CHAPTER 5

The Scoring Rubric for Information Literacy as a Tool for Learning

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5.1 INTRODUCTION

This contribution focuses on the use of the Scoring Rubric for Information Literacy (van Helvoort, 2010) in the teaching process. The rubric is in the heart of Jos van Helvoort's PhD thesis, which he will publicly defend in September 2016. The major part of the research in his thesis investigates whether the rubric is a reliable and a valid grading tool, in other words an acceptable instrument for the assessment of what students have learned. In this contribution to *Pathways into Information Literacy and Communities of Practice*, the focus will be how the same rubric can be used as a tool to stimulate learning.

5.2 WHAT IS A RUBRIC AND HOW CAN IT BE USED?

A scoring rubric is an assessment tool that is often used for the grading of authentic student work. According to Jonsson and Svingby, it includes "criteria for rating important dimensions of performance, as well as standards of attainment for those criteria" (2007). In 2010, van Helvoort published a Scoring Rubric for Information Literacy, which is reproduced in this chapter as Appendix A.

Reddy and Andrade (2010) remark that instructors focus "almost exclusively on the role of a rubric in quickly, objectively, and accurately assigning grades." This is, in their opinion, a pity because rubrics can also be used to enhance teaching and learning. In our own research, it is indeed confirmed that the Scoring Rubric for Information Literacy also may encourage learning (van Helvoort, 2012). Nevertheless, also for use

in an instructional setting, reliability and validity are prerequisites for a scoring rubric. In van Helvoort's PhD research, these rubric properties were a major concern for van Helvoort, and he achieved them by accurate design and exhaustive testing.

The discussion on the use of rubrics for grading or to encourage learning resembles the dispute on assessment of learning or assessment for learning. With assessments of learning, educational scientists refer to assessments that are merely informative for the teachers (Stiggins, 2005). Those assessments can be summative (certifying) or formative (informing), but both types deliver data that are typically used by teachers to inform them about the students' achievements. In assessments for learning, students are the main stakeholders. Instruments that are suitable for assessment for learning inform students about the targets that should be reached. They contain examples of good as well as weak work (Stiggins, 2005) and provide concrete descriptive feedback, which helps students to improve themselves. Those assessment instruments are, in other words, not only a grading tool but an instructional one as well.

This chapter in *Pathways into Information Literacy and Communities of Practice* describes how the Scoring Rubric for Information Literacy can be used as such an instructional instrument in higher education. The scoring rubric itself functions in this case as a route to mastering information literacy skills.

5.3 THE SCORING RUBRIC FOR INFORMATION LITERACY (VAN HELVOORT, 2010)

The scoring rubric in Appendix A consists of seven criteria. The first five refer to characteristics of the product that students have created, for instance, a research paper, an advisory report, or a poster presentation. Criteria 6 and 7 refer to parts of the research process, the search terms that were used (6) and the databases, search engines, or other resources where the search was executed (7). To grade these last two criteria, it is also necessary that students deliver a search process report or a description of their search strategy.

Fig. 5.1 gives a snapshot of one of the rubric's criteria: criterion 5, on the creation of new knowledge.

The figure shows that the professional behavior for each criterion is described in column 3 and the insufficient behavior in column 4. Graders

	,	Insufficient behavior			Criterion Professional behavior			Criterion	
Grade 1–20	 did not reproduce the content of the retrieved information correctly or clearly and / or paid no attention whatsoever to the analysis of the information sources found and / or used only one information source without discussing the relevance or the reliability of the content, althrough there is reason for doubt 				Creation of new knowledge out of relevant information The student product makes clear that the student analyzed information from different resources and—based in this analysis—he / she formulated new insights, hypotheses, or applications Scope note practice shows that students succeed analyzing and comparing several information sou but are not capable of synthesizing the retrieved into a new insight, hypothesis, or application. if so criterion should be graded as "sufficient" or "poor"				
	0 Verv bad	0 Bad	0 Poor	0 Sufficient	0 Good	0 Very good		Score:	

Figure 5.1 Criterion 5 of the Scoring Rubric for Information Literacy.

can use the check boxes and mark or circle text phrases to mark clearly which description is, in their opinion, applicable for the student product or the search strategy. Those checks and marks can be regarded as the feedback, which is provided to the students.

Each criterion table ends with a six-point Likert scale to give a score. Those scores are formulated in words because they are, together with the descriptions of the professional and the insufficient behavior, more informative for students than the grades, which have a certifying role. If a teacher wants to give a grade, this is possible in the last column. The ranges for the grades are 1-10 or 1-20 for each criterion. This depends on the weight that is given to a criterion. As one can see, in Appendix A, criteria 1, 3, and 5 are regarded as more important than the others.

