DESIGNS FOR LEARNING

Vol. 6 / No. 1–2

Designs for Learning
Volume6/ Number 1–2
2013

Students' use of learning resources for writing in physics and Norwegian

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In this article we discuss dilemmas and paradoxes in the use of learning resources and the need to list sources when writing, issues that are relevant for students as well as for teachers and authors of textbooks. We draw on experience from a Norwegian research project investigating students' writing in two subjects: physics and Norwegian in senior high and university. We study the genres used when students write in order to get knowledge and skills, and we have a special interest in the use of learning resources. It is evident that the two subjects represent different text cultures, but we have seen that there are also similarities in the use of learning resources in writing. Methodologically, we have used interviews in focus groups in addition to personal letters from the students. In this article we are especially interested in students who are considered to be successful writers and even risk- writers, i.e. writers who are so self-confident that they have the courage to break with established norms and conventions. The risk-writers are aware of borders between intertextuality and plagiarism and know how to work with sources in order to be creative and innovative writers even though they do it in different ways in the two textual cultures. In conclusion we suggest possibilities for bridging the two cultures by changing the learning resources and textbooks and the way of writing.

CONTEXTUALIZATION

If we were to locate writing on a scale of ethical standards, we could easily place intertextuality and intertextual practice on one side and plagiarism on the other. Intertextual practice among scholars and students is equivalent with creativity and the conscious use of sources, but it is also connected with risk-taking. Plagiarism, on the other hand, has wholly negative connotations. In this article we will discuss intertextuality, plagiarism and risk-taking in different text cultures and point out similarities and differ-

DOI:http://dx.doi.org/10.2478/dfl-2014-0014

ences between them. Where are the borders between these concepts; who defines them and are they ultimately clear or obscure? In other words, when is intertextual practice connected with positive risk-taking and when does it slide into plagiarism? We will discuss these questions drawing on empirical material and experience from a research project in Norway.

The main aim of the project was to investigate the relationship between learning resources and writing by students in high school and students in teacher training at university. During two years we have visited classrooms and it has been our intention to find potential connections between effective and selective use of learning resources and its beneficial effect on students' writing. A teacher or a professor can initiate the assignments, but the students can also plan them individually or in groups. In other words, we have wanted to study a variety of written products over time. The research project in question was financed by the Norwegian Research Council for period 2006-2010 and was called *Learning Resources and Writing in Educational Textual Cultures*. By educational textual cultures we mean different text cultures found in educational settings such as the different text cultures of science and native-language instruction (in this case Norwegian). We are aware of the great variety between educational text cultures and in this article we have picked potential contrasts by choosing physics and Norwegian (Dysthe, 2002; Shuell, 1992; Snow, 1959, 1964; van Dijck, 2003). We are furthermore aware of the great variety of writing assignments and genres between as well as within the two subjects. There are, for example, different kinds of lab reports in science depending on the specific subject (Bazerman et al., 2005). But at the same time there are notable differences between the use of genres in the two subjects we study in our project. Science students write reports, short notes and deal with exact figures and knowledge whilst students of Norwegian cope with a variety of genres, from poetry, narratives and letters to essays and expository writing. It is not our intention to reinforce Snow's metaphor of the 'gap' between the two cultures, but rather to show that these educational cultures are as well varied and with clear differences when it comes to the use of learning resources.

THE CONCEPT OF INTERTEXTUALITY

The concept was coined by Julia Kristeva in 1967 strongly influenced by the theories and thoughts of Mikhail Bakhtin. Although studies of the concept

