Reflective Writing for Enhancing Integration of Knowledge in Modularized Study Programs
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Abstract
Many study programs in social and political sciences today are modularized and give students much choice as to which courses to take and when to complete them. Choice allows students to construct individual learning pathways and shape studies in line with their academic and intellectual interests. Choice also means that students are called to fit the modules and courses together and integrate learning outcomes into a meaningful learning experience. This task can be especially difficult at the undergraduate level and therefore demands that instructors and designers of study programs provide a supportive structure. In this paper, we present results of a pilot study testing one such possible support framework. We focus on the use of reflective writing exercises as a means of enhancing learning and integration of knowledge and skills gained in different courses in undergraduate curriculum. The setup we tested is a pass/fail or graded reflective comment on connections between courses (topics, concepts, authors, and methods) scheduled in the middle of the course (‘Building Bridges’).

Keywords: reflective writing, learning outcomes, cumulative learning, knowledge transfer, assessment, modularisation

Introduction
The move towards a more flexible approach to structuring study programmes across European universities was accelerated by the Bologna process. It has enabled students to create individual learning pathways: they can more freely choose which courses to take, in which combination and order. While this flexibility is a step towards fuller self-reliance of students as learners and higher mobility and better employability of graduates, it has downsides. Namely, giving a lot of choice to students in planning and shaping curriculum can potentially fragment the learning experience and reduce coherence of studies. The “problem of securing a ‘coherent experience’ for both teachers and taught” is the necessary corollary of flexibility, openness and

1 This paper is currently under review; please do not use this draft yet. We thank our students, assistants, and two researcher-teacher colleagues for their most valuable contributions to this paper.
reliance on the student for the planning of studies (Bell and Wade 1993: 6).

In mitigating the drawbacks of modularization, scholars have found reflection and reflective exercises to be helpful instruments. In this paper we present a pedagogic tool for scaffolding student reflection on connecting courses in their study programme. Our reflective writing exercise - “Building Bridges” - requires students to detect and present such connections, relevant for their personal study progress. We introduce the exercise to prevent the fragmentation and encapsulation of knowledge in ‘units’ - courses or modules. In comparison to other reflective writing assignments, the “Building Bridges” is innovative on two levels. On a micro-level, “Building Bridges” supports “reflective transfer” across academic and social contexts (Schön 1995) with a task of a wide scope: we leave it up to the students which courses to connect and how, instead of asking them to reflect on a single course or on a specific type of courses, for example, writing courses. On a macro-level, in comparison to previous scholarship on knowledge transfer between social spheres (academia-to-practice, practice-to-academia, or practice-to-practice, see Bain (2002), Maton (2009), Ryan and Ryan (2013)), we focus on achieving cumulative learning at the academic level. We motivate students to integrate their learning experience in individual modules of their study programme and thus promote a cross-modular, programme-level reflection. We hope that by completing such exercises regularly, students will develop a self-perception as a stakeholder, an active agent in the academic learning process.

We tested the exercise in three courses in a highly flexible modular undergraduate study programme at the University of Freiburg. We identified six types of logical connections between courses (similarity, difference, development, challenge, application, and contextualisation), coded all assignments (N=54) based on this classification, and looked at factors likely to influence the results, such as students’ seniority, assessment modality (graded or pass/fail), and homogeneity of the class in terms of students’ seniority and programme of studies.

We conclude that even with minimum guidance students are able to build multiple connections between courses, and that the fact of grading the assignment does not improve the outcome. Students were also able to identify intellectual challenges in the process of learning and describe instances of conceptual change. Nonetheless, students have encountered more
problems when presenting these connections and challenges in the framework of their individual learning pathway, and contextualising the connections in view of personal academic interests and goals. These tasks seem to require more training and support.

1. Conceptual Framework

1.1. The Bologna Process and challenge posed to cumulative learning by modularisation

Many study programmes in social and political sciences today are modularized and provide students with a variety of choices as to which courses to take and when and where to complete them. In Europe, this is mainly an outcome of the Bologna process, which included modularisation and separation of university studies in two cycles (Bachelor and Master). The aims of the Bologna process are to harmonize study programmes and diplomas in wider Europe and to improve possibilities for mobility and exchange. Ultimately, these developments should boost the competitiveness of the European education system and increase employability across the region, especially among the young (Ministerial Conference 1999, European Commission 2012). The rationale of the reform was therefore more socio-economic than didactic (see namely Bülow-Schramm 2013: 13).