The scores on the six-point Likert scale can be translated to the grades as follows (and conformable to the Dutch grading system): Very good = 10/20, good = 8/16, sufficient = 6/12, poor = 5/10, bad = 3/6, very bad = 1/2.

5.4 CASE OF THE BACHELOR OF ICT AT THE HAGUE UNIVERSITY

The Scoring Rubric for Information Literacy is used as an instructional tool in the information and communication technology (ICT) undergraduate program at The Hague University of Applied Sciences. This ICT program is a broad bachelor course, which, during the first 6 months, integrates 5 former subject-based courses: software engineering, network and systems engineering, business and management, information security management, and information and media studies. For the second half of the freshmen's year, the students make a choice for one of five existing differentiations.

The Scoring Rubric for Information Literacy is part of a toolkit that contains 15 tools that are integrated in the curriculum of each differentiation. This means that the scoring rubric is part of the common curriculum, but that differentiations choose their own moment to embed it in their courses. The decision to make the learning activities with the scoring rubric mandatory for all differentiations is based on the belief that information literacy skills are essential for all professional knowledge workers in the 21st century (Ananiadou & Claro, 2009). The learning activities where the students explicitly work with the Scoring Rubric for Information Literacy and which are described in this chapter have a

student workload of one European credit transfer system (ECTS), or 28 hours. It is also advised to pay attention to the rubric in all later stages during each differentiation program.

The differentiations Information and Media Studies (IMS) and Business and Management (B&M) have chosen to introduce the scoring rubric in the beginning of the second semester of the freshmen's year. These are the first weeks after the start of the differentiation itself. With this approach, the staff hopes that the students develop information problem–solving skills from the beginning of their studies and that they are able to develop those skills during the rest of their study careers.

5.5 INFORMATION AND MEDIA STUDIES

The assignment, where the scoring rubric is introduced in information and media studies, is a small assignment that prepares students for the final assignment of the course in question. The small assignment is typically intended to assist learning and does not count for the grade in the course. The students are asked to write an essay containing approximately 500 words about which ICT skills are necessary for students in higher education and to underpin their opinion with serious and reliable information, which they have to find on the internet or in one of the resources in the university's digital library. The essays are posted in a Blackboard digital drop box where they are scanned with Ephorus on plagiarism.

All essays are assessed with the Scoring Rubric for Information Literacy by a member of the academic staff. For this, the printed scoring rubric was rebuilt in an Excel sheet, which made it much easier to digitally score the products. The Scoring Rubric for Information Literacy was furthermore extended with two criteria for report structure and layout and for spelling, grammar, and register (Appendix B).

For the differentiation in Information and Media Studies, the essays are graded in an integrative way, which means that the same grader evaluates the criteria for information use and knowledge creation as well as the criteria for language use. There are two teachers who each grade 15 student products. One teaches information retrieval, while the other teaches communication skills. To standardize their grading process, they grade at the start of the grading process, each with the same 5 essays and compare their findings. Once an agreement is reached, they continue

with their own group of students. After all of the essays have been graded, the teachers select one essay, usually an example with some reoccurring mistakes, and remove the student's name, comments, and notes.

5.6 HOW THE RUBRIC IS USED IN THE CLASSROOM TO ASSESS THE SMALL ASSIGNMENTS (PEER ASSESSMENT AND PEER FEEDBACK)

The next step in the learning process is when the scoring rubric is introduced to the students by one of the teachers. For each criterion, it is explained what the scoring rubric means and why teachers and professionals are of the opinion that it is important. Topics such as formulating questions, references, and content analysis were discussed earlier prior to the students receiving the assignment. This, however, is the first time that these topics are demonstrated in the layout of the assessment instrument. The reason is that the teachers are of the opinion that instruction about the rubric is much more effective when the students immediately have the opportunity to apply the instrument on a student product.

Once questions have been answered, the teacher distributes blank copies of the scoring rubric and copies of the example essay from the former section. 1 Each student is asked to grade the example essay with the rubric. This exercise takes about 15 minutes. After the individual grading by the students, the teacher will discuss the outcomes in the group and answer any questions.

The last step in the instruction process with the scoring rubric is when students receive their own essays with the teachers' comments and the scores on the rubric. The students are asked to first discuss the comments and scores with their neighbor students; if they still don't understand the feedback, they can ask the teacher for further explanation. In practice, the students themselves should be capable of convincing their peers why something is a fault or what could have been done better.

