Competence advancement supported by social media

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Abstract: People regularly need to cope with new challenging situations that cannot be mastered by only applying routine procedural skills and knowledge. Independently updating one's set of skills and knowledge base in the context of technologically rich environments is essential to meet the changing life- and workplace requirements. This paper proposes the creation and maintenance of landscapes of networked tools and services as an important area for competence advancement in higher education. It discusses this in the context of self-directing intentional learning projects within personal and distributed learning environments.

Keywords: Competence, Social Media, Personal Learning Environments, Self-Direction

1 Introduction

Many contemporary life and work contexts can be characterised as being increasingly uncertain, ambiguous and unpredictable. We are regularly confronted with situations where we have to deal with rather complex and dynamically changing and often unexpected requirements. We live in a fast-changing world in which individuals leaving formal educational institutions cannot expect to remain in the same career paths or even the same domains of work for their whole work-life. It is not enough to be a knowledgeable and skilled person in one particular area. Once acquired factual knowledge and procedural skills in a certain domain increasingly cannot meet all the requirements emerging in rapidly changing workplaces. People regularly need to cope with new challenging situations that demand continues updating of one's set of skills and knowledge base. Abstract levels of thinking, creativity, and continues decision-making have become crucial dispositions. Transferring existing knowledge and skills to

new situational contexts is often not sufficient. Instead, a *competent* person also needs to be able to build up new knowledge and skills while adapting to new situational constraints that require acting under various levels of uncertainty. Herewith, self-directing intentional learning and change projects have become one of the challenging areas in every day life- and work contexts.

Following paragraphs discuss about the theoretical constructs of competences and self-directing intentional learning and change projects within personal and distributed learning environments. This paper challenges the current strategies and methods in higher education for preparing individuals to cope with unpredictability and obscurity in technologically mediated life and work. We propose alternative ways of practicing and advancing the necessary dispositions for self-directing intentional learning through the use of networked tools and services.

2 What do we mean by competence?

Unfortunately, the term competence is often used in a somewhat inflationary, overly broad and very fuzzy manner in the literature, thus inviting a sloppy use of the term. That this lack of coherence and precision is acceptable and quite common in ordinary speech is well documented in any regular dictionary. Webster's dictionary, for example, defines 'competence' as "fitness or ability" with synonyms including 'capability', 'capacity', 'efficiency', 'proficiency', and 'skill'. But even some scientific publications simply attest that "a competency may be comprised of knowledge, a single skill or ability, a personal characteristic, or a cluster of two or more of these attributes" (Marrelli, Tondora, & Hoge, 2005, p.537), or that "competencies are not fundamentally different from traditionally defined KSAOs (i.e., knowledge, skills, abilities, and other characteristics)" (Shippmann, Ash, Battista, Carr, Eyde, Hesketh, Kehoe, Pearlman, Prien, & Sanchez, 2000, p. 704).

Weinert (2001) highlighted the existing range of terminological differences and offered a set of recommendations and orientations for further efforts on the clarification and elaboration of the concept. However, any conceptualization of competence for scientific, analytical purposes cannot simply propose the synonymous use of other concepts such as skill, knowledge, and ability.

Competence is a theoretical construct that refers to a human potentiality for action in a range of challenging situations (Fiedler, 2006). It is thus a

concept that foremost indicates a precondition for future problem solving and coping (including the use of adequate tools) in a particular area of action. The more elaborated, contemporary conceptualizations of competence are best understood as a programmatic attempt to expand older notions of what constitutes the necessary dispositions for successful problem solving and coping in a given area of action. In general what used to be emphasized was the role of well trained, standardized, and largely automated procedural skills and of factual knowledge for successful problem solving and coping. Now, this emphasis is increasingly coming under scrutiny, since situational challenges in many work and life contexts cannot be mastered by applying routine procedural skills and knowledge anymore. Instead, the changing conditions for life and work produce situations that can be described as dynamic, complex, open-ended, and ambiguous, and that regularly require novel, creative and sometimes surprising solutions. This is where the old notion of qualification that is based on requirements analysis oriented in the past and on the acquisition and performance of standardized procedural skills and factual knowledge clearly shows its limits. Erpenbeck and Heyse (1999) thus emphasize, for example, the importance of internalized orientations, values and attitudes for coping with dynamic, open ended and complex problem situations where actors cannot exclusively rely on a stock of factual knowledge and procedural skills previously acquired. They argue that factual knowledge and procedural skills can only be viewed as necessary but not as sufficient for the execution of successful ("competent") action in many areas of human activity.

