Heterogeneous informational environments and individual status transitions

Steffen Hillmert
Martin Groß
Volker Lang
Christina Matschke
Bernhard Schmidt-Hertha
Heterogeneous informational environments and individual status transitions

Abstract

In this article we line out a research agenda for the individual consequences of heterogeneous informational environments. These heterogeneities are characteristic of status passages which include changes of social positions. Heterogeneous informational environments evolve during status transitions because the informational sources providing knowledge, values and norms related to an origin context are enriched and partly replaced by new sources related to the destination context of the transition. A typical case is the transition to university and the experiences following during the course of studies. When entering university, informational environments typically consist of both family- and school-related networks. These established informational environments may be challenged by the standards of knowledge and judgement of academic peer groups and by social ties unrelated to the family. These experiences potentially alter information and decision behaviour. Additionally, the respective informational environments have undergone two historical changes: first, advancing digitalisation, and second, an increasing interconnectedness of formal and informal educational contexts. We focus on the individual consequences of these trends as well as on their dependence on social contexts and hence their impact on social inequalities.

Zusammenfassung

1. State of the art and preliminary work

Changes of social positions are a core element of life-course transitions. How individuals deal with these changes has been a central question of social research for many years (Elder, 1974; Linton, 1940; Parsons, 1942). Life trajectories today are characterised by institutionalised transition patterns that are less strictly related to age than in the past (Kohli, 1985) and increasingly dependent on preceding paths (DiPrete, 2002). Institutionalised life-course transitions open up considerable opportunities for political regulation to influence social inequalities (Mayer/Schöpflin, 1989). However, it is also a characteristic of contemporary life trajectories that their transitions are based on individual decisions (Brückner/Mayer, 2005; Mayer/Hillmert, 2004). A central aspect that has been largely overlooked by previous research is that actors making such decisions rely on individualised informational environments. Moreover, status transitions create heterogeneity in these environments. To close this major research gap, we focus on examining the individual consequences of heterogeneous informational environments. Status transitions tend to increase the heterogeneity of informational environments because the informational sources providing knowledge, values and norms related to social background are enriched and partly replaced by new informational sources related to the destination’s social milieux. As the social dimension of the life course – interactions and social networks – changes, its subjective dimension changes as well (Diewald/Mayer, 2009). Individuals get to know new types of motivations, norms for evaluations and sources for identification (Baltes, 1987; Heckhausen, 1999). Hence, life course transitions have the potential to induce major reconfigurations of the informational environment of individuals that are likely to influence the behavioural dimension of the life course. They can modify the ways in which information is searched for, utilised and evaluated, have an impact on the development of competencies and alter future decisions (see Figure 1). Therefore, from a perspective of social and behavioural sciences, four key aspects are of interest with regard to the impact of heterogeneous informational environments on life course transitions:

(1) The influence on the information and decision behaviour regarding such transitions.

(2) The relationship to standards of evaluation in shaping such transitions.

(3) The individual management of conflicts of identities stimulated by the transitions.

(4) The impact on the development of competencies.

A typical case for studying the influence of heterogeneous informational environments is provided by the transition to university and the following experiences during the course of studies. During the early phase of contemporary life courses, transitions are mainly related to specific stages of formal education (Ditton et al., 2005). Extensive research focusing on this theme has recognised that educational decisions are better understood in the context of the intergenerational reproduction of social status (Blau/Duncan, 1967; Müller, 1972). Differences in transitions can be attributed to differences in individual competencies as well as socially selective decisions, and both elements depend on social background (“primary” and “secondary” effects; Boudon, 1974). Differences in cognitive, economic and social resources are regarded as the main drivers for status differentials (Bourdieu, 1983; Coleman, 1988). Such actor-based accounts are supplemented by an institutional perspective which assumes that the setting of educational institutions and the informational environments that they provide have an influence on transitions (Allmendinger, 1989; Auspurg/Hinz, 2011; Buchmann/Kriesi, 2011; Pfeffer, 2008). We take a new, information-related perspective. We conclude
from previous research that during the transition to university, actors’ informational environments typically consist of family- and (secondary) school-related networks. In the course of tertiary education these environments may be challenged by standards of knowledge and judgement of academic peers and social ties unrelated to the family.

Figure 1: Outline of our joint analytic framework

Informational environments in general have undergone two major historical changes that we need to take into account (Castells, 1996): First, they have experienced an advancing digitalisation. Second, the formal and informal environments informing decisions have become increasingly interconnected. Both processes affect learning environments in particular. Regarding our case – the transition to university and its consequences – these developments mainly affect the subject-specific informational environments that applicants as well as students are confronted with. Therefore, subject-specific informational environments and their characteristics form the central concept guiding our common research design. The social inequality dimension of the diffusion of digital technology and the digitalisation of informational environments – predicted by Bell (1973) – became a major theme in the social sciences during the 1990s and 2000s (Bonfadelli, 1994; Norris, 2001; Prensky, 2006; van Dijk, 1999; Warschauer, 2003; Wellman/Haythornthwaite, 2002). These concepts of digital inequality were mainly influenced by theories of the diffusion of innovations (Rogers, 1962) and socio-structural knowledge gaps (Tichenor et al., 1970). Social inequalities regarding digital technologies have often been termed "digital divides". This terminology originated with respect to differences of access to digital technology between developed and developing countries, but soon it
was used also with respect to social disparities within countries. Further distinctions have looked at differences according to skills, motivational factors and modes of use (Franzen, 2003; Hargittai, 2002; Helsper, 2010; Jackson et al., 2008; Katz et al., 2001; Kwak, 1999; Martin/Robinson, 2007; van Deursen/van Dijk, 2011; Warschauer/Matuniak, 2010; Wittwer/Senkbeil, 2008; Zillien/Hargittai, 2009). The related terminology of “first-level digital divide” for differences in access and “second-level digital divide” for differential competencies has been criticised early on because of the suggested duality between “haves” and “have-nots” and the postulated additive character (DiMaggio/Hargittai, 2001; van Dijk, 2006). Within countries, social inequalities in access, skills, motivation and use of digital technology are influenced by different factors (e.g., social status, education, earnings, gender or ethnicity) and are mostly gradual (van Dijk/Hacker, 2003). An exception is the digital divide between younger and older birth cohorts that is attributed to differences in the neurobiological influence between growing up in a digitalised informational environment (as a “digital native”) and growing up before this transformation (as a “digital immigrant”) (Prensky, 2001a; 2001b). It is still debated whether this sharp contrast exists and how large it is (Gui/Argentin, 2011; Guo et al., 2008; Hargittai, 2010; Kennedy et al. 2008; Schulmeister, 2009b).