of intertextuality originally emerged within the context of literary theory, studies have since been undertaken to encompass other scientific fields. The concept is especially frequent in media studies, but also in discourse theories, linguistics, film studies and studies of art. Kristeva replaced Bakthin's notion of intersubjectivity by the new concept: intertextuality, and she launched roughly two nuances: implicit and explicit intertextuality. Explicit intertextuality is often described by the metaphor "mosaic", and the opposite kind of intertextuality is characterized as a tissue or by the metaphor "texture". Whereas the mosaic has clearly distinguishable borders where we can see the various bits and pieces, a texture might be characterized by an uneven surface in which the threads are of unequal thickness and length. The texture could also contain loose ends. Both kinds of intertextuality are related to a third metaphor: the text room or space (Kristeva, 1969, p. 169).
In an educational context students are daily confronted with textual expressions and hence are moving within "the text room". They are supposed to read, interpret and write to create meaning and to learn by their different activities. In other words, they have to rely on their language and their knowledge of the language system. Whereas it is evident that there exists a condition of meaning in every language system, verbally, visually, regarding sound and combinations of these, this condition of meaning is dependent on related conditions. There is consequently a dependency or presupposition in meaning, which means that any text or unit of signs presupposes a set of prior instances of the signs. Such prior instances could have the function of a learned archive or an encyclopedia of references, genres or symbolic meaning through which we can recognize meaning. The continuous meaning-making process is coined in the term intertextuality, a term which is as foundational and fundamental to culture as the language system itself. Intertextuality could consequently be said to exist independently of temporal and topical factors, and according to Graham Allen the concept is useful as well as self-evident:

> *The fundamental concept of intertextuality is that no text, much as it might like to appear so, is original and unique-in-itself; rather it is a tissue of inevitable, and to an extent unwitting, references to and quotations from other texts. These in turn condition meaning; the text is an intervention in a cultural system. Intertextuality is therefore a very useful concept – indeed*

some would say essential – for literary study, as it concerns the study of cultural sign systems generally. (Allen, 2000, p. 15)

Allen's argument for the usefulness of the concept corresponds to our impression of the acceptance of the phenomenon in today's educational system. In textbook literature the concept is drawn upon in order to explain how earlier and contemporary textual expressions influence the creation of new texts (Aamotsbakken, 2007). In classroom contexts it is furthermore relevant to draw attention to the dividing line between the concept of intertextuality as a creative and innovative potential and the negative concept of plagiarism, (Bazerman & Prior, 2004; Carroll, 2007, 2008). A writer moving to close to the source or even worse; copying another person's text directly without listing it's source characterizes plagiarism. Intertextual patterns are found in learning materials such as textbooks, workbooks and websites, and the crucial point for the students are to take fruitful advantage of such patterns instead of copying them and thereby showing dependency and no will to take "a risk". We will illuminate the problematic schisma between creative use of intertextuality and the practice of copying too much, i.e. plagiarism, as we return to the aforementioned project. Also breaking with the conventions and norms inherent in educational texts can be a risky business. As studied in an article about genre norms connected to intertextuality Aamotsbakken has discussed how modern conventions in a personal letter can collide with norms inherent in a classical drama by Henrik Ibsen. In the article referred to a student tried to be creative by transforming the content of the drama to a personal letter supposedly written by one of the drama characters. This attempt to respond to a task about the drama could be called risk-writing, and in that caseit resulted in a relatively poor grade (Aamotsbakken, 2012).

THE CONCEPT OF RISK-WRITING

This article also intends to investigate the processes and activities performed by so-called risk-writers: students who break with conventional norms for writing and who in doing so become representatives of creative intertextual practices. These students use personal narratives and share stories from their own lives in their essays, 'writing on the edge without a safety net', to quote Vickers (Vickers, 2002). Vickers challenges researchers to share sto-

ries of their own lives and encourages them to take risks. She feels this is their obligation as researchers, even if it challenges the limitations they traditionally face namely facts surrounding the methodological process and those concerned with political content: "Being prepared to ask another to risk exposing his or her life implies that we might at least be prepared to do the same" (ibid., p.619). The reward for 'writing on the edge' according to Vickers is that the writer more easily connects with the reader. Similar ideas regarding use of creative metaphors are put forth by Toolan (1996). Creative use of metaphor is a risky business. You might risk that the listener "may not 'get' your metaphor, may merely think you a liar or an idiot or needlessly obscure" (ibid., p.66). But creative use of metaphor might also lead to a greater understanding and intimacy between communication partners.
Risk-writers are also characterized by other kinds of expressive writing, such as personal comments and judgements, sentence fragments and provocative opinions (Hertzberg, 2006). Hertzberg has studied exam answers in Norwegian in lower secondary schools and found that while some writers break norms in their exam answers, they do so without being punished for it. The graders seem to accept this kind of risk-taking and in this way one might say that there is some acceptance for risk-writing in Norwegian in junior high schools.