The socio-economic foundation of modularized studies hinges on the concept of learning-based economy. It requires individuals to build knowledge and skills in a continuous, cumulative way; that is, to be lifelong self-regulated learners (Boud and Falchikov 2006; The Economist 2017). Cumulative learning requires “[the] capacity to continually build knowledge, add new skills, and give new meaning to existing abilities” (Maton 2009: 43), and builds on knowledge transfer from one context to another and on challenging previous knowledge and upgrading it. Students can achieve cumulative learning by overcoming the segmentation of the learning experience, characteristic to module-based degrees, where knowledge is presented in a very specific context of the module (Bell & Wade 1993: 5). If successful, they will accumulate ideas and skills in a critical and integrative manner rather than mechanically aggregate them (Maton 2009: 44).

Hence, there is tension between the goals of modularisation and the effect of modularised structure of study programmes. While transfer of knowledge is difficult in itself (Grossman 2009) and requires high-order cognitive meta-competences (Bridges 1993: 50-51), practices of
strict segmentation of study programmes make long-term cumulative learning especially problematic. Early adopters of modularized study programmes, such as the United Kingdom, experienced this challenge as central to the debate around the reform in the 1960-70s (Bell & Wade 1993). Recent research confirms that fragmentation of learning experience and departmentalization of knowledge and skills are the likely downsides of Bologna. Thus, Hughes, Smith and Creese (2015: 1090) note that “there is a form of closure particularly arising from modularisation” as it is not clear how students are supposed to use assessment and feedback in courses to build towards longer-term learning success.

1.2. Supportive didactic structure for the integration of studies through reflection

A way to ease the tension between the goals and outcomes of modularisation is to exploit the student ownership of the learning process, enabled by increased flexibility and choice. Student initiative could substitute the positive effect of the traditional systematic hierarchical structure on the integration of studies (Bernstein 2000: 16). This initiative would need to receive support from the instructors, since a supportive didactic structure for cumulative learning is not inherent in the Bologna process. Promoting self-reliant reflection on ways to synthesise learning outcomes from different modules can help undergraduate students experience their studies in a coherent manner.

Reflection can indeed be used not only to enhance learning in a particular course or module, but also to achieve positive results at the level of the study programme, for example, by encouraging students “to view learning as a process, develop students’ metacognitive awareness, and promote transfer of learning” beyond individual modules (Allan & Driscoll 2014: 38). Reflection is essentially interpretation and reinterpretation of learning experience, followed by integration of produced meaning into “personal mental models of learning and studying” (van den Boom, Paas & van Merrienboer 2007: 534). This cognitively demanding task raises the student’s awareness of learning, its components and results, and the student’s role in it. Alone or in combination with a discussion, reflection and reflective writing have been found to “enhance self-awareness and encourage student self-care in the face of... emotional strain”, if students are provided regular opportunities for engaging in it (McLeod, Barr & Welch 2015:...
450). Research shows that complex reflective skills, which would underpin individual reflection, can be taught through a structured academic approach of development and practice (Bain et al. 2002). Providing structured opportunities for reflection (“scaffolding”) is key since it appears that students do not tend to engage in reflection on learning on their own (van Velzen 2002 cited in van den Boom, Paas & van Merrienboer 2007: 534). If this supportive structure is successful, students can develop skills and habits for self-reliant planning of the learning process, transfer of knowledge and cumulative learning.

1.3. Reflective transfer across the study process via reflection on connections between courses
Cumulative learning is successful when students can “detach” knowledge from the context in which it was acquired. This process requires that “the student is able to leap up further from the concrete base of each text or his/her own experiences to reach more abstract principles with which different texts can be related together (weakening semantic gravity) before then returning to another, different concrete context (strengthening semantic gravity)” (Maton 2009: 54).
Operationally, “Building Bridges” fosters reflection-in-action and “reflective transfer” (Schön 1995) and is influenced by Perkins and Salomon’s (2012) detect-elect-connect model. This model emphasizes the stages of description, evaluation and adaptation in the process of writing. As Allan and Driscoll note (2014: 39), students “have to develop meta-awareness about where prior knowledge may apply, elect to pursue connection, and finally, connect and adapt that knowledge to a new circumstance”. Thus, they can select a particular concept, theory or topic covered in the current course, and consider it in a new context, for example, by referring to a previous course, where they discussed the same issue from a different disciplinary, temporary or thematic perspective. Likewise, students may choose to “borrow” a concept or idea from another course and bring it into the context of the current course. Such travel of ideas can be described in Maton’s terms as an effort to distantiate an idea from a particular context of acquisition (weakening semantic gravity) and introduce it into a new context via reinterpretation (strengthening semantic gravity). As a result of this transfer, ideas receive new meaning and can be interconnected and used in new ways.
What are the cognitive underpinnings and modalities of this reflective transfer process? Our departure point here is the 4Rs model by Ryan and Ryan (2013) for a Teaching and Assessing Reflective Learning, which builds on Bain’s Reflective scale model (Bain 2002). For our exercise, we expect students to engage in reflection on the two higher levels of the scale: reasoning, and reconstructing and reframing (Table 1).

