The Role of the New technologies in Workplace Learning: a UK Perspective

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Abstract—The paper explores the role and importance of learners’ motivation, in particular, related to the development and use of digital technologies in the context of further education and work-based learning. The growing role of technologies has been emphasized by both our theoretical and empirical research. The literature review has allowed us to draw on social constructivist theories which underpin the role of e-learning as a way to address a number of social and pedagogical opportunities, in particular, by providing flexibility of time and place of ‘delivery’; allowing the sharing and re-use of resources; enabling collaborative working and fostering student-centered learning. Aspects of developing maturity as autonomous learners, the encouragement of student responsibility and initiative, motivation to learn and the development of self-esteem have also be seen as important issues in this context.

Drawing further on fieldwork undertaken as part of a year-long project based at the Centre for Work-based Learning, Institute of Education, University of London, the paper discusses the views and expectations of both tutors and learners and considers the way that new technologies and e-learning can facilitate learners’ self-esteem, motivation and learning success.

Index Terms—digital technologies, adult learners, motivation, tutors, work-based learning.

I. INTRODUCTION

Workplace learning and competence development have become important areas of research in recent years. In the last decade one of the main concerns has been to raise the skills level of the population as a way of increasing the competitiveness of the UK economy. The debate has highlighted the importance of the development of skills required by the current demands of the labor market. Factors facilitating the development of workplace learning through motivation of learners/employees have been discussed in a number of papers [1] [10] [15].

The research has indicated that various workplace settings play an important role in promoting e-learning and facilitating learners’ skills through a range of work-related courses, in particular, for those who want to enter the workplace, succeed in their current workplaces or to return to work after a break. In this context the issue of learners’ motivation is of crucial importance. There are many conditions that may facilitate or undermine learners’ motivation and skills development, including the use of digital technologies. Drawing on our current and previous research, this paper aims to investigate the way digital technologies and e-learning facilitate learners’ motivation, and whether the use of the technologies addresses any social and pedagogical opportunities. In addition the paper is asking if these technologies have the potential to make the learning process more creative, independent and stimulating for the learners, thus encouraging learners’ engagement and facilitating their motivation towards learning. The paper also aims to investigate whether there are any negative factors associated with the use of digital technologies, and to what extent they may undermine the learners’ motivation.

In research literature motivation theories draw on a set of assumptions about the nature of people and about the factors that give impetus for actions [5]. In both workplace and educational contexts, motivation is often referred to as being either intrinsic or extrinsic in nature [5] [20]. Intrinsic motivation derives from within the person or from the activity itself, when a person is motivated by internal factors and when various learning activities and environments facilitate motivation [5]. Whereas extrinsic motivation is associated with external factors like rewards and punishments [15]. Externally administered consequences, or extrinsic behavioral contingencies, also are powerful determinants of motivated behavior [2]. And in some cases intrinsic motivation could be undermined by external factors [15].

The issue of facilitating intrinsic motivation within the workplace has become an important focus of work-related research. Much research focused on finding ways to motivate learners/employees through the introduction of new approaches to tackle issues of skills and competence development in work-related contexts [3] [6] [10]. It has been observed that factors such as rapid technological development, job mobility as well as unemployment have had a profound impact on competence development in the workplace [16]. Learners/employees are expected to develop their competences not only through formal education but also through informal learning in their college or workplace settings. Computer literacy and skills related to the use of technologies are becoming of utmost importance in the context of workplace and college learning settings.

The growing role of technologies has often been related to opening new opportunities to improve and diversify
teaching and learning in work-related contexts. Technologies have changed how people access and manage information, and as a result a new learning paradigm is emerging where the learner plays a central role in the learning process – not as a passive recipient of information, but as an active author, co-creator, evaluator and critical commentator [19]. Integrating and embedding the use of technology so that it supports the workplace learning, enables the learners to achieve e-maturity. The e-mature learner is capable of using technologies effectively, where appropriate, in all aspects of life; and will be able to make decisions about when and where to use IT to best effect, based upon an understanding of how to go about a learning activity [12]. Learning processes become increasingly personalized, tailored to the individual’s needs and interests [19].

The technology enables social and collaborative interaction thus contributing to social integration and inclusion.

In discussing pedagogic approaches to e-learning Mayes and de Freitas [17] draw on the ‘modal pedagogy model’ that describes how to engage the learners in meaningful tasks, give rapid feedback, encourage reflection through dialogue with tutors and peers, align assessment, and encourage through discussion the creation of a community of learners. A modal e-learning model would describe how technology would achieve each of these stages. Furthermore, in considering how pedagogy can be mapped to teaching and learning practice when using e-learning, the authors draw on constructivist theories, particularly observing the role of e-learning in the following:

- Focus on individual-tasks, formative assessment and dialogue; and
- Focus on group tasks and discussion.

