specific (explicit or implicit) knowledge in accordance with their function (cf. Schnell et al., 2005).

Within this knowledge system, stakeholders can be distinguished who take a fairly passive stance with regard to the formal regional structure. As entrepreneurs, tourism professionals, communities, NGOs or private individuals, they are stakeholders in regional economic development, and at the same time the users or beneficiaries of the actors for whom strategic and operative regional development is their function and duty (regional secretaries, regional managers, project managers of regional projects and other ‘knowledge activists’).

The following figure shows the most important actors and knowledge-holders who influence a region’s development.
The individual actors are linked together to varying degrees. It is an open system in which actors can arrive and leave. All actors have their own tasks and their own environments, and possess specific knowledge. As a rule, all the actors follow their own (entrepreneurial) aims, and shared, superordinate aims are hardly followed at all. Thus, although there is a wealth of knowledge within a region, it is (has so far been) rarely used to solve problems specific to the region. Yet the whole knowledge available in a region is more than the sum of all the individual knowledge.

In order to use the knowledge available in a region, and contribute to a region’s development, the first step which is required is to identify the available knowledge. By encoding and sharing knowledge, individual actors can acquire competencies which are required to solve relevant problems. These competencies are specific to actors and to regions and can only be ‘traded’ to a very limited extent. In the last step, the use of the acquired knowledge and competencies can lead to innovation and processes of innovation in a region. If the individual actors succeed in passing on their specific knowledge and bringing it to bear in regional problems, this creates the prerequisite for regional knowledge management, and a region’s ability to learn is increased.

With the help of the above learning processes, the individual actors in a region can pass on their knowledge in different ways and contribute to regional development. Universities play...
an important role as knowledge-holders in a region, both as regional providers of initial and further education, and as research institutions and service-providers. In the following, the example of universities is taken to show how knowledge can be transferred into and within a region by means of formal, non-formal and informal learning processes, thus contributing to regional development.
5 Universities and their contribution to regional development

Universities have an impact on many aspects of the regions where they are located: the regional economy, the transfer of innovation and knowledge in a region, regional initial and further education, the cultural and social life, and a region’s image and identity. They are knowledge-holders and can be an important partner in a regional system of innovation, as they transfer existing knowledge both within and outside the region. Their (international) research work means that new knowledge is generated in the universities; this, in turn, can be made available to the region. The regional economy – which also has national and international links – benefits from academic knowledge by knowledge transfer, and can demand specific expertise (see Figure 6).

Figure 6: Regional Innovation system

Knowledge transfer between universities and the region can create added value for both and make a positive contribution to regional development. Universities are not only educational and research organisations; they can also help solve economic and social problems in a region. One example of how knowledge can be transferred is by means of company-specific further education courses or problem-oriented research tasks in a region. By involving universities in regional plans and programmes, they can help solve regional problems. Added value for both the universities and the location regions can be created if synergies emerge between the ‘university system’ and the ‘regional system’. ‘The successful university will be a learning organisation in which the whole more than the sum of its parts and the successful
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region will have similar dynamics in which the university is a key player.’ (Goddard, 2000: 7). Knowledge can be transferred between the university and regional actors in different ways. Universities provide formal learning opportunities and non-formal and informal learning structures, aimed not only at students, but also at other target groups, such as regional companies and institutions, as well as the regional population. The following illustration provides examples of a universities’ various activities and programmes, in relation to these three forms of learning.

Figure 7: Programmes offered by universities, sorted by the form of learning

<table>
<thead>
<tr>
<th>Formal Learning</th>
<th>Non-formal Learning</th>
<th>Informal Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Education and Learning</td>
<td>• Further Education</td>
<td>• Exchange of Experiences</td>
</tr>
<tr>
<td>• PhD-Studies</td>
<td>• Conferences, Congresses, Meetings</td>
<td>• Alumni</td>
</tr>
<tr>
<td></td>
<td>• Public lectures, speeches etc.</td>
<td>• Mentoring-Programmes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expert networks</td>
</tr>
</tbody>
</table>

Below, one example is provided for each form of learning to show what form knowledge transfer can take between universities and regional actors.

