

DO STUDENTS' FORMER ICT EXPERIENCES INFLUENCE PATTERNS OF PARTICIPATION IN ONLINE HIGHER EDUCATION? A CASE STUDY ON A SWEDISH LEADERSHIP AND COACHING PROGRAMME

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Abstract

This paper investigates if and how students' former ICT experiences influence patterns of participation in online higher education. The empirical setting is an online Swedish leadership and coaching programme. Data was collected through questionnaires and log-files. In total, 17 students were followed up. Previous ICT experience from online education seems not influence on how often students use the Learning Management System. Patterns of participation seem not to be related to their previous ICT experiences. The result is discussed in relation to some theories of participation.

Introduction

In Sweden, online higher education has grown rapidly. Not only has the number of students attending higher education in an online mode increased dramatically but also how education is carried out has transformed. Online higher education has over the last years turned into a highly interactive experience characterised by an integration of concept like collaboration and community-building (Hrastinski, 2007), accompanied by the implementation of Web 2.0 (O'Reilly, 2005) and social software (Beldarrain, 2006). Such changes seem also to have nourished other educational requirements. Nowadays, students are supposed to participate actively, produce and perform not and not be passive receivers of distributed ready-made material.

Another trend that seems to be present in online higher education in Sweden is related to the groups of students attending higher educational programmes. Often, student groups are more heterogenic than in on-campus education. In addition, from sometimes quite different walks of life (Olofsson & Lindberg, 2007). Such circumstances together with a changed perspective of learning and participation, emphasising the social dimensions (see for example Bonk & King, 1998; Lindberg & Olofsson (in press); Salmon, 2000), makes Swedish online higher education buffeted with possibilities, constraints and challenges.

Parallel to this, an increased research focus on the issue of design for learning (Lockyer, Bennett, Agostinho, & Harper, 2008) has emerged. This might be described in terms of finding effective and productive ways to create educational environments supporting the students in order to enhance their learning processes. This issue can be considered to important also when it comes to online education (Haythornthwaite & Kazmer, 2002). Here, learning facilitating built-in functions in Learning Management Systems (LMS) seems to be central from a technological point of view. From a pedagogical or educational point of view, more collaborative learning orientated aspects of design, providing possibilities for online communities to be formed, appear to be on the agenda (compare Andersson, 2008).

This paper focuses on one aspect that, in various ways, often has been discussed in research literature aimed at online education — the aspect of students' former experiences in relation to participation in higher education (see for example Kirkwood, 2006; Kirkwood & Price, 2005; Stokes, Cannavina, & Cannavina, 2004; Söderström, 2004). Questions that have been asked here are, for example, if students' former experiences shape the way they enter the educational context, if it affects their understanding of learning, communication activities, and if it affects their level of success? Through an interpretative influenced approach this paper focuses on the research questions if, and how, students' former ICT-experiences influence patterns of participation in online higher education.

The empirical setting, understood as a case (see for example Stake, 1995), is a Swedish leadership and coaching programme. The programme is said to provide a deepened understanding of leadership and coaching within sports environments. It is provided online with a few face-to-face meetings a year and distributed through the LMS called Moodle.

Below, we provide three different understandings of the concept of participation, functioning as a theoretical framework for interpretation (compare Vattimo, 1997; Gadamer, 1989). Thereafter, both the empirical setting and method are presented. This is followed by a presentation of the empirical findings. The article continues with a discussion of the results, in relation to the theoretical understandings of the concept of participation.

Three Theoretical Understandings of the Concept of Participation

The possibility to understand patterns of participation related to students' former ICT experiences seems to depend on within which theoretical perspective the concept of participation is understood (Jaldemark, Lindberg, & Olofsson, 2005a).

In order to interpret and understand the empirical data presented in the article we follow Butler (1951). In line with Butler, we argue that by revealing each theoretical perspective's assumptions about the world together with possibilities to build knowledge of and in the world in a systematic way we will be able to also describe what implication those assumptions have when it comes to understanding participation within each perspective. A transparent approach, for which we argue, also opens up for critique of and discussion on the perspective's own assumptions. The framework that emerges is inspired by the work of Jaldemark, Lindberg and Olofsson (2005b). The perspectives chosen are understood as three of the most influential in higher education and are as follows:

- Behaviourism (Skinner, 1974; Thorndike, 1914; Watson, 1925)
- Cognitivism (Bruner, Goodnow, & Austin, 1956; Piaget & Inhelder, 1969; Shaw & Bransford, 1977)
- Socio-cultural theory (Luria, 1928; Vygotsky, 1962 & 1978; Wertsch, 1998).

