The Process of Choosing What to Study

A longitudinal Study of Upper Secondary Students' Identity Work when Choosing Higher Education

Holmegaard, Henriette Tolstrup; Ulriksen, Lars; Madsen, Lene Møller

Published in:
Scandinavian Journal of Educational Research

DOI:
[10.1080/00313831.2012.696212](https://doi.org/10.1080/00313831.2012.696212)

Publication date:
2014

Document version
Early version, also known as pre-print

Citation for published version (APA):
Holmegaard, H. T., Ulriksen, L., & Madsen, L. M. (2014). The Process of Choosing What to Study: A longitudinal Study of Upper Secondary Students' Identity Work when Choosing Higher Education. *Scandinavian Journal of Educational Research*, 58(1), 21-40. <https://doi.org/10.1080/00313831.2012.696212>

The process of choosing what to study

A longitudinal study of upper secondary students' identity work when choosing higher education

This paper presents the first results from a longitudinal qualitative study following 38 Danish students' choice of higher education. By using a narrative psychological framework it is shown how the choice of higher education is embedded in various dilemmas, making it difficult for the students to make meaningful choices. They believe the choice should be unique and individual and that it should correspond with who they are and wish to become. However, the analysis shows that choosing what to study after upper-secondary school is a complex ongoing and social process rather than an isolated individual event. Implications of these results are discussed and the educational system is urged to provide room for and facilitate students production of narratives about their choice.

Keywords: Student choice, identity, student transition, narrative psychology

Student choice of higher education has long been an object to international research. In particular an extensive body of American literature on student choice of higher educational choice has been carried out, primarily dominated by large scale quantitative studies, aiming at mapping the factors affecting student choices. The American tradition tends to emphasise on the one side how student background affect the choice of study i.e. ethnic, social and gender but also how students prior high school trajectories in different ways seem to prepare them to higher education (Bergerson, 2010). Also a vast number of British studies have been carried out on the topic. Like the American studies, the British focus on understanding how various student backgrounds in general and social class in particular affect their choices and access to higher education (Gewirtz, Ball, & Bowe, 1995; Reay,

David, & Ball, 2005). The British tradition is characterized by a range of quantitative and qualitative methods, including longitudinal studies to access how students' choices are formed across time (Brooks, 2003; Read, Archer, & Leathwood, 2003).

A substantial part of the Scandinavian research has been devoted to examining how student choices relates to the construction of an attractive identity (Boe, Henriksen, Lyons, & Schreiner, 2011; Hutter, 2004; Illeris, Katznelson, Simonsen, & Ulriksen, 2002; Schreiner, 2006). The Scandinavian literature has thus contributed to the existing literature by attempting to understand young peoples' choice of study as more than a question of what to study (Illeris, et al., 2002). This study follows the Scandinavian point of departure of perceiving student choice as being closely related to identity.

As the American and British research also the Scandinavian has been devoted to understand the growing diversity of students entering secondary and higher education (Brunila, Kurkia, Lahelmaa, Lehtonen, Mietola, & Palmu, 2011; Thomsen, 2008). As the higher educational system has become increasingly influenced by market orientation and economic rationales and students are being associated with increased economic value, research in recruiting and retaining students has increased (Jacobs, Lundqvist, & Hellmark, 2003; Scott, 1995).

Due to lack of young people applying for and completing a career in science, technology, engineering or mathematics (STEM) (European-Commission, 2004; OECD, 2008), this economic rationale has contributed to an attention within the literature of choice towards young people who are about to choose a STEM-career (Boe, et al., 2011). However, there are other rationales than economic for carrying out research concerning student choices. A social rationale is approaching student choices through the eyes of the students themselves. Jenkins & Nelson (2005) state in a UK context that it is not until recently that research in student-perspectives has been recognized as an object of research; earlier, their voice was marginalized within educational research. A social rationale tends to understand how the choice is ascribed meaning by students in the process of

choosing, and how it interacts with the way the choice is socially structured in society in general. In a Danish context, Hutter (2004) presents one example of a qualitative longitudinal study with a point of departure in student choice-narratives. She shows how the students work on their interests to make what they perceive as a sensible choice, and she identifies a social reproduction in the choice in the sense that what the students perceive as being suitable and realistic to them relates to their social background (Hutter, 2004). Our aim is similar to that of Hutter, but where Hutter's point of view is sociological, ours is situated within social psychology. Building upon the Scandinavian research tradition and through a narrative psychological approach, we wish to look through the eyes of the students to explore how they make meaning of their educational choice, and how these perceptions interact with their narratives and self-work.

Aim

The above perspectives have led to the following research question: How are young people's choices of higher education negotiated and ascribed meaning in their narratives of identity?

By applying a longitudinal approach to young people's choices, our aim is through the students' narratives to explore how they perceive and ascribe meaning to their choice of higher education; what do they point to as being crucial when choosing their future study, how do their narratives interact with their choice-strategies and identity-work when they are about to choose higher education. This article presents results from qualitative interviews, text messages and e-mail correspondences with 38 Danish students in non-vocational upper-secondary schools. Despite the fact that the students are selected within science specialized classes, statistics show that they pursue a wide range of educational programmes which are both science and non-science oriented (Nielsen, 2008). To understand their choices we therefore not only draw on the literature in science education but also on the literature on choice in general.

Theoretical framework

Outlining different approaches to student educational choices

When looking into the research field of student choices of higher education, studies have been conducted with as diverse perspectives as sociology, psychology and economics, constituting a research field with potential implications for practice, policy, and research (Paulsen, 1990).

Historically, an aim that permeates the research has been to research student choices of education by capturing the composition of the educational choice. A study conducted in the UK aimed at finding out why young people chose to pursue a career in science and engineering. In the conclusion, student choices were divided into three interrelated factors: *out-of-school factors*, *in-school factors*, and *personality types* (Woolnough, 1994). An example is the expectancy-value model developed within psychology by Eccles and Wigfield (2002), a complex model aiming at identifying the many significant components important for student choice. The model is constructed with the intention of capturing students' expectancies of success, their ability beliefs and values, and how those factors influence their choice. There is an inherent risk of applying the model by reducing the complexity in a way that presupposes a rational subject who is oriented towards success and goals, with a prominent focus on cognitive processes and motivation and little attention paid to the cultural settings. A similarly rational and calculating subject is presupposed by the sociological theory of rational choice which combines sociology with economic theory. Rational choice assumes that students are capable of making informed choices based on expected returns of these choices, and that the student chooses education to maximize expected utility (Breen & Goldthorpe, 1997; Jæger, 2007).