A framework that incorporates the multidimensionality of digital inequality, its dependence on social background and the distinction between primary and secondary effects has been proposed by DiMaggio et al. (2004). We follow this decision-based theoretical approach to explain social inequalities. We expect that digitalisation modifies the influence of heterogeneous informational environments on life-course decisions in three central aspects: First, digitalisation lowers the (transaction) costs of acquiring information. Second, digitalisation enhances informational supply. Third, the institutionalised procedures accompanying life-course transitions are increasingly implemented using digital technology. The implications of these developments are relevant for each of the four central aspects of our research agenda and are discussed in the following sections:

(1) The influence of heterogeneous informational environments and their digitalisation on the information and decision behaviour regarding life-course transitions: Theoretical mechanisms explaining life-course decisions, especially with respect to educational transitions, have mainly been proposed from a rational-choice perspective. These approaches have either emphasised the families’ desire for intergenerational status maintenance (Esser, 1999; Breen/Goldthorpe, 1997) or the maximisation of material utility (Willis/Rosen, 1979). For transitions to higher education in Germany, perceived returns to education in the labour market become increasingly important (Buchmann et al., 2005; Hillmert/Jacob, 2003; 2010). Another explanation emphasises class-specific forms of socialisation and modes of discrimination within the educational systems against descendants from lower social classes (Bourdieu/Passeron, 1971). Regarding the explanation of social differences in the use of digital technology, models based on theories of planned behaviour (Hsieh et al., 2008) and classical rational-choice perspectives (Goldfarb/Prince, 2008) have been proposed. Alternative explanations in the tradition of Bourdieu are offered by Lopez-Sintas et al. (2010) and Robinson (2009).

In prior research we have developed a formalised extension of the rational-choice approach to explain social differences in the use of digital technology (Lang/Hillmert, 2013). Our model stresses the relative costs of offline vs. online information and incorporates the dynamic impact of digitalisation on informational environments. With the progress of digital technologies, the supply of online information and consequently the substitutability of offline information are increasing. This leads to a growing demand for online services. We have applied our
model to explain the social and regional differences in the diffusion of Internet access on the household level during the first decade of the 21st century. Using data from the German Socio-Economic Panel (GSOEP). Our analysis largely extends the cross-sectional and short-panel studies on the within-country level (Bonfadelli, 2002; Chakraborty/Bosman, 2005; Fairlie, 2007; Korupp/Sydlik, 2005; Schleife, 2010). An important “puzzle” in this field of research is that differences in availability do not explain regional disparities in the adoption of new technology. Our analysis indicates that the major explanatory factor for these differences is the applicability of online information to everyday life (e.g., to gain utility of an online reservation in a theatre one has to physically go there, making the gain depended on the “offline” infrastructure of a place).

In further research (Lang/Hillmert, 2012) we extended our model to give an integrated account of the use of digital technology for life-course decisions. We have applied our model to explain social differences in the information behaviour of secondary school students (cf. Hargittai/Hinnant, 2008, Jackson et al., 2006) and in their biographical decisions with regard to the transition into tertiary education. Using the GSOEP and an own survey of about 200 first year undergraduate students, we found that differences in the relative costs of online and offline information between families explain why low status secondary school graduates use online information more often in making this transition. It also explains why having Internet access at home has a stronger impact on going to university among these students compared to offspring from higher social classes. Our analysis is based on a survey instrument we developed to capture the information strategies with regard to educational transitions differentiated by types of information content and sources, especially focusing on the distinction between online and offline sources. Taken together, these dimensions map an informational network operationalising the supply conditions for specific decisions. This framework is sufficiently general to be adapted with respect to other decisions we plan to analyse.

We also tested instruments which extend existing tools in order to capture digital technology skills and patterns of use (Dickerson/Green, 2004; Hargittai, 2009; Hargittai/Hsieh, 2012; Richter et al., 2010; van Deursen/vanDijk, 2009; Vehovar et al., 2006) and to measure specific motivations and attitudes like “cybersociability” (Peng/Zhu, 2011). Our results indicate first that the skills, attitudes and usage behaviour of under-graduate students with respect to digital technology differ between fields of study. Second skills and attitudes are complementary in their explanation of patterns of Internet use.

(2) The relationship of heterogeneous informational environments to standards of evaluation in shaping life-course transitions: Research on the subjective dimension of the life course has a long tradition in sociology, pointing to the important role that attitudes have for shaping the status-transition process. An early, influential longitudinal study (Sewell et al., 1969; Sewell et al., 1970; Sewell/Hauser, 1992) revealed that educational and occupational aspirations, mainly acquired in social contacts with peers and family (Berrios-Allison, 2005), strongly influence the attainment of educational qualifications and the subsequent occupational career. The impact of educational and occupational aspirations on educational and occupational attainment has been documented in numerous studies since then (see for example Abele, 2003; Abele-Brehm/Stief, 2004; Ambrasat/Groß, 2011; Ambrasat et al., 2011; Hülsheger/Maier, 2008).

Recently, this field of research has been broadened by a focus on the role of justice evaluations – judgements of fairness – for educational and occupational outcomes. Procedural and distributive fairness enhances learning activities, job performance, job satisfaction and absen-
It is therefore important to investigate how heterogeneous informational environments shape the justice evaluation of distributional procedures within university education and how these evaluations influence status-transition decisions, while acknowledging the impact of social background, social milieux and social networks on these justice evaluations.

(3) The individual management of conflicts of identities stimulated by heterogeneous informational environments and their digitalisation: People interact differently with information as their information behaviour is shaped by socialisation. This process takes place in interactions which are embedded in particular social milieux. Every life transition is potentially associated with changes in the social milieu. Such changes can only affect individuals if these form relationships with a particular social group that interacts with them and socialises them. If these relationships are regarded as positive and relevant, individuals will identify with the group (Tajfel/Turner, 1979). If the relationships are perceived as negative and relevant, individuals will disidentify, i.e. distance actively from a group that is relevant for the individual self-concept (Elsbach/Bhattacharya, 2001). If the group is irrelevant, the group’s attempts to socialise an individual will remain fruitless. Hence, the external transition has to be mirrored in (dis-)identification with the group, so that the social milieu affects informational behaviour.

