Doing E-Learning/Doing Gender? Examining the Relationship between Students' Gender Concepts and E-learning Technology[1]

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ABSTRACT
This paper is an interim report on our research project "The Arduous Gender". In our project we examine the social construction of gender in relationship to ICT and e-learning in particular. While there have been studies examining the existence of quantitative gender differences in e-learning, the construction of gender in this field has remained empirically unexamined. Therefore, our basic research question is, whether students use e-learning to do gender and if so, which gender concepts are prevalent.

With the help of quantitative and qualitative interviews we have examined various aspects of students' e-learning and ICT usage, their attitudes and their personal positioning toward these media.

Our results so far are twofold. In our sample we could not recognize significant gender differences concerning the use and the acceptance of e-learning. For both female and male students e-learning and ICT have become an integral part of their everyday lives. Yet stereotypical gender concepts and dichotomies are an important factor when talking about personal competences and skills. Apparently, students' gender concepts have only minor effects on their actual engagement with e-learning and ICT but significant ones on the self-assessment of their skills and their competences with respect to e-learning and ICT.

Keywords
E-learning usage, ICT usage, gender construction, co-construction of gender and technology

INTRODUCTION – ICT AND GENDER CONSTRUCTION

The relationship between gender and ICT has been a controversial topic within the scientific debate on computer and internet culture. On the one hand, cyberfeminists like Donna Haraway have seen computer technology and the internet as a promising tool for a postmodern emancipation from social hierarchies and gender distinctions. Using the postmodernist metaphor of the cyborg, Haraway has proclaimed cyberspace a post-gender world, where traditional concepts of identity have become fluid and the individual is no longer dependent on the material body.

In contrast to this, a number of feminist critics have argued that computer culture and the internet were inherently gendered, predominantly androcentric, and therefore reproduced existing power structures and gender differences of the offline world in virtual reality (cf. [2]). According to this argumentation, many female users were excluded from the internet and from communications technology due to a lack of technical skills and the (male) gender bias of computer culture. This thesis has been supported by empirical findings of a digital gender gap to the disadvantage of female users during the last decade.

On the other hand it has become widely acknowledged that such exclusions, if existing (they hardly exist in Asian countries, particularly not in Arabic ones), do not rely on a simple one-dimensional relationship between gender and

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ICT nor on a determination defined by technological evolution. Instead, neither gender roles nor technology can be seen as stable and given categories. They are fluid and are both constructed and produced interdependently in discourses and practices, in form of a co-construction of gender and technology [22], [23]. Furthermore, both are open to interpretation and highly flexible for attributions depending on the prevailing context and discourse [2]. Yet how these processes of co-construction actually "look" empirically – especially in regard to e-learning – has remained basically unexamined (cf. e.g. [2], [13], [25]).

From this perspective, our project examines gender expressions in e-learning-environments. Do students use ICT and, in particular, e-learning to construct their own gender identity? And which gender and identity concepts are prevalent?

With the help of quantitative questionnaires and qualitative interviews we examine students' positioning toward e-learning and ICT and their use of these media in general. As we are interested in our participants' personal gender concepts, we examine not only sex differences in e-learning usage but also qualitative aspects in general, such as personal attitudes, habits and the self-assessment of their competences in regard to e-learning and ICT.

DOING E-LEARNING/DOING GENDER?

A basic presumption of our project is that ICT is used as a means of identity construction. This is obvious when looking at social network sites like Facebook, XING or at other web 2.0 content that is explicitly designed for a virtual presentation of identity. Yet in a broader sense, we argue, ICT can always be an instrument for identity management and for constructing one's gender online. In the sense of Turkle, ICT permanently offers space for identity play. Thus, "information technology is identity technology" [20].

A very specific field in this context is e-learning. E-learning is characterized both by human/human interaction (between students, fellow students and teachers) and by human/machine interaction (between students and e-learning software) to support the learning process. Often, the interaction between students and e-learning tools is pre-structured and determined from the beginning by software engineers and teachers. In its worst form e-learning means a taylorization of learning. Yet more open approaches can also support a variety of new forms of learning [cf. 3].

In our project we use a relatively wide definition of e-learning. This comprises not only standard e-learning platforms but also students' use of the internet for doing research, the download of class material, communicating online with classmates or teachers and the use of the internet for organizational purposes. As a new form of education, electronic learning has shaped the way students organize their studies, the way they interact and even the way they think.

But how can gender be done in connection with e-learning? A number of gender theorists see a permanent construction of gender as essential for the establishment of our social identity (e.g. [6] or [7]). According to them, it is impossible not to do gender in everyday interaction – „doing gender is unavoidable" [24]. This, of course, also applies to learning situations. Following this thesis, we examine whether and how university students interacting with e-learning and communicating online "use" e-learning to construct their own gender identity.