The perspectives will help us to discuss in what way the students' former ICT experiences can be understood and we ask the question if the students' ICT experiences are mirrored in their pattern of participation, and if so, in what way? Below, each perspective's most central assumptions are debriefed, for a more in-depth description and discussion of each perspective the references above can be consulted.

Behaviourism

Within this perspective, the world is understood as being material and only what can be observed exists. The material orientated world-view also contains the understanding of the human being as biologically constituted. The human being works through the stimulus-response analogy. Further, the human being *is* his or her behaviour. Through the analogy, the human being learns what behaviour is appropriate in a certain situation and through his or her behaviour the human being expresses his or her knowledge.

Cognitivism

Cognitivism communicates a world view that means one, in material terms, existing world. It consists of qualities and features which the human being with his or her senses is able to acknowledge. Within this perspective it is argued that the human being, though, only has an indirect connection and thereby representation to and of the world. The world of humans is a constructed world. With that follows an understanding of knowledge as actively constructed by the use of concepts, categories and mental schemes. The humans' thinking and understanding is always challenged with new information and using cognitive strategies, he or she will develop higher order thinking skills.

Socio-cultural Theory

Central within this perspective is the human activity. The world is understood as material and in which the human is part of and always under influence of his or her historical, cultural and social context or position. The human understands the world through actions, that is, by interaction between human and world which is mediated by cultural tools. Knowledge is historical, cultural and situated.

Knowledge is understood as emerging first in a social context with others then appropriated by the human being.

In Table 1, the most central notion within each perspective is illustrated with focus on the embodied understanding of the world and how to build knowledge in and of the world.

Table 1: Central aspects present within each of the three perspectives with reference to understanding of the world and knowledge building in and of the world.

	Behaviourism	Cognitivism	Socio-cultural theory
World	<i>Material</i>	<i>Material</i>	<i>Material</i>
Knowledge	<i>Stimulus-response</i>	<i>Construction</i>	<i>Situated</i>

In the next step, we will relate those aspects present above to the concept of participation. In specific, relate them to three different issues of participation. That is in relation to *focus*, *dependence* and *demand*. In Table 2 it is shown that within a behaviouristic perspective participation focuses on behaviour. Such behaviour can be changed through reinforcement, which results in the use of general repertoires of behaviour. Within a cognitive perspective, focus for participation is thinking. Participation can be changed through mind-challenging activities and the use of cognitive strategies. Finally, within the socio-cultural perspective focus for participation is placed in a social context and can be changed through the use of cultural tools.

Table 2: The concept of participation framed within behaviourism, cognitivism and socio-cultural perspectives.

	Behaviourism	Cognitivism	Socio-cultural theory
Participation			
Focus	<i>Behaviour</i>	<i>Thinking</i>	<i>Social context</i>
Participation depends on	<i>Reinforcement</i>	<i>Challenging thinking</i>	<i>Activity</i>
Participation requires	<i>General repertoires of behaviour</i>	<i>Cognitive strategies</i>	<i>Cultural tools</i>

In the next section, the empirical setting is shortly described and thereafter the method is presented.

The Empirical Setting

The empirical setting, a Swedish leadership and coaching programme, is in this paper understood as a case (Stake, 1995; Yin, 2003). The programme claimed to provide a deepened understanding of leadership and coaching within sports environments. The programme lasted for three and a half years and proceeded with a delayed pace. The programme included for example scientific disciplines like sports education, sports psychology and business administration. The educational setting facilitated for integration of theory and practice. In addition, it embodied asynchronous and synchronous digital resources for communication and collaboration independently of where the students were. The programme was provided online with a few face-to-face meetings a year and distributed through the LMS, Moodle, including for example e-mail, chat, forums and wikis. Furthermore, a video-conference system was used as a complement for communicational purposes. The course stretched over five weeks. The course activity was organized around eight different tasks that the students were required to solve. In five tasks, the students were urged to discuss and share their reflections with peer students.