In the recent years, several studies have demonstrated that individuals with low social background have difficulties in succeeding in the educational system. So far, research has focused on lacks of social identification with the group of students. There is, however, evidence that disidentification can be induced by feelings of rejection from a group (Matschke/Sassenberg, 2010b) and other difficult circumstances. Disidentified members describe themselves as opposite to the prototypical group member, act against the interests of the group and have a strong negative emotional association with the group. Disidentification increases the likelihood of leaving the group (Elsbach/Bhattacharya, 2001) and increases the effort that members invest in their academic life when academic performance is anti-normative in the group (Matschke/Sassenberg, 2010a). There is also evidence that disidentification affects the social behaviour towards other groups, such as prejudice or discrimination, specifically. Moreover, it is likely that disidentification affects the way individuals prefer and are induced by their informational environments. So far, it has not yet been investigated how freshmen from lower so-
cial classes develop (dis-)identification with their background and to what extent this development affects their informational behaviour.

(4) The impact of heterogeneous informational environments and their digitalisation on the development of competencies: Especially during the phase of entering working life, informal and self-controlled learning are of crucial importance for the development of occupation-specific skills (Aschinger et al., 2011). Especially students in higher education are expected to acquire appropriate knowledge by familiarising themselves quickly with new information and evaluating it (Tippelt/Schmidt, 2006). The necessary skills transcend the concept of media literacy (Potter, 2011); they also challenge traditional attitudes towards media resources such as classical concepts of media competence (Baacke, 1996; Jarren/Wassmer, 2009; Moser, 2010). Conclusions regarding media literacy among students can primarily be drawn from studies carried out in research on media use which have looked not only at classical print media (Stiftung Lesen, 2009; Bonfadelli, 1993) but also at classical and digital mass media (e.g., van Eimeren/Frees, 2009; Initiative D21, 2011). Studies on the use of media among students such as the HISBUS studies carried out in Germany (Kleimann et al., 2005; 2008) and international studies (e.g., Margaryan et al., 2011; Waycott et al., 2010) have had a clear focus on the use of digital media within and beyond the context of university teaching while the ECAR long-term study carried out in the USA (Kvavik et al., 2004; Smith et al., 2009) also investigated the students’ competencies in dealing with media. However, all of these studies point to an above-average intensive and expansive use of digital media by students (Schulmeister, 2008), even though there are significant differences between the various subject areas (Grosch/Gidion, 2011; Grosch, 2012). These differences could be due to both a selection effect resulting from the choice of a field of study and to a socialisation effect during the course of study. At the same time, it seems that media skills acquired during leisure time are hardly ever transferred to university contexts (Schulmeister, 2009b). In accordance with the theory of situated cognition (Greeno, 1998) we expect that there is a strong link between media-related skills and competencies and specific contexts of application (Hartmann, 2009). Media competency cannot be regarded to be independent of specific contexts.

So far, little is known about the relevance of specific media for the envisaged vocational field or about the significance of university-bound media socialisation for the development of occupation-relevant media competence. A recent study points to the meaning of habitual forms of media use and media socialisation for media competence development (Kommer, 2010). However, there is a strong consensus about the necessity of media competence for using digital media effectively (Kerres/Voß, 2006; Hesse et al., 2006; Schmidt-Hertha/ Strobel, in press) and about the potential of digital media for learning (e.g., Meister/Meise, 2010). Especially with regard to interactive Internet technologies subsumed under the keyword “Web 2.0” (O’Reilly, 2005), new requirements arise in many occupational fields – and for students in higher education in particular (Schmidt-Hertha et al., 2011). Skills and knowledge necessary for using digital media as a resource for learning can be developed in higher education (Billes-Gerhart, 2009), but it is an open question in how far these facets of media competence meet vocational needs.
2. Objectives

Our research agenda addresses the four key aspects regarding the relevance of heterogeneous informational environments for status transitions that were identified in the previous section. All four aspects are related to research questions that link the behavioural dimension of the life course with social and subjective aspects:

**How do informational environments influence behaviour in biographical decisions?** Informational behaviour is a central process preceding and guiding individual decisions. We study how social background conditions and social networks affect biographical decisions of students through the mechanism of selective informational behaviour.

**How is the influence of informational environments on behaviour shaped by evaluative standards?** Information is assessed with reference to group-specific normative standards. We study how these standards are (re-)created within institutions and transmitted by social networks and how medial affordances are modified by subjective evaluations.

**How do individuals develop identities stimulated by heterogeneous informational environments?** Informational behaviour and group identification are central mechanisms through which social background is expressed in status transitions. We study how (dis-)identification develops in students and during the further educational career.

**How do informational environments influence media competencies?** Informational behaviour is based upon individual competencies. We study how these individual conditions are developed in different contexts within the university and in what way they refer to standards that go beyond educational institutions.

It is important to analyse these interlinked mechanisms in an integrated study. Therefore, we plan our research based on a clearly defined sample of students and we have access to major parts of relevant informational environments. A special focus of our analysis is the increasing digitalisation of these informational environments. Furthermore, using an institution-based sample of university students may have an additional benefit. Understanding the mechanisms behind students’ informational behaviour may help to create and to improve the University’s learning environments, so that they may be tailored to individual and subject-specific needs.

**Objectives regarding aspect 1**

*Information strategies and biographical decisions during status transitions:* Investigations regarding this first aspect make a contribution to understanding individual information behaviour with respect to biographical decisions. It also develops the emerging research field of informational environments by studying their consequences for decisions. We focus on the heterogeneity of these environments during and following life-course transitions applying an information-theoretical perspective on social networks. Central aspects of our analysis are the advancing digitalisation of informational environments and the increasing interconnectedness of formal and informal environments informing decision. Our research on these developments is of importance for understanding both altering individual decision behaviour in response to technological innovations and the consequences of these innovations for social inequalities.

Regarding our “test case” of university students, we expect to get immediately applicable insights: We can evaluate practices with regard to “what works” when providing opportunities...
for individuals to learn informational and biographical skills that are essential in modern knowledge societies.

Objectives regarding aspect 2

Justice in the course of studies: The impact of justice evaluations on status transitions: The second project addresses the subjective dimension of status transitions in heterogeneous informational environments, focusing on the impact of the justice evaluation of the distribution of resources that students need to conduct their studies (e.g., access to university, places in courses, grades) on their motivations and decisions concerning status transitions (e.g., to start with a certain subject, to change a subject or a university).

We assume that heterogeneous informational environments shape these evaluations. The increasing use of digital media for implementing distributive procedures and for providing information about these procedures will change the justice evaluations of these procedures and the resulting distributions of educational resources. Moreover, the standards of evaluation themselves may change since digital media change comparative referential structures which are used to acquire such standards of evaluation.

The project not only explores the supply and the use of information by new digital media. As their role for distributing educational resources is investigated, it serves also to shape new informational environments. The results can be used to enhance distributional procedures at the university to minimise the perceived unjustness of these procedures. This in turn should help to increase the students’ satisfaction with their studies and to minimise “irregular” courses of study.