5.1 Formal learning

Universities can be seen as an example of predominantly formalised learning processes. Because of their educational and training function, knowledge is transferred in formalised learning contexts which are structured by means of learning goals and study times. As a rule, these learning processes lead to a certified degree (Bachelor’s, Master’s, PhD). The target group for a university’s educational programme is students, both from the region and from outside. The existence of a university in a region can affect their choice of educational path, as well as that of the location for their education. The presence of a university can raise the regional population’s tendency to participate in education, as well as reducing the number of students who move to other regions. Even when the course is over, a university can influence the graduates’ career choice and place of work, thus contributing to highly qualified people remaining in the region, rather than moving away. For many regions in Europe, the migration of highly qualified people has become a great challenge. On one hand, universities can help raise the percentage of highly qualified people in a region (brain gain), and on the
other hand they can reduce migration among the highly qualified (brain drain). However, it does not only depend on the university whether or not graduates remain in the region where they studied, but also on the conditions on the regional labour market and the region’s quality as a location. If the university has a high proportion of local students, this raises the level of education in the regional population, but available knowledge can only also be put to use for the region if the highly qualified can be kept there after graduation. As well as the universities, other actors are responsible for this, such as regional economic development associations.

### 5.2 Non-formal learning

The field of further education at a university is also partly formalised, as some full- or part-time courses for working people, focusing on a specific subject, leading to an degree. Other parts of the further education programme at universities are also structured into learning goals and study times, but do not lead to a certified qualification. These can include company-specific training courses, symposiums or seminars. Universities, just like private educational providers, can also design further education courses aimed at the needs of regional companies and leading to the transfer of innovation and knowledge between the university and regional companies. For example, the Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen provides special seminars for family enterprises, or on the topic of management skills. The target groups of company-related further education courses include administrative boards, managers and professional staff. Open enrolment programmes are open to anyone interested, meaning that companies in the region and across the country can take part. By this means, knowledge is transferred both from the university into the region and from the region and elsewhere into the university. Furthermore, in-house programmes take place during which the topic and aims of the seminar are established in consultation with the client: the company. Thus there is an opportunity to orientate programmes to the needs of the company and enable knowledge to be transferred from the university into regional companies. Both universities and regional companies can benefit from cooperation and the exchange of knowledge in the context of company-related further education courses.

### 5.3 Informal learning

Although universities, in their function as educational institutions, predominantly provide formal and non-formal learning programmes, they also offer the exchange of knowledge and competencies by means of informal learning structures. At the University of St. Gallen, for example, there is an informal transfer of knowledge between students and (regional) companies and institutions, using coaching and mentoring programmes. The aim of the mentoring and coaching programmes is to develop the students’ personalities and teach general competencies. The coaching programme starts off as early as the assessment stage, while the mentoring programme continues at the Bachelor’s and Master’s stage. Participation in the programmes is optional and conceived as a measure for those in employment. Most people involved in the coaching programme are experienced professionals from the region, whereas
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the mentoring programme already has a trans-regional orientation and puts students and experienced professionals into contact well beyond the region of St. Gallen. In these programmes, students are mainly passed on knowledge from managers outside the region. The knowledge transfer benefits both the students, who can learn from the experience of those in employment, and the coaches and mentors, who are informed about latest developments thanks to this contact with the university.

Another example of informal knowledge transfer between universities and regional actors is the Biolago initiative in the region around Lake Constance. This was founded in 2005 as the fifth biotechnology region in Baden-Württemberg, and today comprises an international network of about thirty companies, institutions, associations and unions from the field of biosciences in the Lake Constance region. The University of Constance is represented in this network by two institutes. The Biolago network aims to support cooperation, use synergies between the individual members, create further education programmes, combine and better represent the interests of the members involved, and facilitate technology transfer and access to the market for the companies participating. To achieve this, members are informed about activities and interests, joint trade show exhibitions are organised and an Internet platform is operated. The university is integrated into the network and takes part in its activities. In this way, on one hand the university makes an active contribution to knowledge transfer in the region, and on the other it profits from the expertise of the participating companies.