In senior high risk-writing in the sense of being expressive can turn out to be very risky for teachers as well as students, especially in writing non-fiction as part of a wider racist discourse in western society, including politics, business, academia, education and the media. A study carried out by Askeland (2012), about the use of metaphor and irony as risk-taking devices in three students' essays in senior high school, shows that students' essays contain derogatory metaphors about and irony on behalf of Muslims, and that these risk-taking devices are taken for granted by the students. The students' texts are part of a wider discourse where students copy thoughts and words and sentences. This is an example of plagiarism as well as implicit intertextuality. Words and sentences taken for granted in society find their ways into students' texts as well. The same is the case with words, sentences and texts in textbooks or any other source. Therefore it is important to rephrase words and make them your own, also in a critical perspective. This uncritical kind of writing also makes it impossible for the teacher to assess the pieces of writing as he might be accused of attacking their freedom of speech.

THE CONCEPT OF PLAGIARISM

Plagiarism refers to using other persons' ideas, processes, results or words without giving appropriate credit (Habibzadeh & Shashok, 2011). There are many kinds of plagiarism. According to Habibzadeh & Shashok there are two general distinct categories- plagiarisms of ideas and plagiarism of text. In their view there is a difference between scientific texts and other texts in that the essence of the work is the originality of the content rather than the wording of it. In that way the scientific content is more important than the author therefore they advice authors to convey the message in its simplest form, since science itself is complex enough. Furthermore, they ask how many ways you can describe how to take a blood sample or analyze it and point to the problem that software programs used for checking plagiarism would find that many scientific articles use the same words, phrases and sentences.

In our view this is a far too simple understanding of plagiarism and problems connected to it. Teacher's use of software programs for checking plagiarism have detected more plagiarism than before at Norwegian universities (Svarstad, 2013), and much of it might be due to more home examinations and easy access to digital sources. The plagiarism can be either deliberate or involuntary. In the last case you "forget" to refer to the source, you use a lot of and long direct citations and you are not using your own voice in writing so that the work becomes your own (Løiten, 2011). Løiten (ibid.) shows how students can be trained to avoid plagiarism in a discipline like history and finds support in Jude Carroll's handbook for deterring plagiarism (Carroll, 2007).

According to Carroll (ibid.) there are several characteristics of what makes the works the students' own. First of all it is important that the students learn something instead of just copying others' works and words. In order to learn students will have to change or transform others' ideas and works, or quote them directly with correct references. It is not expected that students are original in the sense 'creating something novel' but the students' work should be original in the sense 'originating from the students'. Carroll (ibid.) thinks that students at bachelor level or lower cannot be expected to create something novel: "This is not what is asked of undergraduates and usually characterises work at PhD and sometimes, master's level" (Carroll, 2007, p.17).

Carroll is concerned with academic writing, whereas we in our project have studied writing in senior high and at university level, where more and different genres are being taught and where there will be other characteristics of what makes the work the students' own. The growing use of digital media and digital learning resources results in a possibility for plagiarism. This makes assessment challenging for the teacher as these questions are closely connected to the idea of risk-writing and intertextuality.

So what is the link between intertextuality, risk-writing, plagiarism and the use of learning resources? At the end of the article we will discuss more about the relation between these concepts, but here and now we suggest that there is a strong link between them. As we intend to show, risk-writers use themselves, their own experience and judgement as one source of knowledge together with other and more traditional learning resources, whether oral, printed or digital. At the same time they try to avoid plagiarism by being aware of intertextuality in a critical and creative way, which is a difficult task. Therefore we will provide examples from what teachers call "successful writers" later in this article. It is our impression that the high performing writers avoid plagiarism and take risks when writing both in physics and Norwegian, but as we will see there is a difference in both kind and degree between risk-writing in the two subjects.