All activities described in this section are based on the idea of peer assessment and peer feedback. Peer feedback is not only less labor intensive for the teachers (they don't have to explain their score to each student individually), it also seems to be more effective.

¹ The student in question is asked beforehand by mail for permission. It is emphasized that the copy of the essay is made anonymous.

In the literature, it is emphasized that the learning effects of peer assessment appear mainly for students in their role as supplier of feedback. The assessor is inspired to reflect on the peer's product, deliberate it, compare it with others, and express his evaluation in accurate words (Topping, 1998). The learning processes refer, in other words, to the higher levels of the revised taxonomy of educational objectives (Krathwohl, 2002). When the activities during the peer feedback sessions are mapped with the two dimensions (knowledge dimension and cognitive process dimension) of the revised taxonomy, this becomes visible in Table 5.1.

To supply feedback, the assessor must understand on a conceptual level what all the criteria of the scoring rubric refer to (B2). He must also apply the criteria to the peers' work (B3); he must analyze and evaluate the peer's essay (B4 and B5) and formulate his opinion for each criterion (B6). Additionally, during the discussion, he is to explain how mistakes can be avoided. He must understand how mistakes are caused (C2), analyze what could have gone wrong (C4), and evaluate the procedure that was followed by his fellow student (C5). He also has to formulate his opinion, which means that he creates new information (C6).

When the student does well, he creates and evaluates, during the analyzing process, new metacognitive knowledge for himself on the best approaches for such intentional peer support (IPS) tasks and his own strengths and motives to conduct them (D4, D5, and D6).

In the case of the ICT undergraduate program, it is important that each student takes his role as assessor seriously—supplier of feedback—as well as his role as assessed person/recipient of feedback.

5.7 DESCRIPTION OF THE FINAL ASSIGNMENT (SUMMATIVE ASSESSMENT)

In the course IMS, the students are already working on their final assignment at the same time that the scoring rubric is introduced to them. The final or full assignment is a task to execute a literature study to answer a real-life research question from a private or public organization.

Questions have often an environmental impact. Examples are:

 What effects does music have on a person's brain, and how can this knowledge be used for a better and healthier society? (Commission by Music Unites)

Table 5.1 The placement in Krathwohl's taxonomy table of the learning activities during peer feedback sessions with the Scoring Rubric for Information Literacy

	The cognitive process dimension						
The knowledge dimension	1. Remember	2. Understand	3. Apply	4. Analyze	5. Evaluate	6. Create	
A. Factual knowledge							
B. Conceptual knowledge		X	X	X	X	X	
C. Procedural knowledge		X		X	X	X	
D. Metacognitive				X	X	X	
knowledge							

• What is socialbesity, and how can it be prevented? (Commission by Jellinek, a Dutch center providing help to addicts)

The final student product is an essay in which students give a reasoned answer on the question and underpin their solutions with arguments from scholar literature.

During their research, students are provided with new knowledge and skills about information retrieval (search question formulation, selection of search terms, search strategies, Boolean operators, positional operators, truncation, use of thesauruses) and additionally with knowledge and skills on negotiating the query with the patron, writing abilities, and skills to publish an essay using an online platform. The whole course has a study load of six ECTS, or approximately 170 hours. As mentioned, the activities with the scoring rubric are one ECTS of these six.

The intervention with the scoring rubric session is completed two weeks prior to the end of the course when students have already done some literature research for the final assignment and have made a start with the content analysis of the documents but not yet started the writing process on the essay. This seems rather late, but the reason is that the teaching staff have the opinion that instruction is much more fruitful when the learning content is supplied just in time. In this case, that is the moment that the students can make a start on their essays.

5.8 BUSINESS AND MANAGEMENT

The Scoring Rubric for Information Literacy is also introduced, as mentioned, in a course at the beginning of the differentiation Business and Management.

As Information and Media Studies and Business and Management have their own learning content, objectives, and activities, the scoring rubric is used in a slightly different manner in each course. In this section, the use of the rubric in the Business and Management course is elaborated.

In the Business and Management program, the assignment with the Scoring Rubric for Information Literacy is part of a course called Research Methods 1. The core of the course is an intensive training program called close reading, which has been described in more detail by

Joosten (2015). A group of 12-15 students and a teacher meet for five 2.5 hour sessions in order to conscientiously and jointly read a difficult sometimes too difficult—text. The participants have read the text beforehand and answered a number of questions concerning it. The texts involve articles from scientific journals and philosophical texts of Kant and Latour (Huijer, & Meester, 2012). The purpose of the sessions is to augment one's understanding of the text. The teacher has a facilitating role. Rather than judging students' readings of the text or offering his reading to the students, he is stimulating students to offer their readings of the text and to underpin their readings with arguments found in the text. Furthermore, the teacher ensures that it is a joint undertaking. All participants are stimulated to listen to each other's proposals for new readings, to explore and criticize these readings, and to propose new readings. As peers, the teacher and students jointly try to understand the text. After each close reading session, students improve or further elaborate on their previous answers about the text in order to demonstrate that their understanding of the text has deepened.