Objectives regarding aspect 3

The dark and bright sides of disidentification: Antecedents and consequences: The third project contributes to our knowledge about psychological adaptation in transition phases. More specifically, it is one of the first projects in the field of psychological social identity development research to consider that individuals bear more than one social identity by investigating the positive and negative relation to two social identities in transition. The construct of disidentification has recently started to receive attention by researchers, but so far few longitudinal studies have been conducted. The current project contributes to our knowledge about antecedents and consequences of disidentification.

Besides these theoretical implications, the project has practical implications. The results will help to increase support of university freshmen, help them to increase their achievement and decrease rates of university dropouts. Even more importantly, the results may contribute to overcoming barriers in the German educational system for individuals from low social backgrounds. As research has shown that individuals with less privileged social backgrounds have a lower probability of entering and successfully completing their studies in university, the current project aims at deducting recommendations for universities to decrease these barriers on the basis of psychological insights.

Objectives regarding aspect 4

Developing media competence and work-related informational behaviour in academic studies: The fourth project constitutes an essential contribution by investigating the role of educational institutions in the development of information behaviour, media use and media compe-
tence among students. Various preconditions at the beginning of the studies due to social background and other variables are considered as well as changes occurring during the course of studies. The insights gained shed light on the relevance of study-related media practices at the time of a person’s career entry and beyond. The results will contribute to a better understanding of the use of media and of the development of media competence during post-adolescence and they will help to further clarify the connection between patterns of media use and the requirements regarding information behaviour in different areas of life (e.g., leisure time, studies, and work).

With regard to university teaching and further advanced programs, the project will yield important criteria in three respects: First, media services provided by the university and by individual disciplines can be better attuned to the students’ interests and habits of use. In this context, the categorisation of different media according to their relevance to the study- and work-related acquisition of knowledge provides an essential basis for the university-didactic use of media. Second, the media-related skills and competencies expected and required in associated fields of work provide important clues for the targeted promotion of media competence during the course of studies. Finally, this promotion can be specifically adapted to different groups of students for whom different profiles of media competence and diverging information behaviour can be assumed.
3. Research plan

In the following a research plan regarding heterogeneous informational environments and status transitions is lined out based on a joint strategy of access to the field using a population of undergraduate students (see below) in order to address their specific research questions. Survey research on students in tertiary education regarding digital technology so far has emphasised differential competencies among students and the clear social structure of these differences (Arum/Roksa, 2011; Correa, 2010; Goode, 2010; Kennedy et al. 2008; Kvavik et al., 2004; Smith et al., 2009) or the common use and acceptance of virtual learning environments (VLE) and Web 2.0 applications in tertiary learning (Grosch, 2012; Grosch/Gidion, 2011; Kleimann et al., 2008; Schulmeister, 2009a). Botturi et al. (2012) focus on the influence of digital technology on gender differentials in the field of study choice among secondary school students. The four primary determinants our research agenda focuses on with respect to transitions into tertiary education are: (1) social structural differences, (2) IT competencies and patterns of use, (3) online imprinting of fields-of-study-specific informational environments and (4) selection procedures. The concept of heterogeneous informational environments is the key to synthesizing these four determinants.

To implement our research agenda we intend to setup a comprehensive survey targeting the population of undergraduate students at the University of Tuebingen in six fields of study as a joint base for empirical research (see Table 1). The fields of study and their corresponding undergraduate tracks are chosen in order to construct contrasting cases based on the theoretical dimensions of our framework of heterogeneous informational environments: (1) social differences are indicated by parental education and gender; (2) IT competencies and patterns of use by a standardised test (INCOBI-R, Richter et al., 2010) and the number of hours spent in the Internet during a particular week; (3) field-of-study-specific informational online environments by the share of courses taught as lectures and present in a VLE (i.e. ILIAS); (4) field-of-study-specific selection procedures by the mean grades of the university entrance diplomas (UED) of first-year students and applicants.

Regarding these indicators, Biology is a field of study representative for an average Bachelor track at the University of Tuebingen (see Table 1, Biology vs. total). (1) Regarding socio-structural characteristics, Business Administration and Economics (BAE) have an above average share of students with a tertiary educated parent; Computer sciences (Psychology and Educational sciences) have a below (above) average share of females. (2) As expected the IT competency scores of students are above those of the general population in the same test. Computer sciences stand out with respect to IT competencies, especially regarding theoretical knowledge and duration of use. (3) With respect to field-of-study-specific informational online environments, the share in BAE is higher and in Educational sciences lower; and BAE utilises the respective VLE more and Psychology less intensively. (4) Regarding admission procedures, BAE, Medical Sciences and Psychology are more selective than the average. Medical Sciences is selective because of a special admission procedure implemented by a federal agency (ZVS). In sum, our sampling scheme captures differences from the average represented by Biology in the four important dimensions our theoretical concept.

The information for our sampling scheme is based on official records of the university administration, on the degree course schemes of the undergraduate tracks, on process-generated information from a VLE (i.e. ILIAS) and on a small scale survey of about 200 first-year undergraduate students we collected. Additional structured interviews were conducted with official representatives from these undergraduate tracks. They point to similar conclusions regarding these differences between fields of study.
Table 1: Information base for the sampling scheme of the joint survey