Method

This study is influenced by Merriam (1998) and the characteristics of case studies, namely: it is particularistic, descriptive and heuristic. This study focuses on a

single unit, it aims at producing a thick description and it aims at improving the readers' understanding by enabling other forms of understanding. According to Merriam, interpretations cannot be avoided in any research. Interpretations can be made about anything (as in the statement from Vattimo (1997), that all facts are interpretations) and we will argue that our interpretational influenced approach is possible to use vis-à-vis the sports and leadership programme reported on here. Stake (1995) claims that even though the interpretations of the researcher are likely to be emphasised more than the interpretations of those being studied, the aim is to preserve the different and contradictory views of what has happened. The three different perspectives on participation described above are on a theoretical and analytical level understood as providing possibilities to present such different views.

The findings presented are based on 17 students participating in the online leadership and coaching programme. Data was collected in relation to the first course given in the programme and this was done via two questionnaires and log data from the LMS. The first week of the programme data about their previous experiences with ICT and learning, motives for following the programme etc. were collected. At the end of the first course, an evaluation was carried out. The evaluation focused on, for instance, how the course was carried out and how they worked with the LMS. The log file data concentrated on the students' viewing and posting activities.

Findings

In this section, some of the main findings from the study are presented. First, some background data focusing on former educational and computer related experiences are presented and thereafter more specific data about participation in the programme.

The Student Group

The student group investigated consisted of 9 males and 8 females. Ten had former experiences of higher education and 6 had former experience of taking part in online higher education. Only 1 of the students did not use the computer on a weekly basis. When it came to former experiences of using tools for computer-based communication, 9 students labelled themselves as experienced or highly experienced in relation to communication via for example MSN. In relation to experiences of participating in online chat sessions, 6 students claimed that they were experienced or highly experienced. In addition, 4 students said that they were experienced or highly experienced when it comes to communicate online using video conference systems. Further 5 students stated that they were experienced or highly experienced in relation to participating in online community activities. In

relation to using some kind of LMS only four students expressed that they were experienced or highly experienced.

Factors that seem to have been influential for the majority of students when it came to reasons taking part in the programme were to increase the personal competence within the knowledge area studied and to cultivate and facilitate their spare time. In addition, for half of the student group the goal of earning a university degree was an important driving force for participating in the programme. The possibility to discuss the programme content with peer students seems to be less important in relation to their participation in the programme. The programme mostly being carried out online and with significant flexibility built in seems to be of great importance for the students. Finally, all but one student expressed that they were highly motivated to participate in the programme.

The Students' Views of the First Course on the Programme

All students agreed on that the LMS used in the programme was simple or really simple to use. Almost half of the students said that the course encouraged dialogue between the participants and around one third of the students seemed to agree that the way the course has been organized demanded rather much communication between participants. Twelve of the participants put forth that the teachers actively encouraged dialogue between the students.

To continue, almost all of the students put forth that the tasks in the course were meaningful and that they created motivation. Almost half of the students said that the tasks strongly encouraged them to collaborate but only four students meant that they to a high degree experienced an online community feeling together with their peers on the course. In addition, over half of the total group of students expressed that they neither had felt a strong or weak online community feeling. About one third of the students said that they had not at all collaborated with their peers when solving the tasks included in the course. Almost half of the students said that their peers did not encourage online communication and collaboration. All students but two participated in the on-campus meeting and nine put forth that the meeting strongly contributed to enhancing and facilitating the online discussion through the LMS. Most of the students used the LMS on a daily basis or 2–3 times per week. The weekly frequency of using the LMS is shown in Table 3.

Table 3: The Students' Weekly Use of the LMS

Frequency	Students
Daily	11
2–3 times/week	4
One time/week	1
A couple of times/month	
Total	16

When it came to online activities, the students said that they foremost had read other students' and teachers' postings, watched streamed lectures and listened to the online course radio. Just a few, three-four students, estimated that they had asked questions and initiated discussions. The results in Table 4 below indicate that the students' foremost used the LMS as a forum for information and seldom for communication with teachers and student peers.

The log data collected from the course seem to point in the same direction. They seem, as shown in Table 5, to confirm that informative aspects dominated the 17 students' online activities in the programme.

Table 4: Online Activities Estimated by the Students

Activity	Low extent	Neither high versus low	High extent
Read other students' postings	2	4	11
Read teachers' postings	2	2	13
Answered teachers' questions	4	8	5
Asked questions to teachers	10	5	2
Asked questions to students	13	3	1
Chat about course content	9	4	4
Chat about other things	12	3	2
Commented students' postings	7	6	4
Watched lecturers	2	2	13
Listened to online course radio	1	3	13

Table 5: Log-file Data over the Students' Online Activities during the Course

Activity	Frequency variation
View specific discussion	22-269
View specific forum	14-542
Add new discussion thread	1-7
Add posting	3-12
Update posting	0-11

The Students' Previous ICT experiences and Patterns of Activity.