We follow this conceptualisation introduced by Erpenbeck and Heyse (1999). A competent actor is thus understood as an individual who has acquired factual knowledge and a set of procedural skills in a certain area, but in addition also holds orientations, values and attitudes for coping with open-ended and complex problem situations (Fiedler, 2006). Like any other theoretical construct referring to a human potentiality, a competence, understood as a set of dispositions, cannot directly be observed. It has to be inferred from the observation (or self-observation) of a given performance that is considered to be an indicator for the theoretical construct. Based on the conceptualization of competence that we have referenced above, a person needs to perform in a situation that is complex, ambiguous and thus challenging enough to prevent a mere application of routine procedural skills and factual knowledge, when we want to accept her performance as an indicator for an underlying competence in a particular area of challenge.

3 Self-directing intentional learning projects

One of the challenging areas in every day life and work contexts is self-directing intentional learning and change projects (Fiedler, 2006). The concept of self-direction is certainly not a new concept in educational research. An extensive amount of research about self-direction in education exists and has produced rather heterogeneous theoretical understandings and interpretations. Terms like self-planning, self-organising, independent adult learning, autonomous learning, etc. often refer to a variety of notions and different perspectives. Most often self-direction in education is defined as "a process in which individuals take the initiative with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating outcomes" (Knowles, 1975).

Based on an extensive meta-analysis of related literature, Candy (1991) offers an overview of the various strands of thought that can be found under the label of „self-direction" in human learning. One prominent strand could be described as activity-oriented. It focuses mainly on activities and strategies of actors who either want to support or execute „self-direction" inside a formal instructional system. On the other hand we can think of the actors who operate outside any formal instructional system to pursue learning opportunities in their natural social setting. Candy (1991) has proposed the term *autodidaxy* to make a necessary distinction here.

The second major perspective can be described as disposition-oriented. This strand of thinking refers to the personal attributes and orientations that influence the readiness and ability of actors to execute self-direction in various contexts. It can be further distinguished into *personal autonomy* referring to the execution of individual freedom in a more general sense, and *self-management* focusing on the willingness and capacity to conduct one's own education (Candy, 1991).

Erpenbeck et al. (1999) propose that, in situations where starting conditions, constraints, and goals are either determined or determinable in a straightforward way, we can speak of "self-direction" in respect to the actions and decisions an individual can execute to reach these goals. In complex, chaotic situations on the other hand, where no optimal outcome can be determined and where people have to act and decide under uncertainty, require action and coping strategies that are more adequately described as attempts of "self-organisation."

There is a growing body of empirical research on adult learning that suggests that the perspective of "self-organisation" might be better suited to describe how adults cope with contemporary challenges in the workplace and other areas of life. However, we would argue that in the context of formal higher education, a focus on self-direction (where starting conditions, constraints, and goals are either determined or determinable) from an activity-oriented perspective seems more appropriate and feasible.

4 Mastering information and communication technologies with social media

Due to the increasing importance of distributed (and often international) work settings, much of our symbolically mediated work- and communication activities have moved to the Web. Communicating, accessing, making sense of and creating informational artefacts have become everyday life and work tasks that rely on the use of personal, networked technologies on the one hand and on the other hand on one's ability to take a control and execute these actions in a self-directed manner.

A growing variety of social media offers a significant potential for networked technologies. Social media represents a class of applications, which support social information retrieval, personalized aggregation and monitoring, easy and joint publishing, sharing and interaction, as well as establishing and maintaining connections. The advantages of social media are mainly seen in openness and free accessibility of web content for everybody, connection building and networks within common interests (MacManus & Porter, 2005). Examples of social media applications are for instance Google Groups, MySpace, YouTube, Flickr, Twitter, Wordpress, Wikispaces, etc.

Social media enables to mix or integrate information via network aggregation platforms allowing the creation of new meaning from mashed information. The combination of various applications offers quite powerful ways of managing and repurposing and remixing information, thus supporting various regulations, coordination and operation processes. Individuals need to handle artefacts, which are predominantly produced and distributed in a wide variety of media modes, genres and forms. They have to be able to recognise different media forms, and to manipulate, transform, and re-distribute informational artefacts. Furthermore, they

need to understand how networked, informational artefacts are generated, managed and made available. Only then these means can be fully exploited for personal purposes.

On the other hand, it is not sufficient to only understand how to use certain social media applications. One must also learn how to utilize those diverse and powerful technologies efficiently and effectively for computer-mediated communication, for specific decision-making and problem solving ends (Horton, 2007).

5 Current situation in higher education

It is predicted that dispositions for self-directing intentional learning and change will gain more and more importance for coping with changing life and work demands (Rychen, 2003). Higher education needs to pay more attention to the execution and advancement of competencies in this area. Educational challenges should be created that provide opportunities for self-directing intentional learning and change projects, thus preparing individuals for coping with life and work related problems outside of the boundaries of pre-structured and well supported formal educational settings.