Instead of focusing on the choice itself, other studies combine the choice with psychology, as exemplified by the classical study conducted by Holland (1973). Holland argues how young

people's choice of education is closely connected to their personality type and develops a theory of vocational choices by dividing a person's competencies, activities, self-estimates, interests, and choices into a six-category typology. He concludes that success is produced in the correct alignment between personality type and type of work environment (J. Holland, 1973).

A recent literature review shows how there is a general movement away from comprehensive choice models like those described above, due to the fact that the population of students is growing increasingly diverse, making modelling difficult. What is important for future research is therefore not to identify the components which affect students' choices, but rather to qualitatively explore how they interact and 'create a sense of fit for individual students' (Bergerson, 2010; Pike & Dunne, 2011).

As an increased attention has been paid to students' STEM-choices due to a lack of young people choosing a science carrier, some of recent literature addressing the above call for research can be found within the field of science education (Boe, et al., 2011).. With a STEM focus, a qualitative longitudinal study has been carried out in England on 16-year old high-achieving student choices of post-compulsory science courses. The conclusion is that students shape their choices in multiple ways, and five different choice-trajectories are constructed ranging from 'the 'directed' trajectory' with early and specific career commitment to 'the 'multiple projection' trajectory' with constantly changing ideas. Background and childhood interests seem to be influential for some students, whereas to others it has less or no influence. Here, students' science choices are interplay of self-perception, occupational images of working scientists, relationship with significant adults and perceptions of school science. It is concluded that there is no model for how this interplay turns out, because it turns out differently depending on the students' trajectories (Cleaves, 2005). Still within a science education context it is argued elsewhere that if we wish to understand young people's aspirations, an identity perspective in addition to an understanding of the cultural processes at work

when young people choose, is specifically needed (Osborne, 2007). This query is taken up in a Canadian study, with the aim to find of understanding the discourses available to students when articulating their attitudes towards a science career (Hsu, Roth, Marshall, & Guenette, 2009). This study has a social-psychological position using discourse psychology to identify ways in which students talk about their careers. This is a way to approach the call of studying the complexity in student choices rather than aiming at mapping it.

Also the Scandinavian research tradition positions itself in this research-area where qualitative and explorative studies are widely used and comprehensive choice-models less widespread. Here, attention is paid to the complexity, the identity-aspects, and the cultural aspects of the choice. Ideas about late-modernity and how it influences how young people conceive of their educational choices are also important in this tradition (Boe, et al., 2011). A fundamental condition in Western late-modern societies is the larger extent to which young people are expected to construct their own biographies in an individualised and de-traditionalised context, where less seems to be given beforehand (Beck & Beck-Gernsheim, 2002). Hence, the decision about what course of study to choose after finishing upper-secondary school is not limited to figuring out what could be interesting or promising, it is also about *defining* oneself, and making a decision about whom one wishes to become (Illeris, et al., 2002; Schreiner, 2006).

This is, however, a highly ambiguous task that young people experience while surrounded by uncertainty and with some ambivalence (Ziehe, 1991). The ambiguity derives not least from the contradiction that on the one hand, it appears as if young people are free to choose anything, whereas, on the other, the choice is made in a highly standardised and institutionalised context (Beck & Beck-Gernsheim, 2002) where socio-economic background, gender and ethnicity has a strong impact (Brunilaa, et al., 2011). Students therefore need to handle the restraints and obstacles

in the cultural and social context in a way that does not impede their sense of making their own choice about who they wish to become.

In this paper we address the issue of choice drawing on a narrative psychological approach. We wish to contribute to the existing literature of student educational choices by bringing together issues of identity, culture, and young people's choices of higher education as called for in the existing literature.

Choice from a narrative psychological perspective

To approach an investigation of how student choices interact with their identity construction, we use the framework provided by narrative psychology. Narrative psychology is an outcome of what is known as 'the crisis in social psychology' in the 70's (Potter & Wetherell, 1987). Social psychology had until then been dominated by an experimental tradition, and the shift led to new ways of doing science, including social constructionism and narrative psychology (Sarbin, 1986). Narrative psychology is far from a field characterized by consensus; the notion covers various ideas of what narratives are and how they should be studied (Polkinghorne, 1988; Riessman, 1993; Smith & Sparkes, 2008; S. Taylor, 2009). The common point of departure across the various theoretical positions is that life as it is lived is not the same as what is told, and that narratives work as an organizing principle: a means for humans to make sense and structure the complexity in the world into coherence (Sarbin, 1986). Disruptive elements are removed from the story by the narrator to maintain a degree of meaning. In contrast life as it is actually lived, does not have a similar order and is not necessarily meaningful (Crossley, 2000). Constructing narratives is an ongoing process: as subjects move in time, narratives are retold depending on the subject's immediate considerations of the past and expectations for the future (Bruner, 2004).

To construct one's personal, unique identity is not a requirement which characterises only young people, but a powerful necessity that seems to be a condition that all individuals need to meet and negotiate throughout life. Rose states that '*The self is to style its life through acts of choice*' (1998, p. 21). This emphasises the choice of higher education programme as a turning point in where new narratives can begin and are made possible by the breach of context and the individuals' new horizon, since, the expectation of the future are crucial for the identity-work of individuals.

Throughout the narrative psychological positions, identity is considered to be shaped *by a larger socio-cultural matrix of our being-in-the-world* (Smith & Sparkes, 2008, p. 6), which means that narratives are embedded in a relational world, and meaning is constructed in a complex relation between the person and the surrounding culture. It is not possible to gain access to 'a real self' by going behind this cultural meaning-making process (D. Holland, Lachicotte, Skinner, & Cain, 1998; C. Taylor, 1989; S. Taylor, 2009), but theories differ as to the extent to which they account for this socio-cultural matrix and how they situate the narratives in social, historical, political and cultural contexts. The narrative psychological theories can be positioned on a spectrum ranging from a 'thick individual' and 'thin social relational' view to 'thin individual' and 'thick social relational' (Smith & Sparkes, 2008). We position ourselves in the middle of the spectrum, 'the inter-subjective position', where both the social and the individual perspectives are taken into account. On the one hand, narrative identities are constructed inter-subjectively in interaction with others, constituted by political power-laden processes and social relationships, and mediated through institutional structures (Ezzy, 1998). On the other hand, we find that each individual has different resources and possibilities available; each subject is involved with specific characters, capacities, and circumstances (Crossley, 2000) and carries with them a history. Therefore, our analysis of young people's choice of study and the involved identity-work looks into both the structures and cultures

in the students' environment, and how the students' past experiences influence their actions and ways of positioning themselves.

Since our research object is student narratives, an interesting question is how these narratives are related to student choices in real life. Like most other qualitative research methods, we do not claim that narratives give access to truth (Hollway & Jefferson, 2000). But through students' narratives, we gain access to how the interviewee makes meaning at a certain period of time, and by applying a longitudinal method, we wish to explore how students make meaning of their choices over time. Our research objective is therefore to explore and describe the structures and forms of meaning-systems young people use in their narratives when they are about to choose higher education.