THEORETICAL AND EMPIRICAL BACKGROUND ON THE RELATIONSHIP BETWEEN GENDER AND E-LEARNING

While (alleged) gender differences in the use of e-learning are a frequently discussed question (cf. e.g. [1], [9] or [19]), there has been little empirical evidence so far for the existence and the effects of these. And the few studies that exist are often contradictory. Thus, various competing views are existing parallel to each other. While one position argues that there are gender specific behavior patterns that may lead – together with the male bias of ICT – to a discrimination of women using e-learning (e.g. [9] or [1]), others argue that e-learning, through its flexible and interactive learning approach favors particularly women (e.g. [15]). Furthermore, there is a lack of qualitative analyses describing the interrelation between e-learning and the construction of gender identity from a user perspective.

In our project it is, however, not our predominant goal to differentiate between female and male students' use of e-learning tools on a quantitative basis. Often, research that is directed toward the exposure of alleged gender differences runs the risk of reproducing the very gender dichotomies and stereotypes it is to abolish [16]. Since we are aware of these risks of reification when examining gender differences (cf. [4]), we have opted for a relatively open research program, combining quantitative and qualitative methods. Consequently, we try to avoid proceeding from supposed male or female stereotypes and ascriptions during our research process. Instead, we openly examine individual attitudes and experiences, habits as well as self-assessed competences that will give us a better understanding of our interviewees' gender constructions.

RESEARCH DESIGN

We have collected data at four universities, varying in the complexity and in the forms of e-learning that are offered: at the University of Freiburg, at WHL Graduate School of Business and Economics and the AKAD Private Universities, at the University of Applied Sciences FHTW Berlin and at UZH Zurich. As our target group we have chosen students of economics. Since the use of e-learning tools and students' alleged doing gender may be dependent on their subject and on a prevailing "faculty culture" we deemed it necessary to concentrate on a single subject. Economics was appropriate for several practical and theoretical reasons. First of all, economics is a subject with

an almost even distribution of male and female students. Furthermore, compared to many other subjects, German and Swiss economic faculties have implemented e-learning altogether on a fairly elaborate level [11]. And finally, this is a subject which is present at all four of our cooperating universities.

Using a mixed methods approach we combine the following quantitative and qualitative research tools:

1. Comparison of e-learning sites: First of all we examine the integration of e-learning at our four cooperating universities. Interviewing instructors of e-learning classes we compare the four e-learning-sites in regard to their functionality, their structure and to their complexity.

2. Standardized questionnaire: We collect quantitative data on various aspects of ICT and e-learning usage. On the one hand, in our questionnaire we ask about computer, internet and e-learning habits and about our interviewees' personal assessment of their computer literacy. On the other hand, we survey students' socio-economic background and their study and life situation.

3. Semi-structured qualitative interviews: In order to examine more detailed aspects of ICT usage and of gender concepts we conduct qualitative interviews. With the help of an interview guideline we ask students about their use of ICT in general, about their experiences working with e-learning, their personal attitudes as well as their socialization and identification with ICT and e-learning. Here, our focus is on the interviewees' positioning toward e-learning and ICT and on their self-assessed competences. Furthermore, toward the end of each interview session, we ask direct questions about their identification with the discourse on gender and ICT.

The interviews are held in a semi-structured way combining open with direct questions. We code the data according to content analysis and hermeneutic approaches. In order to expose existing gender concepts, we pay specific attention to the semantic level of speech (such as metaphors, figures of speech) and to overall discourses and stereotypes that our interviewees relate to.

Finally, as a means of validation, quantitative and qualitative data and results are to be compared.

RESULTS

At the present point of time we are still in the process of analyzing the data. Yet, here, we can give first results and trends of our findings. To date we have analyzed 13 qualitative interviews (of 38 interviews) and 95 questionnaires (of around 300).

Quantitative Analysis

The results of our standardized questionnaires confirm earlier research by Kleimann et al. [12] and by Pannarale/Kammerl [18]:

- In general, there is no difference between female and male e-learning usage. When asked about the frequency of their engagement with various e-learning applications, male and female interviewees give very similar answers.
- According to their own statements, men spend more time with the computer and surfing in the internet than their female fellow students.
- On an average, male students are more confident in their own media literacy than female students. When asked about competences in regard to their work with e-learning and ICT, men show a tendency to assess themselves relatively high competences, while women assess themselves lower competences. Yet these results have to be judged critically. Drawing upon the results of our qualitative interviews we argue that there is a discrepancy between our interviewees' personal perception of their competences and their actual ICT usage. And these personal perceptions can vary with gender.