Much research related to the relationship between social constructivist theories and the role of e-learning, suggests that technologies create new opportunities that draw on constructivist approaches in the context of education and training, thus contributing to both improving teaching and learning and facilitating learners’ motivation and attitudes [17]. In this paper we focus on adult learners’ motivation and the way both external and internal factors including technologies, may facilitate or undermine learning attitudes in work-based settings. In this context, learners’ dispositions and their motivations have to be understood in relation to the opportunities available to them for learning on and off the job/training, through the social relations of the workplace and through work-related experiences of all kinds [1] [6] [7].

E-learning provides opportunities to facilitate and support these types of learning [11], in particular, by providing flexibility of time and place of delivery; allowing the sharing and re-use of resources; enabling collaborative working and fostering student-centered learning. Daly and Pachler [3] have described e-learning as a ‘set of practices’ which are embedded within a ‘whole life view’ of the individual and their relationship to wider society, and which:

- enhance the potential of people to learn with others via technology-aided interaction, in contexts which can be ‘free’ of barriers of time and place. [E-learning] involves the utilization of a range of digital resources – visual, auditory and text-based – which enable learners to access, create and publish material which serves educational purposes. Essentially, this material can be shared electronically with fellow learners and teachers both within and beyond the bounds of formal education contexts.

The study draws on both theoretical and empirical research. In the first stage a literature review related to factors motivating learners’ competence development in the context of work-based learning was undertaken. The second stage of research involved undertaking fieldwork in both college-based and workplace contexts including interviews with both learners and tutors/practitioners. The fieldwork was undertaken in a college of adult education. The college aims to facilitate a wider access to Higher Education (HE) for adult students. It offers a range of courses for students seeking (1) to return to learning, (2) to access HE or (3) to make up for missed opportunities in the past. Twenty learners were interviewed about (1) the way they use technologies (e.g. e-mail, internet, computer-assisted learning, educational software, etc) and (2) how this enhances their motivation and relates to their learning outcomes and skills development.
The respondents include adult learners who are undertaking courses in the field of management linked to their workplaces. The courses are structured to respond to the students’ own needs and starting points. There is a strong emphasis on support for the individual learner, both within the subject modules and in an extensive programme of additional learning support. Many of the adults had not been able to take up educational opportunities in the past due to financial, personal or social barriers. Some of them had difficult experiences at school which damaged their confidence. We have been conducting semi-structured interviews with learners who have experience in both workplace and college environments in order to reflect on the factors motivating their actions and attitudes in various contexts including the use/role of technologies for their learning. Interviews and collaboration with tutors has been carried out in order to investigate appropriate methods and approaches for facilitating learners’ motivation.

IV. MOTIVATIONAL FACTORS RELATED TO THE USE OF THE NEW TECHNOLOGIES

The growing role of technologies in work-related learning has been emphasized by our interview data. The use of technologies is considered to be an important trend across all areas of work-related learning. The interviews with both the learners and tutors indicated that the introduction of a range of technologies in a college environment has been regarded as a beneficial development that could improve learners’ motivation and facilitate their skills and competence development. Our data identified the following types of the use of the digital technologies in both college and work-based environments:

- Teaching/learning associated with the use of electronic delivery methods such as CD-ROM, websites and e-mail;
- Learning that is taking place over the Internet, a computer network, via CD-ROM, interactive TV, satellite broadcast or VLE;
- A process of learning that facilitates education using a network (e.g. Internet);
- Using software created to teach the user new skills or/and evaluate their skills.

The interviews with the students enabled us to draw on the following benefits of technologies that are largely associated with the efficiency of work and learning processes, including:

- speedy communication;
- improved co-ordination;
- more intensive collaboration between both the learners and their tutors;
- easier ways to submit assignments;
- quicker feedback from tutors;
- easier access to information, e.g. through a VLE.