Methods

The results presented in this article are part of a larger longitudinal study where a cohort of 134 students are followed from the end of their last year in Danish upper secondary school (STX and HTX)¹ and three years on, as they move on to higher education. In the larger study, the research focus is on students' STEM-choices and their experiences when meeting first year STEM higher education study programmes, and therefore data was collected in six Danish upper secondary school STEM-classes.

The first part of the analysis draws on 38 students interviewed about their choice of future studies just before finishing upper-secondary school, i.e. before they had formally made their choice. Data

¹¹ In Denmark we have four types of non-vocational upper-secondary schools, which give equal possibilities for entering the higher education system (HTX, HHX, HF and STX). STX is a general upper secondary school with a variety of study programmes both STEM and non-STEM related. HTX is an upper secondary school with study programmes specialized in science, mathematics and technology. The higher education system in Denmark is free of any fees, and students receive government financial assistance every month to cover their most basic living expenses. Students are therefore in principle free of any economic obstacles, however access to certain higher education courses is limited to students who complete certain subjects at specific levels at upper-secondary school and obtain specific marks. When choosing higher education students must choose a specific course of study, for instance Biology. Once a course is chosen it is rather difficult to change to other courses and there is only a narrow possibility to combine different courses of study. Changes in the students' study-track are considered as a drop out both by the institution and the student.

from later interviews, text messages, and e-mail correspondences with the 38 students after completing their upper secondary exam are included in the second part of the analysis.

Context of Danish student choices

STEM is the second most popular study programme in upper secondary school. 25 % of the students in STX and 34 % from HTX are enrolled in STEM-classes with high level of mathematics and either high level chemistry or physics. The number is even higher if high level biology is added (Bech & Behrens, 2010). However far from all of the students, female students in particular, continue a higher education STEM-programme, which in Science Education is treated as the phenomena of ‘the leaking pipeline’ (Alper, 1993). In a Danish context it is also more likely for boys (74 %) enrolled in STEM-classes to continue on to a STEM related programme at higher education than for girls (43 %) (Jensen, 2006). These numbers show how far from all the students’ consider continuing studying STEM at higher education, why our focus in this article is not on whether the students’ choose to continue studying STEM or not, but on their choices of higher education in general.

Selection of students and collection of data in upper secondary school

In the spring of 2009 we chose four STX and two HTX upper secondary school classes, all located in the eastern part of Denmark (Zealand). Two schools were situated in the urban Copenhagen area, two in suburban Copenhagen and two in other parts of Zealand. The schools were picked from reasons in the overall research project. The schools were selected because students from their science classes, frequently continues to study STEM at higher education study programmes.. Schools with the following variations in the student-population were chosen: 1. One STX school had a particular large number of students with another ethnic background than Danish. 2. One STX

school recruited students from socially privileged families. 3. One STX school recruited students from both socially privileged areas and areas of social housing. 4. One STX school recruited students from both town and rural areas. 5. The one HTX recruited students from a large city-area⁶. The other HTX school recruited students from a rural area, and some students travelled up to one hour to get to the school. The classes were selected to represent different science- study programmes.

In total, 134 students completed a questionnaire concerning their socio-economic background, their interests in and experiences at upper-secondary school (in particular with science, mathematics and technology (STEM)), and their plans for the future. Based on these data students were selected to resemble the diversity in the group of students concerning gender, socio-economic background, ethnicity (Søndergaard, 1996), but also in terms of the student's interests in STEM and plans for the future. We invited two students from each class to join a focus group interview. Each of these students was encouraged to bring a friend from their class to participate in the interview to make the setting as safe as possible, and for the students to feel comfortable in sharing their views in a group. Not all students brought a friend, but in total nineteen students were interviewed in groups. In addition, three students from each class were selected for in-depth interviews. In one class, an extra student was interviewed because only two students showed up for the focus group interview. Nineteen students were interviewed individually, which in total makes 38 students. Of the 38 students, half of the students were girls and 18 came from non-academic backgrounds. Our selection of students presents a maximum variation case as described by Flyvbjerg (2011) in order to obtain as much variation in our population as possible, with the purpose of capturing the range of the ways in which different students approach their educational choice. In that respect, the goal was not to generate representative students but to explore the variation within the student population that could provide insights into the research question.

The purpose with focus group interviews was to gain access to the narratives in the cultural setting in which the choice takes place, namely in a group of peers. In this setting the individual narrative is met by a larger group of students and this interaction of meeting, negotiating and recognizing the narratives provides an insight into how the individual student constructs her narrative in the cultural setting of upper secondary school (Søndergaard, 1996). A limitation of carrying out focus group interviews is the possibility that the group is not a safe place to share one's narrative. However, it does give an understanding of what can be expressed in a peer-group and what cannot, what is questioned and what is culturally acceptable. On the contrary, the purpose of individual interviews was to gain access to the individual narratives in a safe environment in which unfinished narratives, unsettled reflections and unconstructed choices could be presented. This could have been difficult in a focus group where the participants position themselves in relation to one other (Søndergaard, 1996).

All interviews took place at schools during school hours in agreement with the headmasters who supported the purpose of the research project. The students volunteered individually for participating in the interviews. The duration of the interviews varied from 45 minutes to 2 hours. All interviews were recorded and transcribed verbatim. To conceal the identities of the students we have used pseudonyms and the actual names of their schools and later their universities are not used. Further, we have left out information about participants' narratives which would possibly identify them.

Collecting data during 'gap-years' or while in higher education

The students who participated in this study in upper secondary school are part of a longitudinal study where they are followed throughout a three year period. Once a year when the semester began

all of the 134 students were contacted by text messages to ask if they had entered a study programme, and if so which one, if it was their first choice of study and how they felt about it.

The 38 students who were interviewed in upper secondary were followed more intensively. Ten of the 38 students were interviewed in the autumn/winter 2009 as they decided to take one or two 'gap-years' before applying for higher education. The focus in these interviews was whether their 'gap-years' influenced their future plans and in what way. Of the 38 students 22 were followed into their first year of higher education and interviewed 1-5 times during their first years of study. The focus in these interviews was on the student experiences with first year higher education. Sixteen of the interviewed students attended a STEM study programme, and eight students entered another study programme (two students' changed from a STEM to a non-STEM study programme and are counted both places). In addition they were contacted by e-mail messages asking for their experiences with studying in between the interviews. Some of the students contacted us by themselves by writing text-messages and e-mails to inform us of something extraordinary or just to share their experiences. All of these interviews were conducted from a narrative approach.