In general there seems to be a widening gap between well structured, pre-defined, and guided settings in higher education on one side, and more and more work contexts moving towards uncertainty and ambiguity on the other side. We would like to stress that this is a rather critical imbalance and that higher educational settings need to provide challenging situations for individuals to practice and advance the necessary dispositions for self-directing intentional learning.

According to the literature on supporting self-direction in education, often an emphasis is put on the individual taking control over one's activities, goals, strategies, and so forth. Despite of the heterogeneous theoretical understandings, it appears that no special attention has been paid to letting an individual take responsibility for her personal landscape of (networked) tools and services. However, Hiemstra (1994) has proposed that taking personal responsibility refers to individuals assuming ownership for their own thoughts and actions. Knowles (1975) definition indicates among other issues an identification of human and material resources for learning, but this does not state clearly the control over one's technological means for supporting the fulfilment of her goals. We think it is fair to ask why a landscape of tools and services should be pre-defined and pre-selected for

individuals, while at the same time they should be practicing taking control and responsibility of their intentional learning?

Outside of formal education we are witnessing a rapid proliferation of networked technologies that are becoming a significant part of our everyday lives. Being a successful actor in an increasingly networked society includes the selection of appropriate tools and services for supporting the fulfilment of personal goals. Without any idea of how to select and use technology for one's own purposes prohibits the efficient and effective performance of an individual in many every day life and work contexts.

So far approaches to stimulate and advance self-direction in current educational settings mainly emphasise individuals' decisions of what and how to learn in a given educational environment. They are instructed how to apply certain strategies of executing self-direction, such as goal setting, planning, and so forth (see for example Boden, 2004; Song et al., 2007; Fellows, 2002; Lin, 2002; Stolk et al., 2006). Thus leaving aside the opportunity for individuals to decide with what type of technological tools and services they want to mediate their activities. This is mainly due to the fact that individuals at higher educational institutions are frequently provided with a set of pre-determined and centrally controlled landscapes of tools and services.

Institutionalised course management systems are currently in use in most higher educational institutions. Predominantly, they can be characterised as rather closed and centralised systems, mainly structured around content. The rigid structure of these systems does not favour practices that could put an individual's interests, tool preferences and objectives in the centre. The facilitator authoritatively defines the learning objectives, tasks to be carried out, the media to be used, as well as the expected outcomes. These pre-defined and pre-determined technological landscapes simply don't provide the opportunity for individuals to practice the selection of tools and services in order to mediate their self-directed activities.

On the other hand we should not forget about the personal differences of the individuals. Individuals differ widely in terms of their prior knowledge; cultural backgrounds, attitudes, values as well as they have varying degrees of self-direction depending on the situation and subject matter. This all has an effect on their expectations and the level of engagement in an educational experience. Placing everybody in the same situation with the same landscape of tools and services influences subsequent actions within a particular context (Könings, et al., 2006).

6 How to fill in the gap between higher education and work life?

Consequently it is time to rethink what are the educational priorities in the face of the changing characteristics and demands of work and life? We believe that higher education should create challenging situations for individuals to practice the attainment of adequate dispositions for self-directing intentional learning in a technologically mediated work context. At least partial personal control over the technological means that mediate and support work- and study-activities is an important aspect to consider in higher education.

Various social media applications offer a significant potential for dealing with information flows and for supporting knowledge building individually and within groups. The selection and use of appropriate social media can be considered as an educational goal in itself, which presumes a set of skills, knowledge, and orientations in order to make purposeful decisions in respect to mediating technologies.

Nevertheless, many educators claim that social media applications are not stable and structured, and thus not suitable for educational purposes. On the contrary we believe that an individual needs to have a variety of networked tools and services to her disposal in order to enrich her *personal learning environment* with the appropriate technological means to mediate her activities. In a world increasingly dependent upon networked technologies and distributed work settings, successful actors need to make efficient and effective use of information and communication technologies (Horton, 2007) for their own purposes.

7 What do we mean by personal learning environments?

The notion of personal learning environments (PLE) has been under discussion in recent years. Not surprisingly one can find a diversity of interpretations of what a PLE is (see for example Johnson, 2006; Harmelen, 2006; Attwell, 2007; Dron, 2007; Kolas, 2007, Wilson et al., 2006). While this discourse in general rightfully questions the underlying assumptions that still drive the development and implementation of monolithic, all-embracing, applications, it still displays in most parts a very "technology-centric" thinking and reflects strong conceptual ties to

the requirements of formal educational systems (Attwell, 2007). Very often a PLE is conceptualised either as a single software application or comprised of all the different tools and services that an individual is using at a given point in time. Thus, the PLE is seen as the conceptual 'glue' embracing all the networked and interoperable tools and services. However, treating a PLE more as subjective, psychological concept, offers a broader, naturalistic view on what comprises a personal environment in which intentional learning is carried out.