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Number of undergraduate students</th>
<th>Number of undergraduate freshmen</th>
<th>Share with parent with tertiary degree among freshmen</th>
<th>Share of women among freshmen</th>
<th>Mean score on a standardised test of practical IT knowledge</th>
<th>Mean score on a standardised test of theoretical IT knowledge</th>
<th>Mean number of hours spent in the Internet during the last week</th>
<th>Share of credit points earned in courses taught as lectures</th>
<th>Share of courses present in a virtual learning environment (ILIAS)*</th>
<th>Mean grade of freshmen’s university entrance diplomas</th>
<th>Mean grade of applicant’s university entrance diplomas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>1,179</td>
<td>256</td>
<td>.47 (.14)</td>
<td>.63</td>
<td>.17 (.06)</td>
<td>.71 (.06)</td>
<td>22.7 (4.9)</td>
<td>.8</td>
<td>.5</td>
<td>2.2</td>
<td>2.3</td>
</tr>
<tr>
<td>Business administration / economics</td>
<td>1,463</td>
<td>333</td>
<td>.62 (.09)</td>
<td>.58</td>
<td>.4 (.07)</td>
<td>.78 (.05)</td>
<td>25.7 (3.6)</td>
<td>1</td>
<td>1</td>
<td>1.7</td>
<td>2.2</td>
</tr>
<tr>
<td>Computer sciences (inc. biological, cognitive &amp; media)</td>
<td>699</td>
<td>167</td>
<td>.39 (.21)</td>
<td>.29</td>
<td>.77 (.19)</td>
<td>.84 (.12)</td>
<td>31.2 (5.4)</td>
<td>.85</td>
<td>-</td>
<td>2.4</td>
<td>2.5*</td>
</tr>
<tr>
<td>Educational sciences</td>
<td>1,126</td>
<td>164</td>
<td>.42 (.09)</td>
<td>.77</td>
<td>.3 (.07)</td>
<td>.62 (.06)</td>
<td>13.3 (2.6)</td>
<td>.4</td>
<td>.55</td>
<td>2.6</td>
<td>2.7</td>
</tr>
<tr>
<td>Medical science* (inc. dental &amp; molecular)</td>
<td>2,964</td>
<td>280</td>
<td>-</td>
<td>.59</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.8</td>
<td>1.9*</td>
</tr>
<tr>
<td>Psychology</td>
<td>628</td>
<td>120</td>
<td>-</td>
<td>.85</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.5</td>
<td>.35</td>
<td>1.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Total</td>
<td>27,464</td>
<td>5,817</td>
<td>.54 (.04)</td>
<td>.63</td>
<td>.37 (.04)</td>
<td>.69 (.04)</td>
<td>21.6 (1.8)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Source: own calculations based on...

Based on INCOBI-R (Richter et al., 2010; score range [-1, 1]; average German citizens have a score of 0);
*Refers to obligatory courses of respective general tracks; medical sciences has no credit point based scheme;
| Dimension                        | Number of undergraduate students | Number of undergraduate freshmen | Share with parent with tertiary degree among freshmen | Share of women among freshmen | Mean score on a standardised test of practical IT knowledge | Mean score on a standardised test of theoretical IT knowledge | Mean number of hours spent in the Internet during the last week | Share of credit points earned in courses taught as lectures | Share of courses present in a virtual learning environment (ILIAS)* | Mean grade of freshmen’s university entrance diplomas | Mean grade of applicant’s university entrance diplomas |

1. These fields of study were not included in the preparatory survey; therefore information based on the survey is missing;
2. Summary of 132 undergraduate tracks at the University of Tuebingen including 61 Bachelor tracks.
Our target population in these six fields of study consists of (currently) 8,059 students. We plan to collect information on socio-structural characteristics, educational careers, family and friendship networks and habits of digital as well as classical media use by using a computer-assisted Web survey (CAWI). We use the instruments we developed to capture digital technological skills, attitudes and pre-transition informational networks as well as the detailed information collected on the institutional setup and curricula of the different undergraduate courses. The survey is complemented with modules on the four specific aspects of our research agenda (see research plans below). Using small incentives – a lottery – we expect a participation rate of around 25 percent resulting in a sample size of about 2000 participants. We plan to repeat the joint survey, thus creating a short panel. For the repetition we aim at a participation rate of two thirds resulting in a sample of about 1300 participants. In order to reach this goal we use incentives systematically. Participants have also to be attended well over the whole project period.

Table 2: Time schedule for our research agenda

<table>
<thead>
<tr>
<th>Half-year</th>
<th>Panel</th>
<th>Aspect 1</th>
<th>Aspect 2</th>
<th>Aspect 3</th>
<th>Aspect 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>prepare recruitment</td>
<td>pre-test instruments</td>
<td>qualitative pre-study</td>
<td>pre-test instruments</td>
<td>expert interviews</td>
</tr>
<tr>
<td>2</td>
<td>joint survey 1</td>
<td>module “decisions”</td>
<td>module “evaluation”</td>
<td>module “dis-identification”</td>
<td>module “media use”</td>
</tr>
<tr>
<td>3</td>
<td>coordinate sample use;</td>
<td>development Web recorder</td>
<td>data analysis</td>
<td>newspaper experiment</td>
<td>media time diaries</td>
</tr>
<tr>
<td>4</td>
<td>take care of participants</td>
<td>analysis; publishing</td>
<td>factorial survey “resources”</td>
<td>data analysis</td>
<td>pre-test instruments</td>
</tr>
<tr>
<td>5</td>
<td>joint survey 2</td>
<td>Web recorder “internships”</td>
<td>analysis; publishing</td>
<td>internet link experiment</td>
<td>repeated module</td>
</tr>
<tr>
<td>6</td>
<td>coordinate sample use;</td>
<td>search experiment</td>
<td>factorial survey “grades”</td>
<td>search experiment</td>
<td>qualitative interviews</td>
</tr>
<tr>
<td>7</td>
<td>take care of participants</td>
<td>Web recorder “flat hunting”</td>
<td>data analysis</td>
<td>time measure experiment</td>
<td>data analysis</td>
</tr>
<tr>
<td>8</td>
<td>document joint survey</td>
<td>analysis; publishing</td>
<td>publishing</td>
<td>analysis; publishing</td>
<td>triangulation &amp; publishing</td>
</tr>
</tbody>
</table>

Legend:

- organisation / preparation / analysis
- field work / data collection

Table 2 displays a time schedule for our research agenda. Details can be found in the research plans for the four specific aspects.

Research plan regarding aspect 1

Research regarding aspect 1 extends and deepens the new linkage between information behavioural decision theory and research on biographical transitions established by our studies so far. Our results suggest that the informational strategies applied in taking life-course decisions – and in particular, the question whether digital technologies are used in the process or not – are strongly influenced by the supply and relative costs of offline vs. online information. Using newly developed survey instruments we operationalised the supply conditions in the form of informational networks and the relative costs using indicators for IT skills, attitudes, motivations and equipment. Building on these results, the research questions guiding our further work are in particular: Under which conditions and how are informational networks and strategies changing (1) during and (2) following biographical transitions? (3) How do informational networks interact with skills, attitudes, motivations and equipment when digital tech-
nologies are included in individual informational strategies? (4) Under which conditions and how are informational networks influencing individual decisions and traditional as well as digital inequalities?

Our hypotheses can be deduced from our theoretical framework lined out above (see Section 1.1): We expect socio-structural differences in the utility of information gained from the family and other pre-transition networks for informing and assisting decisions in the post-transition context (see (1)). Regarding transitions to higher education we expect the utility of information gained from the family to increase especially with parental schooling. Post-transition informational networks differ in the degree and the ways in which digital technologies are used and new social ties are constituted (see (2)). In the case of undergraduate studies, we expect that these possibilities are especially influenced by the specific institutional setup of the respective fields of study. The resulting differentiated informational networks create differences in the incentives for using digital technologies and substituting offline by online information for a decision (see (3)). The influence of digital technological skills, attitudes, motivations and equipment on decisions differs between types of informational networks, thus creating network-dependent effects of these individual attributes (see (4)). The focus on informational networks allows synergies with other research on the interrelations between digital media and social networks (Buder, 2011; Halatchliyski/Cress, 2012).