Narrative interviews

Experience-centred narrative research consider narratives to be the means of human sense-making and thus aims at understanding human experience by using a narrative approach. When doing narrative interviews, the purpose is to encourage stories and descriptions rather than de-contextualised explanations (Andrews, Squire, & Tamboukou, 1998; Hollway & Jefferson, 2000). The interviewer positions the student as the expert of her life, and inquires into the narrative the interviewee presents. In this way, emphasis is put on the narrative rather than on responding to the researchers' questions. The focus is on how the students make and ascribe meaning and the researcher pays attention to how she positions and recognises the student during the interview as a

co-constructer of the narrative. Therefore, the researcher asks ‘how’ and ‘what do you mean when you say...’, emphasizing descriptions rather than engaging in a dialogue (Søndergaard, 1996). Naturally, this does not mean that the researcher can avoid being a co-constructer of the narrative, since her presence and the entire setup is an unusual setting with asymmetric power relations (Kvale, 2006). However, by reflecting upon these issues, the researcher can be aware of her own position, and by recognizing and encouraging the narrative she may reduce the extent to which she causes the interviewee to give narrow responses.

Analysing the data

A theoretical thematic approach was used to analyse and structure the data (Braun & Clarke, 2006). Taking as point of departure in the research question, and reading through the transcripts, three themes were created: 1. the right choice, 2. the individual choice, and 3. the horizon of choosing. These themes structured the second reading of the data. Concrete quotes from students relating to the theme were gathered into one document. From working through this data-material, the themes were reformulated into two central dilemmas which turned out to be pivotal to many of the students’ narratives; 1. Right and free choice/ limitation in choosing. 2. Choice being understood individually/ also socially embedded. Not all of the students related to these dilemmas in the same way, and as we worked through the data, sub-categories emerged under each theme showing patterns in the data in terms of different student-narratives. The steps can be understood dynamically in the sense that the researcher moves back and forward between them. Writing the analysis is not the end product, but a continuous process (Braun & Clarke, 2006). The narrative psychological framework is the overall frame, feeding into the analyses with questions, and used as a tool when understanding the data. Both the narrative of the individual student and the patterns across the 38 interviews were analysed. In this way, the analysis moves between the concrete

narratives, understanding the narratives in a more comprehensive context of meaning, and finally recontextualizing the narratives into general codes across the material, i.e. a more general theorization (Søndergaard, 1996). In this way the results show some tendencies across the students' narratives, exemplified by a quote from a single student but also being present in other students' narratives. We aim to show different strategies in how students perceive and ascribe meaning to their educational choices. Sometimes this is best shown by looking across the narratives in general, and sometimes by looking through the eyes of an individual student. When presenting the results, we point at whether the analysis covers the students in general or is one of several examples.

Results: The process of choosing higher education

In this section we present the results regarding how students construct, negotiate, and ascribe meaning to their narratives about what to do after finishing upper-secondary school, and not least, what study to pursue. The results are organized in two subsections structured around dilemmas most of the students struggle with when choosing what to study: 'A free choice with limitations' and 'An individual responsibility being socially embedded'.

A free choice with limitations

Struggling to make the right choice of study

A substantial number of the students interviewed in upper-secondary school are ambiguous about the choice they are about to make. Several of them explain how they find the choice exciting, being able to choose whatever they want to do and the possibility of entering new territory, but at the same time they express a sense of uncertainty about choosing what to study after upper secondary

school. This anxiety is not only about which study to choose, but also about the act of choosing itself. One boy puts it like this:

‘Previously it had been quite clear what I should do. I should go to primary school² and then I should go to upper-secondary school. And now all of a sudden, it is not clear any longer. It is a kind of a process that has been quite fixed and that suddenly stops. Suddenly, it’s much more open, and there are many opportunities which in a way could be considered as freedom. But I haven’t minded being tied up like that. So I consider it more as an uncertainty, and it’s a bit as if you once again have to find out who you really are. You have to define yourself in relation to something different from what you have done up to now’ (Allan in upper secondary school)

The sense of having to define oneself puts a significant pressure on students which manifests itself as a fear of making the wrong choice, that is, a choice that does not match their idea of who they are and who they wish to become. The ‘wrong choice’ therefore is related to selecting a study programme that may not meet their expectations, but also it means wasting one’s time³ because they would have to subsequently leave the study programme to find ‘the right one’. This is one of the reasons that some students decide to take one or two ‘gap-years’ away from studying, a *sabbatical* as the students call it. It appears more meaningful for some students to take a ‘gap-year’ in order to find out what they really wish to study, than to enter a study right away that eventually may turn out to be the wrong choice. When asked about how they are to find out what to choose, some of the students reply that they hope the ‘right choice’ will present itself to them as a kind of revelation.

² The Danish educational system has ten years of compulsory schooling in ‘folkeskolen’ which includes primary and lower secondary school. Upper-secondary school can either be vocational or academic, the latter giving access to higher education. See note 1.

³ Wasting time is not only related to adding one more year to your age, but it is also about using the Danish government financial assistance, because there are a fixed number of months you can receive that financial assistance, no matter how many studies you begin.

The students' narratives reflect the late-modern condition for choosing that we mentioned earlier. Therefore, self-realization is a prominent component in their accounts and reflections. Likewise, the ambiguity we mentioned in relation to youth in late-modernity is also present in terms of the students need to balance their personal interests with a range of other factors, such as the academic requirements of the courses compared to their expectations of their own academic abilities, how the culture at the study programme suits the kind of person they are, the geographical location of the institution compared to where their friends or family live, the reputation of the university, etc. Most of the students struggle to combine these various elements into a sensible narrative of choice that can comply with the norm of choosing from interest, while integrating the other elements as well.

A match of interests and an attractive horizon

In reflecting on the elements that influence their choice of study, career possibilities are present in almost all of the student narratives. A student commented as follows:

Martin: I think I will choose my future study based on what interests me right now. And what I could imagine myself working with – therefore also applicability. I need to see that what I study eventually leads to a job that I would like to have. It's not enough that what I study is totally exciting, if I end up becoming something that I cannot imagine doing for the rest of my life. But I haven't found out yet. Something where I can see there's a sense in what I'm doing, but where I can challenge myself with some problems, too.