In this section, questions about what kind of ICT experiences the students had are summarized and those students claiming that they were experienced in for example videoconferencing and online communities have been compared with students claiming little experiences of such activities. The results indicate that students claiming to be being ICT experienced compared with students claiming low ICT experience did not show differences in their individual opinion whether or not the online communication had been productive, creating close ties between the participants. Table 6, though, shows a small tendency that students claiming sufficient ICT experience expressed that they used the LMS more on a daily basis than those claiming less ICT experience.

Table 6: Experienced Versus Non-experienced Users Weekly Use of the LMS

Frequency	Low experience	High experience
Daily	5	6
2-3 times/week	3	1
One time/week	1	-
Total	9	7

If relating this result with the log-files, see Table 7, students claiming less ICT experience seem to have been more active when it comes to viewing forums and specific discussions online, not the students claiming to be ICT experienced.

Table 7: Experienced Versus Non-experienced Students Viewing Forums and Discussions Online

Frequency (log data)	Low experience	High experience
View discussion <100	3	5
View discussion >101	6	3
View forum <100	3	6
View forum >101	6	2

According to the log-files, see Table 8, students claiming themselves to be more ICT experienced did not initiate discussions or post answers in the forums more often than those expressing less ICT experience. In addition, 5 out of 8 students in the group expressing themselves as ICT experienced put forth that they to a high

degree discussed both course and non-course related issues compared to the group expressing less ICT experience. Only 1 out of 9 students in the less ICT experienced group expressed an opinion in line with the ICT experienced group.

Table 8: Experienced Versus Non-experienced Students in Relation to Postings and Initiating Discussions

Frequency (log data)	Low experience	High experience
Postings 0-6	4	4
Postings 7-12	5	4
Initiating disc. 0-3	4	5
Initiating disc. 4-7	5	3

Discussion and Concluding Remarks

If considering that online higher education in Sweden growing rapidly, attracting students from different walks of life and with various experience of using ICT, the results can be understood as promising. The results were nevertheless somewhat surprising. The students seem to foremost use the LMS as a forum for information, read teachers' and other students' postings and watch online lectures. Further, they seem seldom to communicate with teachers and peers. In fact, we might conclude that previous ICT experience from online education and online communication or interaction do not appear to substantially influence students' patterns of participation in the programme. Interestingly, the teachers, as well as the tasks in the course encouraged collaboration and dialogue. In addition, the LMS used had built-in functions like discussion forums and wikis. Nevertheless, this did not create patterns of participation in a significant way differencing between ICT experienced and less ICT experienced students.

If consulting the perspective of behaviourism, cognitivism and social-cultural theory and the way participation is understood respectively, it seems possible to understand the structure in the programme, the tasks including in the course and the built-in functions in the LMS as being in line with a socio-cultural perspective. Focusing on knowledge as produced in a social context, dependent on activity and providing cultural tools like wikis and chats for collaborative knowledge building. If drawing attention to both the ICT experienced and less ICT experienced students' pattern of participation there seems to be a possibility for at least a two-folded understanding. If understood within a behaviouristic framework, the students learned how to act, or behave, in order to solve the tasks. Further, that the

information given by the teachers functioned as stimuli on which the students responded. The feedback provided via the functions in the LMS then worked as reinforcement and developed certain repertoires of behaviour among the students. If understood within a cognitive based framework the programme seemed to provide tasks that challenged the participants thinking and made them develop cognitive strategies in order to pass the course. The built-in functions in the LMS offered support for such processes but the social dimension did not really come through.

To conclude we will once again emphasize that depending on which perspective used, the understanding of the pattern of participation will be different. In addition, it can be the case that the students reported on in this paper came into the programme with a specific and embodied understanding of learning. Something that might possibly also mirror their participation. If so, it seems not to be enough that the course structure and the LMS used reflected a social and active perspective on learning. Even careful design of the LMS and certain social orientated built-in functions might not solve such problems. Instead, to create a specific pattern of participation, whether or not the students are ICT experienced, might require online collaborative activities that shed light on what the teachers want from the students and why, on which theoretical ideas the design of the online course rests and why the use of certain social software can enhance and cultivate both individual and joint learning processes.

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