Qualitative Analysis

Students' Attitudes toward E-Learning in General

- The acceptance of e-learning is very high among almost all participants, which is independent of their sex (cf. [11]). Many state that they are enthusiastic about e-learning and even wish a wider range of e-learning classes at their universities. Those that have made negative experiences with e-learning did this either because of poor mentoring and supervision or because the tools they had to use had a low level of usability.
- For the most part, our participants see e-learning and the internet as a highly useful and also comfortable tool to support their studies. They appreciate in particular that e-learning fosters a flexible and time efficient learning process. In our interviews, students characterize e-learning first of all as “flexible”, “comfortable” and “easy-to-use”. Interesting in this respect is also that a high amount of students prefer e-learning and downloadable class material over traditional material, such as books and scientific journals. Thus, being time efficient is seen as a significant benefit of e-learning.
- Students agree that e-learning should not replace face-to-face teaching but should rather serve as an add-on to traditional teaching. This is to be understood as a clear statement in favor of blended learning approaches. The interviewees disagree, however, whether e-learning fosters anonymity or cooperation.
- A further interesting finding is that many participants consider the internet and the computer as absolutely vital for their personal life. Remarkably often our interviewees have pointed out that they could no longer imagine a life without the computer or the internet. This suggests that ICT has become an integral part of this student generation's everyday life. Gender differences seem to have no effect on this statement.

Hence, this could also mean that ICT has to some extent lost its connotation as a predominantly male practice – at least in the context of ICT as an everyday lifestyle practice.

Gender Construction and the Self-Assessment of Competences

In the results summarized so far the construction of gender as well as gender differences have not played a significant role. Yet doing gender comes on stage when talking about competences and the alleged knowledge to do e-learning and ICT. As already indicated by our quantitative data, the self assessment of competences in regard to e-learning is a highly gendered subject.

When talking about their competences and abilities in dealing with the computer, it is striking that our participants relate to prevailing discourses and stereotypes in regard to gender and ICT. A prevalent discourse in our interviews is the discourse on men's affinity to everything technological and women's lack of specific technological skills. In their speech, our participants relate to this discourse implicitly as well as explicitly in that they make use of gendered phrases and construct dichotomies between predominantly male and female characteristics. According to such statements men "play", "try" and "click", when they sit in front of a computer. They "simply do" and they are "active". Women, on the other hand, are characterized as being more "cautious", "hesitant" and „passive". Furthermore, some of our female interviewees remark that they are easily "stressed out", "annoyed" and "impatient" when faced with a problem, while they characterize men as having the "patience" to solve complicated software problems.

While these attributions may not be too unexpected, it was nonetheless surprising to us how strongly these stereotypes contradict our quantitative results about e-learning and ICT usage (no difference in e-learning use among women and men) as well as our participants' narrations of personal ICT habits. Many interviews are inconsistent in that there is an obvious discrepancy between self-assessed media literacy and actual practices of usage.

A number of female participants in particular talk about their competences in a very modest way (for example by attesting themselves only superficial computer skills). Yet when prompted to talk about their experiences with e-learning and ICT, it comes clear that they are altogether quite frequent and skilled users. This is, for example, very obvious with a female user that intensively maintains her own weblog and calls herself an "internet junkie" and a few moments later characterizes herself as "passive" and "consuming". Another example is a female user, who cannot imagine a life without her laptop computer and who has taken part in various e-learning classes. Yet on several occasions she stresses how superficial her knowledge in regard to ICT is.

We have recognized such inconsistencies throughout our interviews. These contradictions indicate that there is a discrepancy between many womens' self image as users of ICT and their actual practices. Therefore, we also assume that the gap between self-assessed competences of female and of male users in our quantitative data may be due to this different perception of competences and of technical expertise.

Interestingly enough, two female participants comment the patriarchal discourse on gender and ICT on a meta level, in that they deconstruct it as being only a cliché that is not valid for themselves. In pointing out that they are active, competent and enthusiastic about computers and e-learning, they construct themselves as an exact contra-position to the prevalent female stereotype. For them, being autonomous and active users is an important part of their self image.

In contrast to this, our male participants tend to characterize themselves as having no specific problems in dealing with ICT. For them, competence with respect to ICT is not a real topic to be discussed. For the most part, they portray their relationship to ICT as normal and everyday. The following statement of a male student is representative for this attitude: "Well, since it is my job to work with the computer, it is normal for me. I don't think about it any longer, I simply do it."

male characterizations	*female characterizations*
playing, doing, clicking, openness	cautious, hesitant
active	passive, have it done by somebody else
patience	annoyed, stressed out, impatience
thorough knowledge	only superficial knowledge

Tab.: Semantic fields of female and male characterizations with respect to e-learning and ICT

CONCLUSION

In accordance with our participants' statements, the results of our project are contradictory. On the one hand, both female and male students' attitudes toward e-learning and ICT are highly positive. For most students these media have become an integral part of their everyday lives. Apparently, women and men show no significant differences in their engagement with e-learning. Yet the very process of talking about attitudes and competences in regard to e-learning and ICT is highly gendered. Traditional patriarchal discourses about gender and technology play an important role in this context. As a consequence of this, the women in our sample tend to be less confident in their skills than the men and play down their engagement with e-learning and ICT.

As we have not yet concluded the analysis of our study, these can only be tentative results. In the process of analysis we will further examine our hypotheses. In

particular, further aspects of gender construction, especially that of male users, have to be elaborated. Furthermore, the possible effects and consequences of such a negative self-assessment of competences, as outlined above, have to be examined (e.g. in regard to a professional career).

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