(Martin in upper secondary school)

This quote contains several elements that permeate the bulk of the interviews. First, the choice based on interest is balanced by other factors, and among these, career possibilities are particularly important. Even if students emphasise that the study programme should be about something in which they have a genuine interest (and hence fits with who they 'authentically' are), they should

also have a clear idea about the career perspective the study programme opens up for them. Secondly, the students do not only want job opportunities, they also require the jobs to have certain qualities. Many of the interviewed students agree with Martin in the features of a future job: it should be meaningful to them in what they will be doing; it should be challenging and provide opportunities for learning or self-development; it should be varied. Other students mention other features, e.g. that they wish to get a job where they relate to other people or get paid well, but to many of the students salient characteristics of a future job are a sense of meaningfulness, variety, and development. For some of the students, these two elements – that both the study programme and the future career should be interesting – present a dilemma. In a group interview, one student says:

‘I am crazy about medicine– but most of all because I want to be a doctor, I don’t want to study medicine. I would love to study literature, but I don’t really want to be a teacher. It’s a tough dilemma. What do I do?’ (Louise in upper secondary school)

Louise describes how choosing a study programme and choosing a job does not necessarily fulfil the same criteria. For her, the two horizons – that of the study and that of the life after graduation – do not merge seamlessly, but accepting that one of them may not meet the criteria of matching her interests with who she wishes to become is difficult.

An additional challenge for the students is to acquire some idea about what kind of jobs different study programmes give access to. Some of the students search the Internet for information, and form ideas about what working life will be like from the sometimes fragmented information available. This is the case, for instance, for Allan who has been looking at the engineering union’s homepage:

‘If I was supposed to choose a university study programme from what interests me the most it would be something technical or engineering, to get deeper into how things work. But I

cannot picture myself working as an engineer. It would be hopelessly boring to be in your office by yourself with your calculator' (Allan in upper secondary school)

Instead, Allan emphasizes that his work should 'mean something for somebody', should make a difference and this is not what he has taken away from information on the Internet. Many engineers would probably object to Allan's image of the engineering profession. The point in this context is not whether or not the information is correct, rather it is that the students construct their own images and ideas based on the information they meet or look up, and these images – accurate or not – inform their choices.

Some of the students face a challenge related to what we will call the horizon of the choice, namely that the choice of study programme can hold various perspectives which sometimes collide. One is an immediate interest in the content another is the horizon of being a student at a certain study programme and finally the horizon of what will follow after graduation. These three horizons need to be balanced against each other in the choice narrative. Consequently, the information the students have access to has an impact, and for many of the interviewed students their personal network is an important source of information about what kind of study programmes exist, what it is like to be a student in that programme, and what kind of jobs the programme leads to. Hence, the choice becomes embedded in social relations. This, however, leaves the students with another dilemma, which is the second theme we wish to present.

An individual responsibility being socially embedded

An individual choice

A consequence of the choice being considered as something you have to search for yourself ('a gut feeling') is that the students consider this enterprise to be their own responsibility.

'Personally, I'm sort of nervous about being influenced by a career counsellor. That kind is not neutral. It would be nice if he was, but nobody is neutral. A counsellor also has an idea

about what would be good to study. I would be nervous, then, to be influenced by it. I would like to make my own choices' (Filip in upper secondary school).

Because the choice is experienced as an individual task, some of the students refrain from seeking advice from the career counselling available at each school, a pattern we found throughout the empirical material. Some students explain how they use the counsellor for practical issues such as finding the right forms and the deadlines for applications, and a few students underline how the counsellor has been helpful in making the choice. In most of the students' narratives the part of the choice that is related to their identity work is put forward as something that can only be made by themselves on their own. Not only does this mean that the students are committed to find a study programme that corresponds to their interests and to whatever they wish to become, but also that it must represent an individual, if not unique, choice. In the narrative of Monica, the difficulties in juggling these different expectations and requirements clearly appear. She tells the interviewer that when she started at upper-secondary school she wanted to become a medical doctor. During lower-secondary school she visited a hospital for a week and became fascinated by the culture and the work environment there. However, her thoughts about going to medical school are disturbed by other considerations. She says:

'I'm just having more and more doubts. It just seems so cliché to opt for Medicine. It's just because it's more special to study something a bit different. It is a bit stupid, but I'm feeling a bit... I think it's because my Dad's a doctor. But it's because, I think, it has always been like ... I just think it's really fascinating. And my older sister has started going to medical school...then it just seems so much by the book, that I'll be doing that too. It just seems so stupid. But it's really me, that I think it could be interesting, myself. But it would be nicer if my family wasn't into it too'. (Monica in upper secondary school)

This passage from Monica's narrative illustrates the dilemma that some of the young people face and have to handle. On one side, she has found a field of study in which she is genuinely interested

in, partly based on concrete, personal experiences. This part conforms to the ideas about how one should choose one's future study. On the other side, she faces the risk of being considered 'cliché', of doing what everybody else does (medicine is a study with many applicants every year) and especially to 'go by the book' and follow in the footsteps of her father and sister. This other side collides with the idea of how educational choices should be made: they should be individual, personal and special. The dilemma expressed by Monica requires her to construct a narrative of medicine as her own unique choice of an individual career. The interruptions and hesitations in her way of talking suggest that this is not an easy task. Another student, Amalie, also tries to deal with the fact that her interests run in her family:

'But I'm sort of into that environment from the beginning, and I definitely think that it has influenced my choice. Both my granddads are engineers, and my grandmother is a biochemist. So, it kind of runs in the family [laugh]. I think that's why I would like to study abroad, to feel it's a bit different' (Amalie in upper secondary school).

Amalie has accepted following in the footsteps of her family, but at the same time she struggles to construct an individual and unique choice by wanting to study abroad. Students' choice of higher education is not only a task of finding the right match between their interests and study programmes, they further have to construct a narrative where the choice is being adjusted to the student's own personal, unique identity project.

The choice is informed and adjusted in social practices

Even though the choice is understood as an individual task, the identity work does not take place in a vacuum. The student has to make it appear plausible to their families and friends that the choice matches their interests and the person they are. If the choice narrative is not recognised as

convincing by the students' family and friends, it can be difficult to maintain it. This is what happened to Ian:

Ian: People said I just had to choose what I found interesting (...) and no matter who you ask they said that you must take what you think is interesting. Otherwise you just get tired of it and will not want to do it later (...) I also considered going to law school, but that was not popular

Researcher: Where? At home, or?

Ian: Yes, because .. I don't know. I don't know why. But I could sense, that it was not something one should do

Researcher: What did they say?

Ian: 'Lawyers are just swindlers. They are the kind of people who cheat. This study programme, you wouldn't like to choose. Why I at all found it interesting? The study was so boring' and things like that. I should definitely not choose this...

(Ian, First year at biochemistry)

Ian's narrative about his choice is interesting because he describes a dilemma. On the one hand he was told to choose something he found interesting. On the other hand, not all his interests were recognised by his family. The narrative must not only make sense to the students themselves, but also to their social relations – it must be recognised as a reasonable choice, suitable to the student. This was not the case when Ian presented his thoughts to his parents. Eventually, he chose to study bio-chemistry, a choice which particularly his mother, who holds a bachelor of Biomedical Laboratory Science, finds sensible. The example illustrates how the student's social backgrounds affect their educational choices. This not only is the case when the family (particularly the parents) explicitly encourage or discourage young people's choices, but also when the parents provide access to particular fields of knowledge and experiences that can serve as material for the student narratives about their future study programme. The family members' educational and occupational

backgrounds present young people with knowledge about the educational system and professional opportunities. Knowledge they can relate themselves to through concrete information and experiences that can serve as resources in the construction of their narrative. Hence, it is not surprising that children tend to have inclinations similar to those of their parents simply because they are familiar with it..