Why do students and teachers spend so many hours doing close reading? Professionals are more often expected to be able to use scientific knowledge. In order to use scientific knowledge, one has to understand and determine its validity and value. During the close reading program, students are trained to approach scientific knowledge in a critical way.

The assignment with the Scoring Rubric for Information Literacy is introduced after the close reading sessions. Students are asked to write an essay containing 450–550 words. The question to be answered is derived from one of the philosophical texts, which has been the subject of one of the close reading sessions. For reasons of economy (the close reading training is expensive in terms of teacher capacity) and additionally for pedagogic reasons (the acquisition of information problem solving (IPS) skills requires practice and perseverance), it has been decided to offer students a light version of the toolkit. In the second year of the bachelor program, students of the Business and Management differentiation will make a similar assignment using the rubric.

The introduction and explanation of the scoring rubric and the exercise of grading an example essay have both been incorporated in the light version training for the students of the Business and Management

differentiation. Teachers do not, however, assess each student's essay. After grading an example essay, students will instead grade each other's essays using the Scoring Rubric for Information Literacy. As with close reading, cooperation between students—here in the form of peer assessment—is central. The teacher offers help and explanation if required. This way, students are expected to improve their ability of using and understanding the rubric while simultaneously supplying feedback on their peers' performance in IPS tasks, as well as receiving feedback on their own performances.

The students use the feedback to improve their essays. In the final essay, they include a completed copy of the scoring rubric containing a self-assessment. Teachers assess the essays on a pass or fail basis. As it is a freshman's product and students do not receive personal feedback from their teachers, they are allowed to score a few poor marks. Bad and very bad are, however, not accepted. In the second year, the demands will be higher.

5.9 DISCUSSION

The goal of the intervention with the Scoring Rubric for Information Literacy is that students experience what is expected by their teachers, and they learn how to use relevant and reliable information to create new information products in an effective and a socially responsible way. The didactic approach used is that of active learning. This method is supposed to promote the acquisition of higher-order thinking skills, the more complex cognitive processes of the revised taxonomy of learning objectives' (Madhuri, Kantamreddi, & Prakash Goteti, 2012).

Until now we have not had an opportunity to evaluate whether the intervention with the scoring rubric really works as a tool to encourage learning on a higher level, but in a former session with students from the department of information studies, it was found that adult students appreciated the feedback with the Scoring Rubric, expressed as such by one of the students: "You get it in writing, and you can look it up afterwards." It was further reported that they had become more critical of their own writings and those of others but also that they transferred

the use of the scoring rubric to other school assignments (van Helvoort, 2012).

This all sounds very hopeful, but we also know from former research that it is hard to establish these types of behavior in a stable way. Students from the Department of Information Studies at The Hague University for Applied Sciences found that 12-year-old students at a high school searched better on the internet than 16-year-old students from the same school (Punt & Hagen, 2010). With this knowledge in mind, we have the intention of incorporating the rubric on a regular basis in the courses and assignments of the Bachelor of ICT and also in the later stages of the curriculum.

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APPENDIX A: SCORING RUBRIC FOR INFORMATION LITERACY

0 Very good

Score

Scoring Rubric for Name teacher / grader Name/ID-No. student: student product Information Literacy Insufficient behavior Criterion Professional behavior • The student product makes clear that the • The student product makes clear that the Grade 1-20= student did a good orientation on the student used the question as it was originally topic and that he formulated his own focus formulated in the assignment or student task. The student did not further explore on the topic or research question. This is Orientation also expressed by the fact that the student the question as such. An example of this formulated one or more good research behavior is that the student did not define the core key terms and that these terms are questions supposed to be clear while they are at least

0 Sufficient

0 Good

multi-interpretable

0 Bad

0 Very bad

0 Poor

	Criterion	Professional behavior	Insufficient behavior	
2	Reference list	The student product has a reference list that is complete, and the citation style is used correctly. With the reference list, it is easy to identify the documents that the student used. Remark: the last point is more important than a correct bibliographic description in accordance with a standard citation style. However, for the score 'very good,' the citation style must also be used correctly	 There is no reference list in the student product and/or The reference list is not complete (documents that are cited in the text are not listed in the reference list) or Important bibliographic data (title, author, year of publication) are missing. An example that often recurs in educational practice: for internet resources, only the URL is mentioned 	Grade 1–10=
Score		0 Very good 0 Good 0 Sufficient	0 Poor 0 Bad 0 Very bad	