Summary

To sum up, it has been stated that universities – as regional stakeholders and knowledge-holders – can contribute to the exchange of knowledge and competencies in a region in the context of formal, non-formal and informal learning processes. Universities offer more to a region than just research and education: they help identify and solve problems; they support the updating of regional actors’ competencies, and their findings can stimulate regional processes of innovation. They act as a gateway for information from outside the region and can help a region make sure of its own potential, structures and procedures. However, they can only contribute to solving regional problems if they are recognised as a competent partner by the other actors and included in processes of innovation, in projects and in programmes.
6 Conclusion

Knowledge and competencies, as well as the ability to learn to adapt to changing background conditions, are becoming increasingly important factors in regions’ success. In a region, there are a great number of actors from different fields, who possess specific knowledge. Management of existing knowledge and the exchange of knowledge between the individual actors can make a decisive contribution to a region’s ability to learn. In this process, it is important that knowledge is exchanged using all the forms of learning named above. While it is quite easy to establish a connection between the learning process and regional development in the case of formal and non-formal learning structures, so far there has been hardly any systematic empirical research into learning processes as a consciously applied instrument in regional science.

On one hand, this is astonishing, as tacit knowledge, which is predominantly acquired by means of informal learning, is judged a central influencing factor on regional economic development (e.g. von Krogh et al, 200; Florida, 2002). Exchanging ideas and experience beyond specialist, institutional, functional and professional borders is seen in many of the regional science approaches described in Chapter 2 as a key to understanding a region’s ability to adapt and develop. On the other hand, however, it is also understandable that little attention has yet been paid to informal learning processes in analyses and in the search for tools to support regional development. Only certain isolated aspects of informal learning processes have been the subject of scientific discourse: there is a lack of standardised definitions, and thus also of comparable empirical studies. Moreover, these processes are self-guided; they cannot be fully organised or let alone controlled.

Certain background conditions need to be created for the exchange of knowledge and competencies between actors to take place within a region, as well as for this exchange to integrate both formal and informal learning processes. In relation to the example of a university as a regional knowledge-holder, the following requirements can be derived, which are directed both at the universities and at the other regional actors:

- Universities have more to offer than education and research:
  - Updating the skills of people in employment
  - Identifying and solving social problems
  - University expertise is needed in an increasingly large range of professional and political fields
  - Research results have to be transferred into innovation processes, incorporated into regional action plans and programmes
  - Take the universities seriously as a player and partner in the regional mind map
  - Using universities as a repository of knowledge
  - Helping the region to understand itself
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- Gateway to global information to meet the needs of different sectors of the regional economy
- Creating a mechanism through which the resources of universities can be mobilised to contribute to the regional development process

The above requirements relate both to improving regional actors’ ability to learn and to the different learning processes. As well as the acquisition and exchange of knowledge, it is equally important that knowledge possessed by the individual actors is made use of and applied in a targeted manner to regional problems. For this to happen, regional knowledge management is required which is capable of transferring, generating and applying knowledge. All actors relevant to regional development need to be involved in this regional knowledge management. A learning process is also required to increase actors’ awareness of regional problems, and to promote knowledge transfer between the actors. Here, informal forms of learning play a crucial role.

As this article has shown, by using all three forms of learning – and particularly by integrating informal learning into regional learning processes – a region can use its ‘knowledge potential’ to the full. It is in this point in particular where there seems to be great potential for promoting learning processes, improving the ability to learn and thus making regions competitive. Mac Kinnon et al. (2002) ascertain that there is still a clear lack of empirically grounded research results for concepts such as the learning region, or for regional science approaches which stress the significance of non-economic relationships. The same can be established for the question of the different learning processes which have varying effects on regional development, as studied here. In particular, an empirical analysis of informal learning processes among different regional actors could spur on discussion in regional science.
7 Literature


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