As applications for testing we use two “small scale” biographical decisions taken in the follow-up of the transition to university for which we expect differing informational network dependencies: internship searching and picking, an activity heavily influenced by social background given the larger amount of weak ties inherent in the networks of families with higher social status (Granovetter, 1973; 1974); and flat hunting and choosing a place to live, which is strongly dependent on an individual’s ability to build new social ties in the post-transition phase.

Therefore, internship searching is more strongly affected by family related social networks (see (1)). Internship searching is to a larger extent assisted by institutions formally related to field of study or the university than flat hunting (see (2)). Hence regarding supply conditions for support, the informational networks of these two applications are contrasting cases. It follows that information unrelated to family networks and formal institutions – informal information – plays a more crucial role in flat hunting than in internship searching; and formal institutions are more important in internship searching for students with a low status family background. More generally, for tasks unsupported by formal institutions and under conditions of a low socio-economic background, individual abilities to acquire information, to build new network ties and competencies to use digital technology gain importance for such decisions. Fields of study differ in the abilities of their students to perform these tasks and the incentives they set as well as the assistance they give to develop them (see (3)). The student sample we use for our analysis is constructed to create theoretical grounded contrast cases in this respect. Consequently individual digital technological competencies have a stronger effect in the case of flat hunting that is independent of family and institutional information networks; in the case of internship searching this effect is stronger for students of low status families and in fields of study with comparatively weak institutional support for the task.

Our empirical strategy for both applications consists of a three-fold focused access to the field implementing (a) a Web search recording tool; (b) a factorial survey and (c) an on-site experiment (see Table 2 for a time schedule of these tasks). The recruitment and the baseline socio-structural data for these field accesses are based on our panel of university students.
(a) **Web recorder:** We plan to use a Web search recording tool for collecting information regarding online search behaviour with respect to internship search and flat hunting. Therefore, a first step in our research agenda is the development of this tool. This browser-based application is distributed via e-mail or a website to the students in the sample. They are asked to use it whenever they search for information on internships, jobs or a flat. Participation is coupled to an incentive scheme, and participants receive a small online questionnaire asking about types and sources of offline information collected as well as possible outcomes realised with respect to internship search and flat hunting. This new dynamic type of data collection is in principle an open-ended process which has to be supervised over the whole project time. Major data extractions are intended twice during the research phase. The collected search logs are coded using standardised coding schemes (Hargittai, 2004; Hollink et al., 2011). They are analysed jointly with the outcome related questionnaires, profiles of informational networks and the background information from the two joint surveys to evaluate the impact of informational networks on informational strategies and decisions. It can be supplemented with profiles of informational networks based on media time diaries (cf. Cai, 2005; Wellman et al., 2001; Robinson, 2011; Robinson/Martin, 2010). Through this focused procedure we get a detailed picture of how the informational networks of undergraduate students are shaped by the field-of-study-specific post-transition environments. At the end of this field phase, skills, attitudes, motivations and equipment with respect to digital technology are reassessed using a short questionnaire in order to evaluate the relation of their development to the informational network. This research is closely related to the studies regarding informational competencies done regarding aspect 4 of our research agenda.

(b) **Module “decision criteria”/factorial surveys:** Accompanying the web-recording of search behaviour we plan to conduct two online factorial surveys (cf. Auspurg et al., 2009; Jasso, 2006; Rossi, 1979) on tastes and preferences of the undergraduate students with regard to internships, jobs and places to live in general as well as with respect to the representation and processing of information on these topics. In order to achieve these goals we implement a combination of textual and visual elements in our instruments and record time stamps during data collection. Through this setup we complement our baseline knowledge about our participants from the survey with specific knowledge regarding the outcomes of interest. The experimental vignettes used in the surveys are developed and implemented in close cooperation with research done regarding aspect 2 of our research agenda.

(d) **Search strategy experiment:** In addition, we plan to experimentally manipulate the ability and motivation to search for an internship, especially online, with an on-site experiment. We invite a random sample of students to participate in a short course on finding a potential future employer online. Together with a session on online search strategies this course constitutes the treatment of our experimental setup. To measure the treatment effect the participants and a control group have to complete several small online search tasks. Baseline measures are taken before the treatment. Additionally we track outcomes in the aftermath of the intervention using the short online questionnaires developed jointly with our Web search recording tool (see (a)). This on-site experiment completes our series of field accesses by experimentally evaluating the alterability of specific digital skills, attitudes and motivations as well as the ability to purposefully influence certain biographical decisions. The on-site experiment is developed and implemented in close cooperation with studies done regarding aspect 3 of our research agenda.
Research plan regarding aspect 2

University studies can be viewed as a series of allocations of scarce goods. This series starts with the access to the university itself: university places are scarce goods that are to be allocated to the applicants. During the studies, resources such as places in courses or laboratories, grades, and finally degrees are distributed. The distributions are accomplished in more or less formalised procedures inside the institution of the "university", creating problems of distributive justice: the distributional procedure as well as the resulting distribution can be judged as just or unjust. However, judging a distributional procedure or a resulting distribution to be unjust creates feelings of discomfort, resulting in behaviour that seeks to restore justness, either by changing the distributional situation or by adoption of the specific evaluational standards used in the distributive process (Austin/Hatfield, 1980; Jasso/ Wegener, 1997; Jost/Hunyady 2005).

In the present context, it is assumed that perceived unjustness of the distribution of the "educational" goods will result in irregular study courses. Students who feel treated unjustly when applying for a study place, for resources or for grades will show a lower level of motivation to fulfil their tasks and have a higher risk of changing their subject, applying to a different university or even abandoning their studies altogether. Thus, the project intends to investigate the students’ evaluational judgements of distributional procedures in their university and the consequences of these judgements for transitional decisions during the course of study. In the latter respect the project cooperates closely with Project 1 which also targets decisions though types of decisions and causal factors focused on differ in several respects.