The main part of student educational choice is less an isolated event than an ongoing process, moving back and forth between identifying one's own interests, constructing a convincing narrative, and trying it out in social relations. This became evident when some of the students were interviewed again right after having entered higher education. In the interview in upper secondary school, Christine explained that she would like to study something that involved design, and she thought she would apply for an engineering programme that included design. She had considered different study programmes where design was a component, and the engineering study appeared as the right choice. The interviewer asked her how she decided what to choose, and she replied that she *'has this idea that if I find something that is the right thing, then I'll know. I have that with design and engineering. It seems a bit natural for me in a way to think that I should study engineering'*. Earlier in the interview, she had explained that she had considered studying at the University to become an upper-secondary school teacher, but concludes:

‘Now that I think about it, I'm convinced that I would kill the children before I got to teach them anything (laughs). I don't think I would fit well as a teacher. [...] Now that I think about it, I don't think I could stand becoming a teacher’(Christine in upper secondary school).

In September, five months later, we texted the students to ask if they had entered a study programme, and if so, which one. Christine replied: *'I have started in teacher-education [to become a primary and lower-secondary school teacher]. I have always wanted to become a teacher'*.

Christine's narrative has changed from wishing to work with design and engineering to teaching, even naming teaching as what she always wanted.

Following the response, Christine was interviewed again. In the interview, she explains how she since the first interview in spring, has settled in a nice apartment with her boyfriend, who is still attending upper-secondary school, and how she really treasure their relationship. If she was to move closer to the engineering institution, which is situated more than an hour away from her home, she would see her boyfriend less often. She had begun to doubt whether engineering was right for her, and she decided she could just as well find something to study close by instead of having to move, eventually deciding on teacher-education. Christine's story shows that the choice of study is much more than finding the right match between interests and study programme; it is also constructed in relation to other elements in life such as a boyfriend and apartment. However, as seen in her text message it is not merely that she constructs a new story about choosing another study. She also reconstructs the story of who she is and what she always wanted to be. Similarly, Christine's narratives in the first interview may have been a reconstruction of a previous narrative where she considered becoming a teacher.

Across the empirical material we find that the narratives continuously are retold and revised according to the experiences of the students, whether it is because they make a different choice, like Christine, or because the experiences at the study programme question the original ideas and narratives, as is the case for Filip. Both in the interview in upper-secondary school and immediately after beginning to study mechanical engineering, Filip explains that he finds the field between engineering and working with humans very interesting. His plan is, he explains, to combine mechanical engineering with management. But Filip's narrative changes after he has met with his mentor, an experienced professor assigned by the institution. The mentor tells him that he needs clear-cut engineering skills and that it is too arrogant to enter the labour market as a new engineer

and say 'I want to be a leader'. In the second interview, during the first half year of study, Filip explains how he wants to study energy, because energy is very important to our future life, and then later combine it with management. When he is interviewed at the beginning of his second year at university, the idea of becoming a manager is no longer a part of Filip's narrative, not even when he explains about why he decided to study engineering. Instead, he explains how he has always been interested in energy.

The point here is not whether the changes are reasonable or well-founded. The point is that the students' narratives about what to study change over time, in interaction with how they construct and re-construct meaning. Through social and cultural discourses, new coherence is made in a way that makes the authentic, autonomous and unique aspects of the choice visible. The change in narrative can also reflect a change in the focus of the choice and the story about the choice. In Filip's case, his narrative changes from his desire to combine management with engineering, to energy being the most important issue in the future world. In that respect, one can say that his change of choice is both a retrospective change, but also a change in his horizon. A similar example is with Marianne who in upper secondary school wants to become a dentist:

'And I'm really confident that I will be a dentist. Also because the study programme is appealing to me (...). When you read about the content of the semester, it really sounds exciting.' (Marianne, in upper secondary school)

But Marianne was not admitted to the Dentist study programme, and instead opted for studying Physical science, which makes her re-construct her narrative of why she in the first place came to apply for the Dentist Study programme:

'After not having been accepted to the dentist study programme I considered whether this was what I really wanted (...). I began doubting whether I wanted to become a dentist because of

the salary and the course-content. I never tried to put my fingers into anybody's mouth so how can I really know if this is my future? (...)'

(Marianne at her first year study of Sports Science).

In both the case with Filip and Marianne, institutional demands in different ways made them reconstruct their choices, whereas Christine's choice was revised and adjusted to her life outside school. Other students' struggle to find out what to choose which is the case for Susan, who in upper secondary school considers studying Business:

'I really can imagine myself in a business-suit as a leader. I am always like a leader in my class when working in groups but also in general. I am also the one who takes care of coordinating when we meet outside class. (...) I think the kind of working culture and job will suit me well (...)' (Susan before choosing, spring 2009)

In her 'gap-year' Susan was confused about what to study, and she began considering different other options such as Design, Law studies, Medicine and Journalism, and she tells how she finally decided to opt for Danish:

'I think Business will be too superficial and fixed to me, too superficial to work on people getting more money. I have been really in doubt of what to choose, and in the end I asked myself what am I best at? Throughout upper secondary I got the highest grades in Danish, and I always loved analyzing Danish texts. I always loved reading and writing, and I always have been good at it. I do not think I will be tired of it, and it leads to a variety of possibilities (...)' (Susan in her 'gap-year' 2010)

Throughout the data, the students articulate their choice as something they have *always* been interested in. This illustrates how students' choices change in interaction with their identities, and how a new choice-narrative not only produces changes in future perspectives, but also changes the perspectives on the past. In Susan's case she argues how business is something that suits her as a

person, and how managing things is something she always does naturally. Changing her mind she tells how Business is too superficial for her, and how Danish is something she has always been interested in and good at.

Discussion and conclusion

In this paper we have shown that choosing what to study after upper-secondary school is a complex, ongoing and social process rather than an isolated individual event. Many of students experience it as an insecure process and fear that they will not be able to make the right choice, because they consider it crucial for their future lives to choose the right path of study. Through the use of narrative psychology we have shown how the process of choosing is strongly connected to identity. When choosing a study programme, young people face an important turning point where new meaning becomes available, and they are faced with the need to reformulate narratives about themselves. To understand why young people's reflections about education and their future revolve around themselves and who they wish to become, Nikolas Rose (1999) by drawing on Foucault suggests that this not is an indication of a spoiled, self-centered generation, but rather students responding to a fundamental condition in time that requires that they develop and produce themselves through working on their identities. As a result, students internalize the choice of study programme, making it a personal task for them to solve on their own.

