



# ABSTRACTS

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# THE QUEST FOR »SAFE UNCERTAINTY« IN STUDENT RESEARCH

Stijn Bollinger

HU University of Applied Sciences Utrecht, Netherlands

## INTRODUCTION

This contribution explores the anatomy of »safe uncertainty« in the research process of students in higher education. Uncertainty and research go hand in hand, as uncertainty is omnipresent in the process of research. Mostly in the background, but sometimes looming large in the foreground. We tend to expel uncertainty from research. We try to make the research process as predictable as possible by creating clear criteria, planning, making agreements and organising supervision. Also with regard to the content, uncertainty has to be decreased. We try to reduce uncertainty by emphasizing precision, objectivity, logic, accountability, measurability, validity and reliability. And in the process, we are actually searching for the right concepts, language, or even shared images, in order to get as much grip as possible on the intangible research process.

Despite of all our efforts, uncertainty keeps popping up. And happily so. For a researcher needs a certain measure of uncertainty in order to step out of his comfort zone and pursue his quest for the unknown. Uncertainty stirs the researcher into action: he will become alert and critical, prepared to organize feedback, able to make hard choices and search for solutions. Too much uncertainty however, stops the researcher from taking any risk, and eventually he might get stuck in his research. The researcher experiences this uncertainty usually as a rather disturbing factor. It feels uncomfortable, it drains energy, and it can halt any progression in your research. At worst the overflow of uncertainty results in paralysis and the researcher locks up. Even though every researcher needs a certain measure of uncertainty in order to step out of his comfort zone and pursue his quest for the unknown, too much uncertainty stops the researcher from taking any risk, and so he might even get stuck in his research. This means that the omnipresent uncertainty has to be supplemented with a certain measure of safety in order to create a productive energy for the researcher in question. In this contribution I explore the

anatomy and dimensions of this safe uncertainty within the context of research.

## UNCERTAINTY IN STUDENT RESEARCH

During recent years the terms »applied sciences« and »applied research« have become part of the common vocabulary of institutions of higher education in the Netherlands, and many other European countries, for that matter. The Netherlands Association of Universities of Applied Sciences phrased the relevance as: »Applied research at universities of applied sciences is (...) a two-edged sword: it stimulates high-quality education and makes a contribution to knowledge circulation between the university of applied sciences and professional practice.« (Vereniging Hogescholen, 2009, p. 21).

This »two-edged sword« promises a rich learning environment for students as they are enabled to coherently develop many professional competences like, for example, processing (value, analyse, reduce and synthesize) of complex information; self-assessment; autonomy; methodical and ethical thinking and acting; handling of various research methods and valorisation of knowledge (Baarda, De Goede, Teunissen, 2005; Smid, Rouwette, 2009; Oost Markenhof, 2010; Butter, Verhagen, 2014). So, this stimulation of high quality education is related to the professional development of the student-researcher himself (Andriessen, 2013). Also from the perspective of educational psychology, problem-based learning situations, or other situations of which is not beforehand clear what the outcome will be, are expected to produce a rather high learning outcome (Woolfolk, Hughes, Walkup, 2008).

Students however seem to undergo the research process in a more ambivalent manner. Everyday classroom experience with students that are involved in research reveals that this process is sometimes perceived as creative and inspirational, of practical relevance and sometimes even as innovative. Additionally, working together with other stu-

dent-researchers and supervisors can be experienced as a positive aspect of doing research. On the other hand the research process can be experienced as hard and difficult. Students often get lost and stuck during the research process, and feelings of uncertainty and even anxiety are quite common. Or, as one of my students phrased it: *»I had no idea what to do. So I did nothing. At that particular moment I got stuck. And the next four weeks I did nothing but fret about my research.«*

In my daily experience not all student-researchers are overly enthusiastic about this rich learning environment that we, educators, value so much. So, what's going on with research? What in the research process makes a student so uncertain that he might even quit his studies? And how can educators address this effectively in order to keep the student-researchers engaged in their learning process? What elements can we address with regard to uncertainty, and what language do we have available in order to understand this uncertainty and start up a conversation with our students or peers on this subject without belittling it or even denying it. For uncertainty is an important ingredient in our research competency.

### SAFE UNCERTAINTY

The relation between learning and uncertainty has been acknowledged for a long time by for example Vygotsky (1978, »zone of proximal development«) and Piaget (1985, »equilibration«). Also the effect of anxiety on the learning process has been a long time subject of scrutiny by many educational scholars (Yerkes, Dodson, 1908; Pintrich, Schunk, 2002). From this it can be assumed that learning, and especially problem-based learning, is always accompanied by a certain amount of uncertainty. Even more: the basic assumption of my research is that uncertainty is essential to the process of learning and inherent to the process of research. For without a certain amount of uncertainty one will not come into action and search for answers of a creative solution. Without uncertainty one will have no questions to ask. Uncertainty is an impetus for making decisions, taking action and for leaving one's comfort zone. Uncertainty is a basic need for researchers for conducting research is based on »not-knowing«. So in order to »come into knowing« a certain amount of uncertainty is necessary. Uncertainty that initiates an explorative attitude. But on the other

hand: too much uncertainty creates anxiety and hampers the research or learning process. So, like an innovative entrepreneur, a student-researcher needs to learn to lean into this uncertainty and make use of it (Fields, 2011). This requires safe guards or safety anchors that counterbalance the experienced uncertainty. There has to be enough safety for a person in order to be able to lean into this uncertainty: safe uncertainty. So, what is safe uncertainty?