METHODS

In the main project we used video observation and interviews. We maintained close cooperation with teachers in senior high schools and at the University of Oslo who invited us into their classrooms and gave us free access to the digital learning arena they used. As researchers we were continually allowed to read students' reports, essays and logs. In addition to observations and interviews with teachers and students on an individual basis, we also conducted focus group interviews with students in senior high and at the university. These focus group interviews provided us with interesting arguments concerning the use of learning resources and the ruling norms for writing. The focus groups together with personal letters from students in high schools helped us explore the students' thinking about how texts are created (Prior, 2004). In this article we focus primarily on the personal letters supported by the interviews and students' texts and in one case observations from a physics classroom.

In the personal letters, 27 from students in physics and 25 from students of Norwegian in senior high school, discuss their successes and failures in writing and their use of learning resources. As mentioned above, researchers seldom take the risk of discussing methodological problems in their research. We will, however, seize the opportunity to practice some risk-writing here and now by telling you how the personal letters came into being and what we got and did not get from them. At first, we wrote a personal letter to the students in about 250 words, telling them about ourselves and our research, and those we wanted to explore their use of learning resources in writing. At the same time, we asked them to tell us about their successes and failures in writing without discussing our own experiences with learning resources. It turned out that the students in their letters wrote a lot more about their teachers and their importance for failures and successes and less about other learning resources. This could mean that the teacher is a very important learning resource for writing and that the students know that the teacher is the key to success. Since we wanted to get information about other learning resources as well, we should have told the students about our own use of learning resources in writing, the teachers as well as printed and digital resources. In that way, they would have understood what kind of information we wanted. The letters differ in length, and one was very short. One male student was obviously irritated by the task and said the following: "I always succeed in writing. After all, I am not an illiterate". The same student claimed never to have had any difficulties writing. Regarding the use of learning resources he said that he mainly used digital resources and printed materials once in a while. He added: "What could turn out to be complicated about the use of sources is that it could be regarded as plagiarism if I just use one source". He obviously reflected on the problem of plagiarism but did not develop his ideas.

The personal letters gave after all useful information about the importance of the teacher for students' learning, and together with observation and interviews we got a rich picture of how students in high school use learning resources.

The students in teacher training at the university level did not respond to our wish for personal letters. One of the reasons might be that they don't see what's in it for them. But the data we have from interviews and

students' texts have provided us with sufficient evidence to support our findings and conclusions in the following.

FINDINGS: DIFFERENCES IN THE LEARNING RESOURCES IN TWO SUBJECTS

Our interviews have revealed how the use of learning resources influences writing in the two subjects. It is evident that the writing in the two subjects reveals great differences in genre, the number of products, length and style. Whereas physics is characterized by short, fact-oriented texts, writing in the subject of Norwegian is known for its variety and use of experimentation with language, modes and media. However, the subjects show similarities in the use of learning resources. In both cases the students in our observations made use of a wide variety of digital resources, stationary tools and paper based resources such as textbooks, encyclopedias, notes and handbooks. Included in the concept of learning resources are teachers' guidance and responses from fellow students; resources which play a central role in both subjects.

HIGHER EDUCATION-PHYSICS

Our concern has been to spot differences in the use of learning resources and its effect on the students' writing processes and their products. A key question in this context is how direct students are in their use of sources. One comment from a student in physics didactics at the university illustrates our concern. We asked her why she took so few notes during a lecture. She seemed surprised and said: "That is because everything is in the book [the textbook]. The book represents true knowledge." This utterance contradicts claims in the curriculum, which underline critical reflection as a central aspect in every educational subject. The student confirmed a prevalent attitude in physics, and her utterance was characteristic of the textbook culture of physics; texts characterized by short sentences, many definitions, a high number of illustrations such as figures, columns and models and rather few descriptions. By studying such textbooks we get a distinct impression of this text culture: concentration, scarcity, directness, few discussions and an aim to give precise answers, definitions, physical laws and clear solutions.