The use of technologies has been gradually changing approaches to and ways of teaching and learning in work-related contexts. In this context the concept of mobile learning has been emphasized by our research. Pachler et al [18] stress that mobile learning is not simply about delivering content to mobile devices but, instead, about the processes of coming to know and being able to operate successfully in and across new and ever changing contexts and learning spaces [18]. And, it is about understanding and knowing how to utilise our everyday life worlds as learning spaces. The ecological approach proposed by Pachler [18] underlines that learning which uses mobile devices and digital technologies is governed by a triangular relationship between (1) socio-cultural structures; (2) cultural practices and (3) the agency of media users / learners. The first characteristic refers to the fact that nowadays, young people find themselves in a society of individualized risks, new social stratifications, individualized mobile mass communication and highly complex and proliferated technological infrastructure; their learning is significantly governed by the curricular frames of educational institutions with specific approaches towards the use of new cultural resources for learning. The second point draws on cultural practices where mobile devices are increasingly used for social interaction, communication and sharing; learning is viewed as culturally situated meaning-making inside and outside of educational institutions and media use in everyday life have achieved cultural significance. Finally, the third aspect focuses on a new habitus of learning in which young people constantly see their life-worlds framed both as a challenge and as an environment and a potential resource for learning, in which their expertise is individually appropriated in relation to personal definitions of relevance and in which the world has become the curriculum populated by mobile device users in a constant state of expectancy and contingency [18]. Our fieldwork research has indicated that manifestations of these triangular relationships in the workplace settings have been demonstrated through the following:

- The learning process is more individualized, personalized and independent: the learners can “shape” their learning processes by assuming a more creative and independent approach towards knowledge development. E-learning enables the learners to choose among various sources of information and often it enables them to study at their own pace.
- The learning process is characterized by increased connectivity. The learners can easily interact with their fellow-learners and tutors, even outside of their classrooms or workplace settings. The learners described this as “uninterrupted continuous learning” comparing it with the “old fashioned learning” when any interruption such as illness or a holiday was disrupting learning.
The learning process is efficient. The learners agree that technologies help them to save much time and/or to use their time more efficiently.

The learning process promotes the development of personal skills such as multitasking and problem-solving.

The learning process is more exciting and stimulating for the learners. Using internet computer-assisted tools and a VLE makes learning more ‘entertaining’ for the learners.

The growing importance of the college VLE has been emphasized by our interviews. As noted by one student:

We have a virtual learning environment, which has documents on it. So we get handouts on paper but there are also things there that we can download and look at, in addition to what we get directly on the course. I’ve looked at one of those and it’s been really useful. [...] you would really miss out if you didn’t[ ]. And it’s a way of sharing information with the other people on the course as well. And especially, because it runs across three different venues, it’s also a way of exchanging information with the people who are in the different groups.

Another student also stresses that the VLE is:

A quick and accessible way of sharing information, and sometimes when you get lots of pieces of paper it’s difficult to sort out what you need. Whereas if you access it that way you can pick out the bits that you want.

The tutors support the view that technologies may play an important role in implementing methods and approaches to facilitate the learners’ motivation. One specific approach that has been piloted in the college has aimed to enhance the learners’ motivation through self-evaluation of their personal competences and tacit skills. The approach has employed the DCA (Dynamic Concept Analysis) modeling method [14] as a tool for self-evaluation of personal competences in the context classroom or work-related activities. The DCA method, assisted by a dedicated software program, enables users to build conceptual models, which can be used for self-evaluation purposes [13].

The tutors maintain that the self-evaluation of the learners’ skills in the context of classroom activities may help the learners and their tutors to establish links between skills development and certain classroom tasks and assignments. As a result, the process of skills development and deployment could be potentially facilitated by tutors through more purposeful learner-centered implementation of various activities and tasks within the classroom. Self-evaluation of the learners’ personal skills and competences in the context of classroom activities has a positive impact on the learners’ confidence, self-assurance and learning outcomes. Learners’ awareness that they are able to use their previously acquired skills in various classroom activities enhances their confidence and encourages them to use their skills more actively and intensively [15], thus facilitating their intrinsic motivation within the classroom. Moreover, if the learners recognize that they develop or deploy their tacit skills within various classroom activities, they feel motivated towards more active participation in such activities, which ultimately contributes to their positive attitudes towards learning.

While both the learners and the tutors recognize the potential benefits of the technologies, they notice that all types of technologies need to be implemented carefully taking into account learners’ individual needs and backgrounds. Some students may need more training and support before they can feel confident to use technologies within their learning or workplace settings. Some students need more time to get used to them. As noted by another student who combined her studies with part-time work:

I’m generally quite resistant to checking out new things, especially when they are technology. Also, when I get home I don’t necessarily want to be looking at a computer screen, having done it for the day.

Our data suggest that if learners’ individual needs and requirements are not taken into account, technologies may provide barriers to learning and, as a result, undermine motivation of the learners. Our interviews have shown that tutors’ support may play an important role in the process of supporting the learners in using technologies for the benefit of their learning.

V. MOTIVATIONAL FACTORS RELATED TO LEARNERS’ PERSONALITIES, BACKGROUND AND ENVIRONMENTS

The fieldwork allowed us to draw on factors related to learners’ personalities, backgrounds and learning environments. These factors may influence both learners’ motivation for knowledge acquisition and learners’ motivation to use technologies within their learning contexts.