### FIRST GLANCE ON UNCERTAINTY AMONGST STUDENT-RESEARCHERS

In order to explore the concept of safe uncertainty I conducted research on two different areas: theory and praxis. The practical exploration of safe uncertainty focussed on student motivation because here uncertainty becomes very clear. What role does uncertainty play in student's motivation in the research process? This research was conducted by 4 students that were in the process of doing their BA-Thesis. They made a »thick description« (Geertz, 1973) of their own research process and additionally they interviewed 7 other peers. For their theoretical framework the students combined the three elements of competence, relatedness and autonomy of the Self-Determination Theory (Deci, Ryan, 1985, 2002) with safety and uncertainty. The results gave an interesting view of student experience of uncertainty in research.

The element of competence was related to both previous and present experiences:<sup>1</sup>

#### Previous:

*»I was already in the process of doing research because of that other course I took and that was actually rather pleasant because than one can, sort of, practice. That makes me feel more capable.«*

#### Present:

*»My coach frequently implies that I won't be able to make it. This is very discouraging.«*

With regard to relatedness, these student-researchers implied that their peer group, their coach and their assessors

<sup>1</sup> The quotes used in this abstract are translated by the author from Dutch to U.K.-English. Any possible misinterpretation lies therefor with the author.

were the most »significant others« in their research process:

**Peer group:**

»Everybody around me was busy with their proposal. Not me. That stressed me out.«

**Supervisor:**

»I didn't match with my supervisor, what made me feel pretty lonely during the process of writing my thesis.«

**Assessor:**

»I received more help from my assessor than from my supervisor. She explained it very well. I understand her.«

With regard to autonomy, the student-researchers experienced freedom of choice and supervision as important elements:

**Freedom of choice:**

»I've experienced much freedom during the design and implementation of my research, but this also produced uncertainty.«

**Supervision:**

»I think I don't need any supervision at all.«

Next to these verbal images of uncertainty in research the student-researchers also gave words to possible elements of safety. For example: »*That you're not alone in this*«; »*A deadline causes stress. And stress helps me to get my work done*.« And: »*Feedback gives me assurance of the things that I have to change*.«

Even though the above examples allow us a first glance on safe uncertainty, they by far describe the scope of what goes on amongst these students. This is because the elements have most of the time both positive and negative sides. For example: time pressure can be experienced as negative by one and as positive by the other. Or one person even can experience time pressure differently at different phases of the research process. What also makes these results rather tentative is the observation that each student-researcher experiences his own palette of combinations of these elements that alter probably during different phases of the research process. Nevertheless, this first research offers us some language that student-researchers use to vocalize their inner self. Language that

we, supervisors and coaches, should carefully observe and hold on to.

## THEORETICAL EXPLORATION: FOUR DIMENSIONS OF SAFE UNCERTAINTY

The second research that I conducted was a theoretical exploration of the notions of motivation theory (Bandura, Csikszentmihalyi, Deci/Ryan, Pintrich, Schunk ), theory on psychology in education (Woolfolk, Vygostky, Piaget, Pekrun, Yerkes/Dodson), learning theory (Bandura, Barnett, Palmer, Boekaerts, Corno, Jansen), theory on excellence in higher education (Scager, Wolfensberger), theory on research strategies (Kuhlthau, Todd, Heinström) and management theory on innovation (Ellsberg, Fields). This exploration confirmed some basic starting points of my search for safe uncertainty: research-based learning offers a rich learning environment through synthesis of many different competencies; learning implies (personal) change; learning is therefor often accompanied by uncomfortable feelings amongst which uncertainty; and research, learning, and uncertainty are intertwined. What also started to show were the contours of 4 dimensions of uncertainty. Dimensions that might have different gravitas, of scope or might be overlapping heavily. But these four dimensions seem to play a certain part in the uncertainty-level of the research process as the accompanying student-quotes underline.