The teacher in physic didactics at this university expressed, however, that his students were poor writers of discipline-oriented tasks. They sim-

ply could not cope with this social science genre, was his comment. This might have to do with the lack of writing practice in the subject or to the ignorance of teachers prior to the study. The textbook used in the class was also focused on problem solving through formulas rather than expository writing. This indicated that answers to assignments could be very brief, consisting of just numbers or formulas.

However, these students worked on an interesting assignment on textbooks written for use at the high school level. They had prepared short presentations of three textbooks in physics, which were frequently used. In this context, the students revealed the ability to reflect critically. They gave striking examples of what was considered to be optimal for learning the subject matter. Consequently, it was rather surprising that the interview, which took place a week later, revealed a lack of critical reflection of the textbook used in the university course. The students also referred to their teaching practicums. This is part of their teacher training, and they had all experienced the use of textbooks and other educational media during their weeks of practice. The contrast between the interview with a focus on their view of university textbooks and the concrete use of high school textbooks was astonishing. They had distinct views on the various modalities represented in the high school textbooks, their use in the classrooms and the lack of consistency in their contents. It was therefore very surprising that they considered their own textbooks at the university level as authoritative and correct and worth no critical reflection.

HIGHER EDUCATION - NORWEGIAN

The students of Norwegian in higher education were highly aware of the varieties of writing in their subject. The members of the focus groups were all conscious writers who protested against the IMRAD-structure that they felt were being forced on them. The structure is commonly used in scientific articles in natural science and is becoming more normal also in the humanities. One of the students admitted that the structure was helpful for writing, but at the same time she objected to it:

> *… it's supposed to be 6 pages, there's supposed to be an introduction and a thesis statement and there's supposed to be a main part and discussion of course and a conclusion…it's supposed to be 6 pages…there's this and that*

kind of line spacing and then you're supposed to reflect on theory versus practice in all the papers only with different theses, but it is theory and practice that is supposed to recur and I've written three of those papers in natural science alone [...] introduction and then theory and method and then results and discussion and it's…it's being said that it has taken over all the subjects…

Furthermore, the students explain that they must have minimum three different sources from course readings in all assignments. They don't object to that: "and of course that's because there's interesting materials to be found in them, but it's because we have to have a certain amount of course readings to pass…"

The point is that the students feel they are being forced to use learning resources in all subjects in teacher training. The demand from the teachers is that there has to be references to at least three curricular books or articles, and only one of four students found that useful in their writing. They expressed a wish to become risk writers and to try to find their own way of solving writing problems rather than relying on advice from teachers. It is not the case, however, that they do not want to use learning resources, but rather that they want to use these resources in their own, creative way. This is not surprising considering that these students have chosen to become teachers of Norwegian in Norway. The aforementioned study by Hertzberg (Hertzberg, 2006) shows that students who succeed in junior high exams can be characterised as risk writers, choosing assignments that require a personal style, both in syntax and lexis, such as sentence fragments and the use of the pronoun "I". There is a writing culture in Norwegian schools where this kind of creative and expressive writing is appreciated by teachers of Norwegian But it is less accepted in university and senior high than in junior high, and less accepted in non-fiction than in fiction. Risk writing close to racism is not accepted at any level, and in order to learn to write one has to copy structures like IMRAD but use "your own words" when you do it.

SENIOR HIGH -PHYSICS

Our observations in senior high school physics show a somewhat different view of learning resources, plagiarism and risk-writing. When leaving the classroom one day, we asked a group of male students what they

thought about their physics textbook. They were all very positive: "This is a great textbook; concentrated and to the point. It contains no stupid 'off-the-record' stuff", one student said. Another student added: "But you should compare it with the chemistry textbook …"- Out of curiosity, we asked what was wrong with that book, and they made remarks about silly attempts to include narratives in order to illustrate the various curricular items. They stressed the necessity of being accurate, precise and clear, which the textbook in chemistry was not in their view.