The students articulate how they can choose whatever they want to do, but they still struggle to find out what they really want and what would be suitable to them. The students strive to choose a study programme that fits their present interests while at the same time trying to achieve a proper match between a study programme and their ideas about various trajectories of life in general and an attractive study life and working life in particular. This difficult process is repeated until the students feel a proper match has been made. The difficulties stem from students often having more

than one interest, but also that they have difficulties learning about the content of the study programmes and what career opportunities various study programmes provide.

Consequently, the process of choosing a study programme is not finished for these students when the application form has been sent and they have entered a higher-education programme. It is a continuous process of identity work and ongoing reflections about whether this was in fact the right choice. We showed how the students articulated the choice as something they had *always* been interested in, even if major changes had occurred and affected their considerations from the first to the second interview. From narrative psychology we know how narratives are retold depending on the subject's considerations of the past and expectations of the future (Bruner, 2004). In this study, this is seen in relation to how the student choices are produced in interaction with their identities, and how a new narrative about what to choose studying not only produces changes in future perspectives but also in general changes student perspectives on the past. These findings can nuance the present discussions within research about the extent to which student choices of study are made as early as primary school (Archer, DeWitt, Osborne, Dillon, Willis, & Wong, 2010).

Across the student narratives in this study, we identify some cardinal points around which the students construct their choices. The choice must appear unique, authentic and individual. At the same time, the narratives the students construct around their choice are being tried out and validated in the students' social network; they are told, revised, and adjusted based on how the social relations meet and inform the student narratives, but also according to whether the narratives are recognised as a legitimate identity match or not. The negotiation of the narrative happens continuously in order to become convincing both to the students' environment and to the students' own sense of who they are. The students' social background, particularly that of their parents, are gateways to ideas about possible choices to make and paths to follow, and the students' social network provides access to experiences, knowledge and ideas that may inform their choice. The students, however, do not

consider this interaction with their social network as a valid part of their choice and they do not intentionally draw on the resources available to them from family, friends, and counsellors. Therefore, in the students' experience, they are managing a rather complex process in solitude. We show how the knowledge provided by the social network act as a gatekeeper in the sense that students with well educated social network have access to knowledge about the educational system and job market to which less educated social network do not provide access. In accordance with previous research, we find that for the young people, the choice appears as if it is a question of their personal competences and interests only (Brunilaa, et al., 2011); however, we further find that the social network is used as tacit knowledge by the students to interpret and access information of whether a study subject is perceived to be too difficult, boring, useless, etc. This interpretation is validated in the network, but as a hidden mechanism. To reach a deeper understanding of these mechanism than this paper allows, future research could benefit from approaching the phenomena using Bourdieu (1986) to study how cultural capital is distributed and embodied, and maybe can be understood as something natural, as a personal skill or competence which in this case makes student choices appear as an individual task rather than something socially constituted over time.

Implication for practice

Choice being an ongoing process rather than something 'I always wanted', has implications for future methods of approaching students' choices in at least three respects.

First, it raises the question of to what extent the students' own responsibility is to know about the educational system, the labour market, and different job possibilities etc., and whether their personal networks are the optimal resources for gaining knowledge. Attention must be paid to the student's access to information, and to what kind of information students get from their personal network. More generally, it seems crucial to find a way to balance on the one hand students need to

experience choice as individual and unique. And on the other hand, to de-individualize the process of choosing to provide the students with the experience that some of their difficulties are shared by others, and are the results of social and structural components rather than individual traits and inadequacies. Attempts to de-individualize educational choices has only to a limited extent, been tried out (Krøjer & Hutter, 2008).

Second, for university practice, it cannot be assumed that students have completed their choices when entering higher education. Rather, institutions should consider how they may provide room for and facilitate student production of narratives about their choices in relation to the subjects and programmes they meet, since we know that these processes are related to retention (Ulriksen, et al., 2010).

Third, for research, it emphasises the importance of regarding students' choice of and encounter with study programmes as a process of negotiation between their expectations, interests, and experiences. This calls for a strong future emphasis on longitudinal research to study these ongoing processes and shifting rationalities and in particular how they appear in different cultural settings.

References

- Alper, J. (1993). The Pipeline is Leaking Women all the way Along. *Science*, 260(5106), 409-411.
- Andrews, M., Squire, C., & Tamboukou, M. (1998). *Doing narrative research*. London: Sage publications.
- Archer, L., DeWitt, J., Osborne, J., Dillon, J., Willis, B., & Wong, B. (2010). Doing' science versus "being" a scientist: Examining 10/11-year-old schoolchildren's constructions of science through the lens of identity. *Science Education*, 94(4), 617-639.
- Bech, H., & Behrens, K. (2010). Studenternes fagvalg 2005-2009. In UNI-C (Ed.), *Statistik og analyse*. København.
- Beck, U., & Beck-Gernsheim, E. (2002). *Individualization. Institutionalized individualism and its social and political consequences*. London: Sage.
- Bergerson, A. A. (2010). College choice and access to college: moving policy, research and practice to the 21st century. *ASHE Higher Education Report* (Vol. 35, pp. 1-141).
- Boe, M. V., Henriksen, E. K., Lyons, T., & Schreiner, C. (2011). Participation in science and technology: young people's achievement-related choices in late-modern societies *Studies in Science Education*, 47(1), 37-72