Heterogeneous informational environments shape the evaluational processes in two respects. First, they influence the formation and perception of evaluational standards. Second, they are used to incorporate distributional procedures. Distributional procedures implement different principles of distributive justice – the most important of them being distribution according to "contribution", "equality" or "need" (Schwinger, 1980; Wegener, 2001). Feelings of unjustness arise if the standards which are implemented in the distributional procedures do not meet the standards which are accepted by the rewarders. People usually assume that educational institutions implement the "equity" principle (Walster et al., 1973; Elster, 1995), according to which goods are allocated proportionally to contributions that create claims of "deservedness". But this is not necessarily the case: institutionalised procedures of distributions often use random techniques or even involve arbitrary decisions (Schmidt/ Hartmann, 1997). On the other hand, students often prefer institutions to follow "need" or "equality" as justice principles to distribute the goods for which they apply.

Standards of evaluation are applied to a distributional situation by comparison of the structural characteristics of a given situation with a “referential structure” (Berger et al., 1972) which provides the normative standards to evaluate the distributional procedure respectively the resulting distribution. However, for a given situation a huge variety of potential reference structures exists. It is assumed that informational environments have a strong influence on the choice of a seemingly appropriate referential structure, since social contacts with peers on the one hand and digital media on the other hand offer a different range of referential structures which can be used for the comparison process. Hence it is assumed that the growing importance of digital media for studies at the university changes the adoption of standards that are used to evaluate distributional procedures. Concerning comparison processes, the project will closely cooperate with Project 3 since identification with certain groups will
strongly increase the probability that characteristics of these groups will be a part of the chosen referential structure. New digital media are increasingly used to implement distributive procedures. For instance, Web interfaces provide access to courses using a random assignment procedure or weighted characteristics of students as a criterion for the distribution process; and digital media foster the use of standardised testing procedures for allocating grades.

It is assumed that digital media enhance the implementation of “mechanical” procedures of allocation which create less concerns about the justness of distributive procedures than more discretionary procedures relying on personal decisions of distributive actors since the latter give rise to the suspicion of arbitrary allocations (Elster, 1991). Moreover, distributive procedures implemented via digital media might be evaluated as more just since the distribution process becomes clearer to the rewardee. Based on these considerations, the project will focus on the following research questions grouped in three main topics:

Generating standards of evaluation: How do heterogeneous informational environments affect the formation of individual standards of justice? In particular, what role do new digital media play for the adoption of these standards?

The evaluative process: How are new digital media used to provide information about evaluative standards and how to implement them in distributive procedures? How does digital media use affect the perception and evaluation of these procedures and the resulting distributions by students?

Consequences of justice evaluation: What consequences do judgements of unjust treatment of students have for their future educational career? In other words, how do feelings of being treated unfairly affect motivation and intentions to change a subject, a university or even to leave the educational system?

The empirical research of Project 2 consists of three different studies: (a) a small scale study using qualitative interviews to explore students’ evaluations of distributonal procedures at the university; (b) a module “evaluation” that is part of the common quantitative study based on the results of (a); and (c) two factorial surveys investigating the principles of justice used by the students experimentally. Table 2 contains the time schedule for the different field works.

(a) Qualitative study: The main goal of the qualitative study is to develop standardised questions that can be used in the module "evaluation" (see (b)). Though there is a huge variety of standardised instruments to measure justice evaluations of distributional outcomes in various contexts, evaluations of distributive procedures in universities have received little attention. In particular there are no such instruments to study evaluations of distributive procedures in universities. Thus, 18 guided interviews with students will be conducted (three for each of the six fields of study in our joint survey) to explore these evaluations. Subsequent content analysis will reveal which dimensions of evaluations have to be captured by the standardised questions of the module "evaluation".

(b) Module "evaluation": The core of the study is based on a module of standardised questions which will be part of the joint survey conducted at the beginning of winter term 2013. While the common study provides baseline socio-structural data and information on the use of digital media (see also Project 4), evaluations and consequences of these evaluations have to be observed in addition to the common baseline. Thus, the module "evaluation" will include
questions on student experiences as rewardee of various distributive procedures (access to university, access to field of study, access to resources and grades), the evaluation of these procedures and the resulting distributions of goods, as well as their aspirations, intentions to change the field of study and/or the university and further information on the course of study.

(c) Factorial surveys: In addition to the quantitative study, two factorial surveys will be conducted to get a deeper insight into the students’ standards of justice which they use to evaluate the distributive procedures. In observational studies as used in the module “evaluation” (see (b)), respondents confound judgements from an impartial point of view (a necessary condition for justice evaluations) with judgements based on their own interests. Thus, vignettes are used to implement a “veil of ignorance” or “umpire mode” of judgement (Traub et al., 2005) to disentangle concerns of justice and concerns of self-interest. Additionally, the factorial design enables the researcher to investigate evaluational judgements of hypothetical distributional procedures which can be contrasted with the procedures actually used in university education. The first survey will focus on the distribution of resources, the second on the distribution of grades.

Research plan regarding aspect 3

This research project investigates the antecedents and development of disidentification, its consequences for the preference and use of information, and its long-term impact on the educational careers of students from different social backgrounds.

Antecedents and development of disidentification. Research has demonstrated that disidentification is related to rejection and other difficult circumstances. This project is the first that investigates the co-development of disidentification with two social identities longitudinally by measuring both social background identity and education-oriented identity. It is assumed that both identities are candidates for disidentification. Within the research project, it will be studied what factors contribute to the development of a disidentification with a specific group.

Consequences of disidentification. It is assumed that (dis-)identification with the social background and the educational milieu affect informational behaviour, its impact and competences and decisions during and after the transition. Within the research project, experimental studies and cross-sectional as well as longitudinal studies will investigate the impact of disidentification on information search and its long-term consequences. Moreover, it will be studied whether disidentification affects the way individuals treat other groups negatively, such as discriminative behaviour. Taken together, disidentification in the freshmen’s transition phase to university is expected to have “bright” and “dark” sides.

Research plan regarding aspect 4

In modern societies the competencies regarding the use of digital media rather than mere accessibility are distributed unevenly between different social strata and milieux (Pietrass et al., 2005). Accordingly, one can assume that even at the beginning of a course of studies there are different patterns of media use and divergent manifestations of media competence. These patterns are then confronted with university-related and subject-specific requirements for the use of media and with specific media-based forms of interaction among the fellow students. This means we have to expect not only an enhancement, change, and specialisation in using digital media, but also to consider in how far the further development of patterns of media
use in the course studies contributes to the preparation for future job-related demands. It depends on the respective field of work which facets of media competencies and which forms of media use are relevant for vocational competences and skills (Schmidt-Hertha et al., 2011).