Another situation from this group of students occurred when they were discussing electricity and tension. The teacher used the textbook's way of explaining the phenomena. We observed how he had in fact copied the textbook when explaining to the class and drawing on the blackboard. He made drawings and added explanations on one part of the blackboard. He then erased the explanatory part, let the drawing stand, and asked the students to write their own explanations of the illustrations. One very talented student wrote his explanation quickly and was then asked to read it aloud. The student's explanation and wording was much more advanced and nuanced than the teacher's (and therefore also the textbook's). For us, this was proof of real risk-writing. The teacher admitted during a talk after the lesson that this particular student was known for his experimental attitude and risk writing. He usually didn't take the textbook's explanations to be the only solution to a problem, but liked to find out for himself and look for alternatives.

In physics, the student's own notes and digital resources were connected to the textbook. Another important learning resource was of course the teacher: his lectures and explanations. On one occasion we observed the teacher's lecture on Einstein's special theory of relativity, focusing on the relativity of simultaneity, contradicting the classical notion that the duration of the time interval between two events is equal for all observers. The teacher gave examples from 'everyday life', for example how a passenger on a moving train and a passer-by in the road experienced strokes of lightening both in front of and at the back of the train. After this there was an in-class discussion about whether the train passenger and the passer-by experienced the stroke of lightening at the same time or not. It turned out that the passer-by saw the strokes simultaneously whereas the passenger saw the stroke of lightening at the front of the train first due to the moving train and the speed of light. The teacher spent time explaining and making sure

that the students comprehended his chain of thought, concluding with this remark: "Now you can read about it in the textbook. And remember, this is Einstein's special theory of relativity, not the general one." Obviously, the teacher knew that the textbook's version of the special theory of relativity was a bit complicated, containing fewer understandable examples than his own. It is no wonder that many students in this class expressed in their personal letters that the teacher was the most important learning resource, more important than the textbook.

Nevertheless, the textbook was considered as an important learning resource, especially for tests. Many of the students seemed to have learnt the textbook by heart and copied its explanations, definitions and laws. Of course, school exams and student answers usually rely on textbooks (Bazerman et al., 2005, p. 95). Still there is a great difference between the students' way of writing and the way the textbook authors write. In the textbook there are sometimes detailed narratives on how the laws of physics were discovered and how scientists struggled to explain them. The students, however, do not seem to take notice of these narratives but concentrate on definitions, numbers, procedures and physical laws in their writing. We might say that the textbook authors are the risk writers and that the students are partly plagiarists who seemingly do not appreciate the narratives.

A very common genre in physics is the lab report. Even though the report is structured in the same way for all students in senior high, the amount of text in the report varied considerably, from clear-cut cases of plagiarism down to the word and sentence level where the students just copied the words in the assignment in one page, to long and well written reports up to seven pages. In these latter reports, in which students showed their ability to structure a text using subject-oriented language while at the same time being critical of their own results. One of the highest performing students in the class concluded his lab report by listing seven different sources of error and criticizing the method recommended by the textbook. In our opinion this is very close to what one would call risk writing in physics. This finding corresponds to Tedick's reflections on subject-matter knowledge and its impact on performance (Tedick, 1990). This is a clear example of creative risk-writing combined with an advanced of the intertextual potential inherent in the learning resources as opposed to plagiarism. This text was highly appreciated by the teacher.

The personal letters from the students of Norwegian in senior high tell us that the teacher and the teacher's feedback (Rogers, 2010) is an important resource for learning and writing, and that these students go to web sites and use them as sources for their writing more often than the physics students. They do not always succeed in incorporating these sources into their texts: they may find good sources, but do not always know what to do with them. From our findings so far, there seems to be a connection between subject-matter knowledge and its impact on performance as suggested by Tedick. One of the highest performing students in this class wrote an essay about Christianity, The Middle Ages and Martin Luther's impact on Western philosophy and individualism, using five different sources including a novel by Ildefonso Falcones. In her essay, she managed to combine the hidden and overt forms of intertextuality and at the same time write with a critical, personal voice, using the pronoun "I" and words that revealed her fascination and disgust for The Middle Ages. Her essay was both enlightening and well written as this small excerpt from the introduction reveals:

Christianity. Many thoughts appear when one sees such a word. Almost everyone in Norway today has ideas about Christianity, but they can be very dissimilar. In this essay I'll look at various aspects of this faith and some things that have happened in the name of Christianity in the past.
Not long ago, I read The Cathedral of the Sea by Ildefonso Falcones. It is a fictitious novel, but it is based on actual historical events. One of the things that have happened in reality, and which is given a lot of space in the book, was the Inquisition and its power in the 14th century. A lot of what happened during the Inquisition was frankly speaking terrible, and I started wondering if it could really be this way: that people did such horrible things in the name of Christianity!

This text was supposed to be a formal essay but has more in common with a personal essay. The student's voice, however, becomes less prominent in the next paragraphs and in this way the writer balances between the formal and the personal essay, before she makes use of a circular composition and a paradox at the very end of the essay:

I think that this uncertainty about one's choice of belief has opened many avenues that were closed earlier. In The Cathedral of the Sea it was not feasible to convert to another religion and in the Roman Empire it was viewed as heresy to believe in an alternative way. Martin Luther showed that it is possible to choose one's own path and he showed what he thought was the right one; that you have to have faith and have a personal relationship with God. Later this focus on the personal relationship with God has developed into more people thinking for themselves and many new alternatives have appeared, both within Christianity and outside it.

Considering that this essay is written by an eighteen year old student, her ability to reflect on the complicated topics of religion and freedom of thought and speech is impressive. It is also impressive how she incorporates the sources, including her own readings and judgments. She has a clear understanding of the potential in using explicit as well as implicit intertextuality. The explicit use lies in the listing sources by mentioning authors and their works. The implicit intertextuality lies in her way of writing and knowing how to write about books, for example in a book review.

REFLECTIONS ON INTERTEXTUALITY, PLAGIARISM AND RISK-WRITING

The textbook is not as important in the Norwegian language class as in the physics class. In Norwegian, the textbook is traditionally written with few examples of risk writing. The students are trained to write in far more and varied genres than those in the textbook. It turned out that the textbook was used mostly to prepare for tests and sometimes for reading and discussing literature, as the book is both an anthology of literary texts and an ordinary textbook. In physics the textbook sometimes have detailed narratives on how the laws of physics were discovered and how scientists struggled to explain them but the students don't seem to appreciate these narratives. It is worth mentioning that neither the textbook for physics nor the textbooks for Norwegian mentions what sources the authors have relied on in their own writing. Nevertheless, they list the rules for using sources for students. This paradox was noted by the teacher of Norwegian and she always referred to sources in her own teaching and power point presentations in order to be a good model for the students. This practice of not listing sources

in textbooks has a long tradition. Textbooks have been regarded as learning tools solely, and are assumed to focus on content rather than sources. Accuracy and precision have been overlooked in a number of educational subjects, but with the common use of digital materials in most classrooms the question of listing one's sources has become crucial. Earlier the textbook was regarded as the dominant educational resource in the classroom; it had few competitors. In today's educational system we face a totally altered situation, and the importance of listing sources should have consequences for everybody writing textbooks and producing educational material. But since the process of textbook production suffers from conservative attitudes and habits we expect that this kind of change will take some time.

The concept of intertextuality has been discussed, opposed and developed since it was launched by Julia Kristeva in the late 1960s as pointed out in the introduction. Despite criticism of the concept's limitations and its perceived obscurity it has been used even in textbooks for the lower grades as a useful tool for reflection on creative writing and reading. Intertextuality has in many ways been a term for everybody. Etymologically, it sheds light on connections between utterances, texts and other meaning making resources in formal or informal settings. When students write in educational settings they are bound to act intertextually, but not necessarily creatively and innovatively. As we have seen in the interviews with university students of physics didactics, the subject-oriented conventions of the natural sciences are so rigid that it takes a real risk-writer to break with them. Bearing in mind that students in physics seem to keep to the norms and are unwilling to break with them one could assume that they operate close to plagiarism (Carroll, 2007, 2008). However, plagiarism with its negative connotations does not seem to cover the writing practice performed by these students. When this is the case, how can we describe their attitudes and ways of solving writing tasks?