Scoring Rubric for Information Literacy Name teacher / grader

Name/ID-No. student: student product

	Criterion	Professional behavior	Insufficient behavior	
Quality of the primary sources 3 (books, journal articles, websites, etc.)		The reference list of the student product makes clear that the student has used relevar reliable, (preferably authentic) and up-to-date information sources that discuss the topic or the question from different points oview	enough. An example of 'insignificance' is that the student only used internet-sites as an	Grade 1–20=
		0.00	0 P 0 P 1 0 V 1 1	
Score		0 Very good 0 Good 0 Sufficien	nt 0 Poor 0 Bad 0 Very bad	

Criterion		Professional behavior			li .	Insufficient behavior			
4	In the text of the product, it is made clear what information sources the student has used. In the case of a digital student product, this is also true for images and audiovisual information				his own prod the original s	has used someo its, images, audi uct without ref ource. Even if t lly, strictly speak	ovisuals) in erence to his was done	Grade 1–10=	
Score		0 Very good	0 Good	0 Sufficient	0 Poor	0 Bad	0 Very bad		

(Continued)

	Rubric for tion Literacy	Name teacher / grader	Name/ID-No. student: student product	
	Criterion	Professional behavior	Insufficient behavior	
5	Creation of new knowledge out of relevant information	• The student product makes clear that the student analyzed information from different resources and that—based on this analysis—he formulated new insights, hypotheses, or application. Scope note: practice shows that students succeed in analyzing and comparing several information sources but are not capable of synthesizing the retrieved data into a new insight, hypothesis, or application. If so, this criterion should be graded as "sufficient" or "poor"	In the student product, the student: did not reproduce the content of the retrieved information correctly or clearly and/or paid no attention whatsoever to the analysis of the information sources found and/or used only one information source without discussing the relevance or the reliability of the content, although there is reason for doubt	Grade 1–20=
Score		0 Very good 0 Good 0 Sufficient	0 Poor 0 Bad 0 Very bad	
Scoring Rubric for Information Literacy		Name teacher / grader	Name/ID-No. student: student product	
Search S	Strategy			
	Criterion	Professional behavior	Insufficient behavior	
6	Search terms/ keywords	The student used search terms that are relevant for the topic or the research question. He used relevant synonyms, search terms in English and from the professional jargon	 The student used search terms that are too general (nonprofessional) and/or the student did not use relevant synonyms, associated terms, or search terms in English 	Grade 1–10=
Score		0 Very good 0 Good 0 Sufficient	0 Poor 0 Bad 0 Very bad	_

Scoring Rubric for Information Literacy Search Strategy

Name teacher / grader

0 Good

0 Very good

Name/ID-No. student: student product

0 Bad

0 Very bad

	Criterion	Professional behavior	Insufficient behavior	
7	Use of secondary sources	• The student used a variety of secondary sources (search engines, books for tracking citations, scholarly journals, databases, social networks). If necessary, he used an interlibrary loan to obtain the materials needed	 The student only used information sources that are easily accessible. For instance, he only used: The "quick search"-box of a general search engine and/or Materials provided by his professor 	Grade 1–10=
I				1

0 Poor

0 Sufficient

Total score (maximum 100) =

Score

APPENDIX B: SCORING RUBRIC FOR INFORMATION LITERACY—REPORT SKILLS

Namo toachor / grador

Scaring Pubric for

	tion Literacy	Ivai	nie teacher / gra	adei	INC	ame/1D-140. 3tuo	ient	
Report	skills							_
	Criterion	Pr	ofessional behav	vior	I.	nsufficient behav	ior	
6	Report structure and layout	l '	body, and conc product looks at		poorly organ The student		attention to the	Grade 1–10=
Score		0 Very good	0 Good	0 Sufficient	0 Poor	0 Bad	0 Very bad	

Name/ID-No Student

	Criterion	rion Professional behavior			Insufficient behavior			
7	Spelling, grammar, and register	group/audience There are no spelling mistakes in the student product		not show co The written vague senter	uses colloquial s nsideration for t product has inco nces product contain	he audience oherent and	Grade 1–10=	
Score		0 Very good	0 Good	0 Sufficient	0 Poor	0 Bad	0 Very bad	