<table>
<thead>
<tr>
<th>Reporting and Responding</th>
<th>Description, reporting, summary of learning and, optionally, its relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relating</td>
<td>Building connections between the learner’s skills, ideas, experience, or disciplinary knowledge and the issue at hand</td>
</tr>
<tr>
<td>Reasoning</td>
<td>Relating, enhanced by emphasis and selectivity, illustration and exemplification, and discussion of alternative or new perspectives</td>
</tr>
<tr>
<td>Reconstructing and Reframing</td>
<td>Reframing knowledge in a new context Achieving an understanding of the underlying principle of the connection Formulating meta-conclusions about inter-contextual knowledge and its transfer</td>
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*Table 1.* Summary of the 4R model (based on Bain et al. 2002 and Ryan and Ryan 2013)

2. Cases and Method

2.1. Design of the exercise “Building Bridges”

To support a successful integration of knowledge from the different courses, as well as to encourage student-centred reflection, we created a new reflective assignment, “Building Bridges”. The assignment is mandatory, and individual. We wish to clarify that we do not use or intend the assignment as feedback on teaching. The exercise consists of two questions (Table 2).
Critically reflect on your individual learning process in this course and answer the following questions:

1) In the context of your studies, what are the most relevant connections between the current course and previous courses you have taken?

*To answer this question, provide concrete examples of topics, theories, concepts or terms, authors, or employed methods. It may be useful to look at the syllabuses of other courses, reading lists, your reading files, and essays.*

2) In which way is the current course challenging your knowledge, perspective or opinion on a topic previously discussed in other courses?

*To answer this question, think about cases where you have come to question your previous belief, understanding, or opinion on a topic, method, theory, concept, or author.*

**Table 2. Task of the assignment “Building Bridges”**

We designed the wording of the task to be sufficient without further explanation from the instructor, trying to strike the right balance between clarity of expectations and openness to valid individual interpretations. To explain what the connections between courses can be about and help the students structure their reflection, we give examples of grounds for possible connections: topics, theories, concepts, authors, and methods. We also advise students on how to find these connections.

### 2.2. Reconstruction of the analytical steps in completing the assignment

The analytical steps we expect students to go through when answering Question 1, are the following:

1) attend to the context of their studies - interests, priorities, progress, goals. Use these goals and interests as a reference for assessing the relevance of possible connections.

2) ‘scan’ the current and previous courses for possible “nodes” (potential connection sites). Already at this level, students should be guided by selectivity criteria, preferably based on an understanding of their personal study context. Equally, at this stage students should be sensitive to the specificities of the individual courses’ framework: good grasp of the different goals, formats, and approaches in courses hosting the “nodes” is a step towards a well-constructed and -understood connection;
3) after the scanning and selection of interesting “nodes”, establish connections between “nodes” in the given course and other courses based on a certain principle (see below). At this stage, knowledge and skills are “uprooted” from their initial context of acquisition (course 1 and course 2) and reinterpreted in a new context - that of the assignment (and, ideally, of the individual learning pathway). Thus, semantic gravity is weakened and then strengthened again, and new meaning of knowledge is created;

4) finally, select the most relevant among these connections in view of the individual study priorities and present them in the answer.

In sum, we expect the assignment to provide students with an opportunity and motivation to look at their studies as a personal project, and by taking steps to integrate their previously fragmented and context-related knowledge, guided by general criteria.

The purpose of the second question is to encourage reflection leading to identifying and analysing intellectual challenge posed by knowledge and beliefs acquired in fragmented elements of students’ studies. We suggest that a challenge can mean a questioning of a “previous belief, understanding, or opinion”.

To answer the second question, we expect the students to go through the following steps:

1) ‘scan’ through the current course for challenging and interesting topics, probably those which have elicited an emotional response (such as surprise, puzzlement, confusion, or excitement);
2) identify cases where the response comes from previous coverage of the topic in a different course;
3) analyse the nature of the challenge, that is, the reasons for the emotional, and then intellectual response;
4) finally, select one topic, and present the challenge, while contextualizing it and explicating both the relevance and the nature of the challenge.