The interface between intertextuality and plagiarism is hard to cope with for many students. Looking at the definition of intertextuality by Bazerman et al. (2005) we find that

> *Intertextuality is the way in which one piece of writing refers to, invokes, relies on, echoes, or otherwise uses other pieces of writing. […] Paraphrase, summary, and mention of another's idea with or without formal reference*

to another text form a spectrum, which has as its other extreme the use of phrases and forms that echoes earlier texts with no explicit mention.
(Bazerman et al., 2005, p. 12)

Bazerman et al. underlines that "all language can be said to be intertextual" (ibid.). For students both in senior high and at university level it is a challenge to be aware of the nature of language as described above. Language operates on an intertextual basis and attempts to avoid being intertextual are bound to fail. What is important for students to know is the border between the two phenomena: the intertextual practice that produces good results and creative writing and the opposite lack of independent writing and over- reliance on texts or wording of others. "Plagiarism is the use of intertextual resources without giving adequate identification to the origin of those resources", according to Bazerman et al. (2005, p. 12). We clearly see that this claim points to the dilemma, which links the concepts. Because plagiarism seems to constitute a kind of intertextual practice, it is crucial to concentrate on phenomena such as independency and creativity. The real risk writers seem to be aware of an invisible line between intertextuality and plagiarism, as they are able to break with conventions and established norms in their writing, thereby revealing their creativity.

As we have seen in our examples above, the paradoxes line up when it comes to the use of sources. It is striking that the authors of textbooks and the editorial boards of publishing houses seem to ignore the need for accuracy with respect to the origin of a quotation or reference to a source. The textbook may contain advice on how to quote, but it is a paradox that the same textbook may not follow its own advice. As we have discussed in the subject of physics, it is not regarded as a must to quote with precision, whereas the subject of Norwegian has stricter demands. This shows different traditions inherent in the text cultures. These cultural differences bring about a variation in the subjects' norms. People with the courage to break with these norms might then be regarded as risk writers: that is, successful students. In our view it is important that textbook writers both list their sources and include references in the body text in order to act as models for students' writing. This will be a kind of risk-writing that might prove successful for students' academic achievement and writing skills.

Another paradox is the tendency for risk-writing in textbooks in physics

in senior high when it comes to detailed narratives on how the laws of physics were discovered and how scientists struggled to explain them. This kind of writing portrays science in general and physics in particular as human practice, not as an impersonal and objective reality governed by unchangeable laws totally independent of questions and problems that are important in people's lives. In the natural sciences in Norway there is a movement towards radical constructivism, focusing on the construction of knowledge through language and concepts, metaphors and narratives (Quale, 2007). This constructionism can be traced in the textbooks but is not appreciated by the students. However, this kind of writing can be seen as an attempt to bridge the two cultures giving hard facts in physics a human face. The reason why the students don't appreciate it can be that this kind of knowledge is not considered important at the exams. But that might be the case in the future if textbook writers get to influence what are going to be central questions at the exams.

The use of the IMRAD structure in Norwegian in teacher training can also be considered as an attempt to bridge the two cultures. The students did not like this structure and felt it was a kind of straightjacket, copying the same structure over and over, and at the same time striving to find their own voice in writing instead of copying. In our opinion student can combine the IMRAD structure with the personal voice they want to achieve. That is what the student who wrote about religion and freedom of thought in senior high mentioned above did. She wrote a well-structured text and she knew her sources and how to use them. At the same time she took a risk by including herself in the text by evaluating and reasoning along with the reader, thus supporting Tedick's notion on the connection between subject matter knowledge and performance. The tendencies we have seen so far to bridging the two cultures renders hope for future change and also point to the need for further research on this exciting and important issue.

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