It is assumed that informal ways of learning play a crucial role with regard to career entry and the course of academic careers (Schmidt-Hertha, 2011). In this context, digital media provide manifold opportunities as learning and communication environments (Todorova et al., 2007). However, the relevance of digital media for learning and communication contexts may differ from one person to the next, depending on the media use behaviour, on university-related media socialisation, and on individual media competencies (Lischka, 2001). In addition to these individual factors, characteristics of the respective field of study, the pursued occupation, or company probably have a strong impact on the use and the services of media-based communication and knowledge resources. Finally, not all forms of media services and patterns of use are directly compatible with occupational demands and contexts. Thus, the project will focus on the following questions:

(1) Which media formats are relevant for the acquisition of knowledge and for study-related information procurement?

(2) In how far are these learning media significant for possible occupational fields?

(3) Which patterns of media use and facets of media competence, which are important for future entry into an occupation, are developed during the course of studies?

The study consists of four phases: in a first explorative step, the relevance of different media resources of the respective occupational field has been determined on the basis of qualitative interviews with experts. Based on these results, standardised survey instruments will be developed for interviewing students in different phases of their studies and regarding their habits of media use. We can build directly on a survey we carried out among students at the Technical University of Braunschweig in 2011. One part of the sample from the survey among students, realised jointly in a cluster, will be interviewed a second time after about one year in order to map changes in the patterns of media use longitudinally, so as to be able to draw conclusions regarding both medial cultures specific to certain subject areas and the medial socialisation in the course of the studies. In between and after the two phases of quantitative surveys, we will additionally gather more in-depth information on students’ patterns of media use by means of learning diaries. We will also monitor the subjective perspectives of the parties involved regarding their personal media socialisation by qualitative interviews with students and young professionals, and we will record the argumentation patterns reverted to by students and graduates when attributing specific significance to diverse media-based worlds of information and communication.

Qualitative interviews with selected experts from the respective occupational fields (Step 1): The first access has aimed at the explorative determination of expectations and requirements regarding media use and media competence among young professionals in some of the occupational fields associated with the courses of studies examined. Interviews have been carried out with experts from the respective occupational fields; the persons selected had many years of professional experience acquired in key positions (e.g., in human resources development) and with different employers. The total of 10 guided interviews with experts follows the method of problem-centred interviews (Witzel, 1985) and is evaluated using content analysis (Gläser/Laudel, 2009). The interviews have focused on the relevance of digital information
and communication environments in the respective occupational field, on the challenges regarding informal learning during the initial phase of training and familiarisation with the job, and on the experience with media and media competence needed for a successful career entry.

Quantitative survey with students (Step 2): The quantitative survey among students in six selected fields of study has been carried out within the framework of the joint survey in cooperation with the other projects of our cluster. For this project additional questions and scales concerning media use, media competence, and the evaluation of medial forms of access have been integrated into the interviews. We have been able to draw upon already tested instruments and experiences (e.g., Schaumburg/Hacke, 2010; Arke/Primack, 2009; PIAAC Expert Group, 2009; Sowka, 2009; Gapski, 2006). The focus is on differences between social milieux and dependence on social background. Questions have been developed in cooperation with Project 1.

Media time diaries (Step 3): In order to gain a more detailed insight into students’ profiles of media use, and providing more information than the mere questionnaire, a sub-sample of 50 students from the group of Step 2 will be asked to keep a standardised diary for a period of one week (Gunter, 2000, pp. 96). In this diary students are asked to record which media they have accessed for which purpose, for how long and with what success. These data will also allow drawing conclusions as to the students’ media competence in so far as they will show whether the choice of media was appropriate. This procedure gives an insight into the students’ use of media and their media competence which is less distorted by the persons’ subjective assessments.

Repetition of the quantitative survey (Step 4; see also Step 2): The sample recruited for Step 2 will be interviewed again about one year after the initial survey; for this, the interview relevant instruments will be used without changes. Using longitudinal data collected from students in different phases of their studies and from diverse disciplines, the aim is to gain insights about the development of the patterns of media use, media competence, and media-related attitudes. This will allow drawing conclusions not so much on the influence of university education as an isolated factor, but rather on the effects of the post-adolescent phase of life constituted by academic studies. For the interpretation of the findings we will also draw upon the results from the qualitative interviews and from the diaries. We will thus be able to estimate the significance of student-related media socialisation for the occupational fields explored in Step 1. In this context, we will also make link to the data on the disidentification of students collected for the same sample within the framework of Project 3, so that connections between disidentification and media use can be analysed jointly. Especially the use of social networks and of learning media targeting cooperation and collaboration will be enlightening for both projects.

Qualitative interviews with students from higher semesters and young professionals (Step 5): Taking the results from the surveys and diaries into consideration, a guideline for in-depth interviews with students and young professionals from one of the disciplines examined will be developed and implemented in 15 problem-centred interviews (Witzel, 1985). The sample for these qualitative interviews will be recruited from the group of participants of the diary-based study (Step 3) and from a network of alumni. The primarily content-oriented evaluation (Mayring, 2008) of the interviews (duration: approximately one hour) will be carried out using suitable software (MaxQDA) which facilitates the measurement of inter-coder reliability as well as the validation of the interpretations by the research team (Kuckartz, 2010). The aim
of these interviews is, among others, to look at the chronological sequence of and changes in media use and media competence; changes in the individual media use at certain transition points and expectations regarding future use of media are central topics.

Data analysis and triangulation (Step 6): In a final step of research, the collected data will be analysed in-depth. This will first be done separately for every form of data before transferring results and opening questions from one methodological approach to the other data sources. We are familiar with this kind of “real” data triangulation (Flick, 2008) as we already applied this technique in other research projects (Tippelt et al., 2009; Schmidt, 2009; Schmidt-Hertha et al., 2011).
Bibliography


Lang, Volker; Hillmert, Steffen (2012): Transitions to tertiary education and the use of online information, Working paper.


Prensky, Marc (2001): Digital natives, digital immigrants, Part II: Do they really think different? In ON THE HORIZON 9 (6), pp. e.


Waycott, Jenny; Bennett, Sue; Kennedy, Gregor; Dalgarno, Barney; Gray, Kathleen (2010): Digital divides? Student and staff perceptions of information and communication technologies. In COMPUTERS AND EDUCATION 54(4), pp. 1202-1211.


Wellman, Barry; Quan-Haase, Anabel; Witte, James; Hampton, Keith (2001): Does the Internet increase, decrease, or supplement social capital? Social networks, participation, and community commitment. In AMERICAN BEHAVIORAL SCIENTIST 45 (3), pp. 436-455.


Wittwer, Joerg; Senkbeil, Martin (2008): Is students' computer use at home related to their mathematical performance at school? In COMPUTERS AND EDUCATION 50 (4), pp. 1558-1571.