Factors related to learners’ personalities/ backgrounds/ environments and their skills development are associated with their previous educational experience/previous workplace experiences as well as with their attitudes and dispositions [8]. The research has shown that learners/employees with previous workplace and/or educational experience feel more confident using technologies (e.g. e-mail, internet or VLE) within their
current workplace settings. The interviews undertaken within our fieldwork suggest that learners are able to employ their previously acquired skills in their present workplace or learning environments which ultimately may facilitate their motivation and confidence at work. What is more the interviews have shown that adult learners’ individual biographies, dispositions and age may further facilitate or undermine their motivation and learning success within their workplaces.

Our interviews allowed us to draw on a group of motivational factors related to the ‘learning environment’ at a workplace/college. Data from a number of interviews suggested that a stimulating learning environment in a workplace may considerably facilitate learners’ motivation towards the use of technologies. In this context the ‘workplace’ is perceived as an environment in which people learn because it provides opportunities for them to deploy and develop their e-learning skills. The extent to which employees’ motivation and competence development at work is influenced by how they experience their working environments has been underlined by our research. Building on definitions by Fuller & Unwin of expansive and restrictive workplace environments [10] and our previous research [9] we argue that workplace environments experienced as expansive facilitate learners’ motivation and further development and deployment of their skills whereas environments experienced as restrictive are found in workplace settings that do little to encourage motivation and further training including e-learning. The research has further indicated that technologies themselves contribute to changing the concept and perception of the learning environment in different contexts. By providing flexible opportunities for learning, mobile learning, easier access to information, speedy communication etc., technologies can create new conditions where boundaries between different kinds of environments (e.g. workplace and college-based or formal learning environments) are dissolving in contemporary contexts. As e-learning becomes embedded in adult learning, it may further contribute to facilitating expansive learning environments for adult learners in both workplace and college contexts. Technologies enable the learners to shape and personalize their learning environments in order to respond to their individual requirements and provide meaningful learning.

The project data suggest that certain kinds of learning environment may actually help adult learners who are engaged in retraining or ‘up-skilling’ to recognize the importance of their prior experiences through making their tacit skills and personal competences visible. This involves employing these abilities in a wide range of educational, social and work activities.

VI. CONCLUSIONS

Our fieldwork data lead to our findings that both tutors and learners consider motivation as an important factor that facilitates recognition and deployment of learners’ skills and competences. Under the current demands of the labor market, the challenge of competence development in the areas of vocational education and training and workplace learning is increasingly important. The challenges for competence development are closely linked to the issue of developing skills and abilities required by the ‘knowledge society’. Employees need to possess and/or develop skills and competences, including e-learning skills, that enable them to perform their work as well as to contribute to their personal development.

Technologies and e-learning may play an important role in facilitating learners’ motivation. Social constructivist theories emphasize the role of e-learning as a way to address a number of social and pedagogical opportunities, specifically those that relate to the following:

- Promoting learner-centered learning;
- Facilitating learners’ initiative, independence and maturity;
- Facilitating situated learning;
- Encouraging learners to assume responsibility for construction of their knowledge.

The project findings suggest that providing adult learners with the opportunities “to be motivated” or facilitating their intrinsic motivation may enhance their learning success and skills development. Technologies have the potential to make the learning process more creative, independent and stimulating for the learners, thus encouraging learners’ engagement and facilitating their motivation towards learning. In addition, tutors may employ various methods and approaches to facilitate learners’ motivation including employing self-evaluation tools, facilitating teamwork and group discussion, providing feedback and support for learners. Tutors may also motivate learners by providing them with the opportunities to relate their acquired e-learning skills to their workplace situations and environments.

However, our findings indicate that the motivational factors related to the use of technologies may be contextually specific and they can take different roles in different learning or workplace contexts. What could facilitate students’ motivation in a college environment might actually hinder their progress in a workplace environment. This could happen as a result of various factors and conditions, such as, for example restrictive learning environments, lack of supervisory support for the learners, poorly developed training materials on how to use specific software or electronic equipment etc. Such factors and conditions may undermine the learners’ motivation not only towards the use of technologies but
also towards their general skills and competence development in the workplace.

Our research suggests that there is a need for practitioners in college-based and workplace-based learning environments to work together more closely with regard to the use of technologies to support adult learners. Their awareness of their adult learners’ needs could be built on more effectively by collaborating in order to develop a more coherent learning experience for students. Technologies have potentials to facilitate learning across boundaries of place, time and physical context, but a coherent experience is not inevitable. There is a need for an informed development of e-learning as a core pedagogical strategy to support work-related learning.

REFERENCES


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