For us a *personal learning environment* entails all the instruments, materials and human resources that an individual is aware of and has access to in the context of an educational project at a given point in time (Fiedler, Pata, 2008). A PLE is entirely "controlled" or constructed by an individual and is adapted according to the individual's needs and current activities. A PLE can be extended, e.g. the components of an environment can be replaced or complemented with additional ones. Some components can also be eliminated or temporarily excluded if they do not serve the purpose anymore. Every personal environment is different, depending on the individual's preferences and expectations, his/her process of personal development and mental processing. Individuals construct their environments so that its components afford them to create the experience they desire and to act according to their purposes. Furthermore, individuals ascribe various roles to themselves according to the situation and context. This is especially important in settings that require collaboration.

8 What happens if study projects are carried out in groups?

If an individual takes part in some collaborative work- and study activities with others, some common goals and objectives for action need to be established and maintained (Fiedler, Pata, 2008). The challenge is to bring personal expectations, experiences, roles and environments together in order to form a functional collaborative setting. In this case parts of a PLE inevitably start to show qualities of a human activity system (Engeström et al., 1999). From an observer's perspective an individual PLE starts to overlap partly with other personal environments and a temporarily functioning *distributed learning environment* emerges. A distributed environment serves as long as the collaboration among these individuals is going on (Fiedler, Pata, 2008).

Naturally, also the notion of distributed learning environments varies a lot

(see for example, Converso, 1999). We conceptualise a distributed learning environment as a group managed environment that is a mix of some parts from the individuals' personal environments and some new components that might be needed to carry out particular collaborative tasks. A distributed environment emerges when the collaborative activities such as interaction between individuals, communication and shared activities are executed. Distributed learning environments are also dynamically changing in terms of its components, structure and extension. Changes are defined by the individuals' preferences, negotiation process and the nature of their collaborative activities.

In distributed environments different actions can be distinguished: conversational actions related to subject-matter issues (terminology, concepts) or related to regulative issues (distribution of work, roles, media) and productive actions in which the actual task is executed and objectives are materialised (Fiedler, Pata, 2007). Naturally both types actions are highly intertwined and actors switch rapidly from one to another. In loosely-coupled, networked work-settings, both types of actions need to be mediated by an appropriate selection of tools and services. While making decisions regarding the technological enrichment of a personal learning environment only requires a conversation with oneself (reflection), collaborative settings require the explication, negotiation and mutual acceptance of a selection of technological means in order to form a functional distributed learning environment.

9 Competence acquisition and personal learning environments

It is important to acquire and advance adequate dispositions for dealing with unstructured situations and to utilize existing resources to their greatest potential (Brockett, Hiemstra, 1991). Individuals who need to select the technological means for creating personal or distributed environments in order to support their own work and study activities also need to be competent in terms of managing technology. Thus forming a personal or distributed learning environment including a landscape of mediating tools and services often requires a trial-error approach, which in turn can help to advance the necessary dispositions (knowledge, skills, orientations, etc.) for self-direction in education.

Considering the fact that much of our symbolically mediated work- and communication activities have moved to the Web, practicing the selection and maintenance of a set of networked tools and services to enrich a

personal or distributed learning environment seems to provide an interesting and adequate educational challenge.

We believe that taking initiative and responsibility for one's own learning and change increasingly includes and requires the ability to select adequate mediating technologies to enrich a supportive personal or distributed learning environment. We consider the ability to gain access to, and choose selectively from a full range networked tools and services as an important aspect and expression of self-direction in education.

10 Concluding remarks

Rapid technological developments and changing demands in many work contexts require people to regularly act under various levels of uncertainty while continously updating their knowledge and skill base. An essential requirement of today's post-modern, technologically rich society is to take control and responsibility for one's own education, learning, and change. While many work contexts stresses the importance of coping with uncertainty and ambiguous situations, higher education still functions in a highly structured and centralised way, thus prohibiting the expression of self-direction in a broader sense.

We want to argue that educational experiences need to be increasingly constructed in a way that provides opportunities for individuals and groups to organise and manage their mediated activities in the context of technologically rich environments. This is an essential aspect to become increasingly self-directed in today's world and be in tune with the characteristics and demands of many workplaces.

We propose that taking control and responsibility over one's personal learning environment and its supporting landscape of networked tools and services is an important expression of self-direction in education. The emerging social media practices seem to be a promising field for mediating and enriching personal and distributed learning environments. Selecting and combining various applications for supporting personal or collaborative learning purposes provide individuals an opportunity to actually execute and advance an important set of dispositions for self-direction.

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