### Dimension 1: Translation

Much of the research process means that the student-researcher is trying to unite the external reality with his internal reality. This is particularly difficult when taken into account that this external world and its appearances is always changing. The student-researcher is supposed to structure his own (chaotic) observations of this changing reality through thoughts, emotions and intuition. Then he has to create an order of some kind in this chaos that can be understood by others. In terms of research this means that the student-researcher poses the right questions to this changing environment and collects this possibly chaotic information about it, arranges (interprets), sifts, weighs (judges) and synthesizes, and then translates all this into a text or image, in a manner that is comprehensible for others. This last phase can be described as: »dredging up a creative ordering of inner movements« (Barnett, 2007, p. 31).

According to Barnett, the student is supposed to translate his own inner ontological process and its outcomes into a publically visible epistemology. A translation process that seems to be at the core of research activity.

**Student-quotes:**

»I thought it was hard to put things on paper the right way. I can easily stare at a couple of pages for two or three days and still be insecure about whether I wrote it well enough or not.«

»Sometimes I like to let things »hang«, hoping that I will find the necessary information later on.«

**Dimension 2: Self-disclosure**

This latter part of the translation process is making the result of that process visible to others. Especially in education this visualization of learning outcomes or research outcomes is pivotal. This however means that the student-researcher has to be prepared to reveal himself to the outer world. I deliberately write »himself« (or herself, of course) because problem-based learning and conducting research also includes internal change of the researcher himself. The results of this inner process of learning and change has to be made visible by means of the research report or other outcomes. Ontological forces like self-image, self-confidence, modesty or fear might influence this choice and can interfere with this self-disclosure. Also the educational system might unwillingly urge a student-researcher to only reveal what he thinks the supervisor wants to see. In that way he might miss out on some really relevant feedback.

**Student-quotes:**

»I'm often too insecure to share things, because first I want to know enough about them.«

»Positive feedback supported my self-disclosure.«

**Dimension 3: Judgement**

Although an educational environment must offer sufficient safety to be able to learn, there is always certain pressure on the translation process and the willingness to self-disclosure. Pressure which is the result of expectations like

requirements and criteria, and the judgment that accompanies these: tests, assessments, grades. As described above, the »offerings« of the student-researcher are not separate from the person of the student himself. Therefore the judgment on the quality of a research paper, or any other piece of work of a student, seems not only to be about the product, but reflects on the person of the student. This goes both ways: when a negative judgment is cast, the student might feel down, discomfited and sad even, but with a positive judgment, the same student might feel relieved, empowered and even on top of the world.

**Student-quotes:**

»When my report is graded, I find it hard to learn that I have done some things wrong, because it feels like I'm not good.«

»I'm glad that at it will be assessed whether we are on the right track or not. I appreciate that.«

**Dimension 4: Risk**

In order to be able to conduct good research and to comply with the ethical standard of peer-review, judgment by third parties is essential. But when there is lack of safety, the opposite will be achieved. Then the student-researcher might want to mitigate any judgment by showing his assessors what he thinks they want to see. That way, the student-researcher shows himself in a way that makes himself actually invisible! If a student-researcher really wants to improve himself and his research, he will have to be prepared to run risks on judgment. But there are other forms of risk that the student-researcher has to take. If you're starting up a research, you will have to invest energy, time, and money (scholarship, grants). In that way the »risk of loss« is created (Fields 2011). During the design-phase the student-researcher considers the amount of time he has available to complete the research in due time. If halfway during the

**Student-quotes:**

»While drafting my proposal I concluded that the intended research would not result to much.«

»Working towards a deadline helps to grow stress, and stress helps to finish my work«



process the student concludes that the research still is not feasible, the invested time, energy, interest and enthusiasm might be lost. So, next to risking judgment on translation and self-disclosure, a risk of loss can stagnate one's research process.

These four dimensions of uncertainty seem to give more insight in what elements might play a role in the increase or decrease of uncertainty in the research process. They also provide for language for student-researchers that might help them discover their own safe uncertainty. It does not however show us how to cope with this uncertainty, and it also does not give us any concrete tools. Of course, becoming aware of your own uncertainty, and knowing that it is not something particularly bad, but that it actually is a necessary part of a fruitful research process, helps to become empowered in the research process.

## CONTINUING RESEARCH

This workshop aims to make intellectual connections on this subject and to collect ideas, feedback and triggering questions that from input for further research, for the concept of safe uncertainty seems to raise many theoretical and practical questions of different import:

- › What conceptual framework forms the base of safe uncertainty?
- › What are significant elements that the four known dimensions are composed of?
- › What other dimensions of safe uncertainty might be discovered?
- › What does the concept of safe uncertainty mean for our pedagogy?
- › How do the safe uncertainty of the teacher relate to that of its student?
- › How can the concept of safe uncertainty help researchers or student-researchers in their development and growth as professionals.
- › How do the various dimensions work in daily practice of the student-researcher.
- › How can students recognize and map their own safe uncertainty?
- › How can students make effective use of their safe uncertainty?

- › What »tools« or other practical applications can support the self-evaluations process that is necessary for working with safe uncertainty?

Please feel invited to participate in this ongoing quest for safe uncertainty in student-research!

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