- Bourdieu, P. (1986). The Forms of Capital. In J. G. Richardson (Ed.), *J.G. Richardson's Handbook for Theory and Research for the Sociology of Education* (pp. 241-258).
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(77-101).
- Breen, R., & Goldthorpe, J. E. (1997). Explaining educational differentials towards a formal rational action theory. *Rationality and Society*, 9(3), 275-305.
- Brooks, R. (2003). Young People's Higher Education Choices: The role of family and friends. *British Journal of Sociology of Education*, 24(3), 283-297. doi: 10.1080/01425690301896
- Bruner, J. (2004). Life as narrative. *Social Research* 71(3), 691-710.
- Brunilaa, K., Kurkia, T., Lahelmaa, E., Lehtonen, J., Mietola, R., & Palmua, T. (2011). Multiple Transitions: Educational Policies and Young People's Post-Compulsory Choices. *Scandinavian Journal of Educational Research*, Online publication date: 09 June 2011. Retrieved from
- Cleaves, A. (2005). The formation of science choices in secondary school. *International Journal of Science Education*, 27(4), 471-486.
- Crossley, M. L. (2000). Narrative psychology, trauma and the study of self/identity. *Theory Psychology*, 10(4), 527- 546.
- Eccles, J. S., & Wigfield, A. (2002). Motivational Beliefs, Values, and Goals. *Annual Review of Psychology*, 53, 109-132.
- European-Commission. (2004). Increasing human resources for science and technology in Europe. Europe needs more scientist. In J. Z. José Mariano Gago (Chairman), Paul Caro, Costas Constantinou, Graham Davies, Ilka Parchmann, Miia Rannikmäe, Svein Sjøberg (Ed.), *Science and Society*. Brussels.
- Ezzy, D. (1998). Theorizing narrative identity. *Sociological Quarterly*, 39(2), 239-252.
- Flyvbjerg, B. (2011). Case study. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (4th ed., pp. 301-316). Thousand Oaks, California: Thousand Oaks.
- Gewirtz, S., Ball, S. J., & Bowe, R. (1995). *Markets, choice, and equity in education*: Open University Press.
- Holland, D., Lachicotte, J. W., Skinner, D., & Cain, C. (1998). *Identity and agency in cultural worlds*. Cambridge, MA and London: Harvard University Press.
- Holland, J. (1973). *Making vocational choices: a theory of careers*. NJ: Prentice-Hall: Englewood Cliffs.
- Hollway, W., & Jefferson, T. (2000). *Doing Qualitative Research Differently: free association, narrative and the interview method*. London: Sage Publications.
- Hsu, P.-L., Roth, W.-M., Marshall, A., & Guenette, F. (2009). To be or not to be? Discursive resources for (dis-)identifying with science-related careers. *Journal of Research in Science Teaching*, 46(10), 1114-1136.
- Hutters, C. (2004). *Mellem lyst og nødvendighed: en analyse af unges valg af videregående uddannelse. En analyse af unges valg af videregående uddannelse*. Ph.d, University of Roskilde, Roskilde.
- Illeris, K., Katznelson, N., Simonsen, B., & Ulriksen, L. (2002). *Ungdom, identitet og uddannelse*. Frederiksberg: Center for Ungdomsforskning, Roskilde Universitetsforlag.
- Jacobs, M., Lundqvist, M., & Hellsmark, H. (2003). Entrepreneurial transformations in the Swedish university system: the case of Chalmers University of Technology. *E Research Policy*, 32(9), 1555-1568
- Jenkins, E. W., & Nelson, N. W. (2005). Important but not for me: Students' attitudes toward secondary school science in England. *Research in Science & Technological Education*, 23(1), 41-57.

- Jensen, C. J. (2006). *Det naturlige valg? En analyse af unges valg af tekniske og naturvidenskabelige fag og uddannelser*. Danmarks Pædagogiske Universitet, København.
- Jæger, M. M. (2007). Economic and social returns to educational choices: Extending the utility function. *Rationality and Society*, 19(4), 451-483.
- Krøjer, J., & Hutter, C. (2008). Kollektivet som korrektiv - fortælleværksteder som kritik af neoliberalt selvarbejde. *Tidsskrift for Arbejdsliv*, 10(1), 72-88.
- Kvale, S. (2006). Dominance Through Interviews and Dialogues. *Qualitative Inquiry*, 12(3), 480-500
- Nielsen, S. I. (2008). Oprettede studieretninger på de gymnasiale uddannelser 2008. In UNI-C (Ed.), *Statistik og analyse*. København.
- OECD. (2008). Encouraging Student Interest in Science and Technology Studies *Global Science Forum*. Paris: Organisation for Economic Co-operation and Development.
- Osborne, J. (2007). *Engaging young people with science: Thoughts about future direction of science education*. . Paper presented at the Promoting Scientific Literacy: Science Education Research in Transaction, Linnaeus Tercentenary Symposium, Uppsala University.
- Paulsen, M. B. (1990). College choice: Understanding student enrollment behavior. . In A. H. Education (Ed.), (Vol. 6). Washington, DC: School of Education and Human Development, The George Washington University.
- Pike, A. G., & Dunne, M. (2011). Student reflections on choosing to study science post-16. *Cultural Studies of Science Education*, 6, 485-500.
- Polkinghorne, D. E. (1988). *Narrative knowing and the human sciences*. Albany: State University of New York Press.
- Potter, J., & Wetherell, M. (1987). *Discourse and Social Psychology: Beyond Attitudes and Behaviour*. London: Sage.
- Read, B., Archer, L., & Leathwood, C. (2003). Challenging Cultures? Student Conceptions of 'Belonging' and 'Isolation' at a Post-1992 University. *Studies in Higher Education*, 28(3), 261-277. doi: 10.1080/03075070309290
- Reay, D., David, M. E., & Ball, S. (2005). *Degrees of Choice: social class, race and gender in higher education*. Oxford.
- Riessman, C. K. (1993). Narrative Analysis. *Qualitative Research Methods*, 30.
- Rose, N. (1998). *Inventing our selves. Psychology, power and personhood*. Cambridge: Cambridge University Press.
- Rose, N. (1999). *Governing the Soul: The Shaping of the Private Self*. London, New York: Free Association Press.
- Sarbin, T. R. (1986). *Narrative psychology. The storied nature of human conduct*. Westport, CT, US: Praeger Publishers.
- Schreiner, C. (2006). *Exploring a ROSE-garden. Norwegian youth's orientations towards science: Seen as signs of late modern identities*. no. 58 Doctoral Thesis, University of Oslo, Oslo.
- Scott, P. (1995). *The meanings of mass higher education*. London: Open University Press.
- Smith, B., & Sparkes, A. C. (2008). Contrasting perspectives on narrating selves and identities: an invitation to dialogue. *Qualitative Research in Psychology*, 8(5).
- Søndergaard, D. M. (1996). *Tegnet på kroppen. Køn: Koder og konstruktion blandt unge voksne i Akademia*. København: Museum Tusculanum Press.
- Taylor, C. (1989). *Sources of the self. The making of the modern identity*: Library of Congress Cataloging-in-Publication data. .
- Taylor, S. (2009). *Narratives of identity and place*. London: Routledge.
- Thomsen, J. P. (2008). *Social differentiering og kulturel praksis på danske universitetsuddannelser*. Ph.D, Roskilde Universitetscenter.

- Ulriksen, L., Madsen, L. M., & Holmegaard, H. T. (2010). What do we know about explanations for drop out/ opt out among young people from STM higher education program? . *Studies in Science Education*, 46(2), 209-244.
- Woolnough, B. E. (1994). Factors affecting students' choice of science and engineering. *International Journal of Science Education*, 16(6), 659-676.
- Ziehe, T. (1991). *Zeitvergleiche. Jugend in kulturellen Modernisierungen*. Weinheim - München: Juventa Verlag.