2.3. Operationalisation of reflection types

In our explorative study, we aim at identifying different types of connections students can draw between courses making part of their learning pathway. While our point of departure was theoretical, we have paid extensive attention to the actual student responses. We coded parts of assignments and refined our categories based on the submitted assignments. This
refinement was necessary since we experimented with a type of reflection comparatively less often used in teaching: we did not focus on reflection on practice (as in McLeod et al. 2015, for example), but on what Allan & Driscoll, following Schön, call “reflective transfer”. Its key element is “modification and testing” of knowledge in a new situation (Schön quoted in Allan & Driscoll 2014: 38), not analytical abstraction and generalisation from hands-on professional or everyday practice.

We aggregated the variety of connections established by students based on the underlying connecting principle into six types of connection, summarized and illustrated in Table 3.

<table>
<thead>
<tr>
<th>Type of connection</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>similarity</td>
<td>courses are connected because the same author, the same or similar topic, theory, or method were discussed in both courses</td>
<td>“In a course about language and culture, we talked about constructions of discrimination regarding race or gender, which is also connected to the equality and justice aspect [covered in the current course].”</td>
</tr>
<tr>
<td>difference</td>
<td>courses are connected because they cover the same or similar author, topic, theory, or method, but in a different way</td>
<td>“In this same course, we discussed Marxism and various components such as his historical materialism. However, the way we applied Marxist theory was by questioning its political and economic application to the global market.”</td>
</tr>
<tr>
<td>development</td>
<td>courses are connected because knowledge gained in the current course is presented as developing or adding to the knowledge the student has gained in another course</td>
<td>“Obviously, the course Introduction to Social and Political Sciences is also heavily linked to political theory and was helpful for getting an initial insight to the field while so many theories, for instance considering Rawls I have only been able to fully grasp his ideas now with the material and discussion of this course.”</td>
</tr>
</tbody>
</table>
| challenge          | courses are connected because knowledge gained in them creates or highlights an intellectual challenge for the student | “Besides from the connections I can draw to other courses and non-university activities, it also challenged my understanding of liberty and communism. I define myself as a social-liberal. For me, the conflicts between Mill, Rawls and Marx and Engels are the conflicts where I am not sure of my own position. [...] Nevertheless, I did not know where to start my critique and was rather unsure about the legitimation of my own position. [...] These conflicting interests are still
unsolved because I see both side’s advantages and disadvantages...”

application
courses are connected because knowledge from another course helped to better understand the current course or was used in the current course on the initiative of the student

“This course explicitly dealt with methods that are implicit in the Political Theory course (PT) [current course], and therefore build an important foundation. Definitions in particular proved to be central to understanding in PT. In Introduction to Social and Political Sciences, I learned the structure, the function of definitions and also the importance of constructing definitions myself. How essential definitions are for any argument in political science became evident for me in the recent discussions and assignments in PT.” [The student continues with an illustration.]

contextualisation
courses are connected because knowledge gained in the current course is used to better or differently understand knowledge from another course

“In retrospect, the political theory class also helps me to understand content of other courses. In the Introduction to Humanities, we discussed the Marxist analysis of culture, but only after reading the Communist Manifesto, I understood the important concepts of Marxist materialism.”

<table>
<thead>
<tr>
<th>Table 3. Types of connections established by students</th>
</tr>
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<tbody>
<tr>
<td>We identified and presented different types of connections as a spectrum going from more straightforward logically (similarity and difference) to more demanding (challenge, application, contextualisation). Connections that are more straightforward may indicate a higher degree of semantic gravity in the students’ learning while more demanding connections may rely on a weaker semantic gravity.</td>
</tr>
<tr>
<td>Although some of the types of connections may be easier to establish, all of the connections result from a complex, multi-step analytical undertaking (see previous section on the required analytical steps). Some cases of “similarity” are basic (identifying the same author in two courses) and some are extremely sophisticated, offer original insights into ways courses can be connected and consist of highly developed analysis and synthesis. Similarly, connections, which can be more difficult to establish judged by the type of underlying principle, - such as contextualisation, - can be general, vague or based on superficial criteria. Despite these</td>
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</table>
limitations, we find the six categories helpful for the exploration of the shape untrained “reflective transfer” takes, within and across courses.

In addition to these six categories, we separately coded instances of conceptual change, resulting from drawing a connection. Since change always happened based on a connection, connection types and change are not mutually exclusive categories: we coded “change” in addition to one of the six categories presented above. We discuss this category in more detail in section 3.3.

2.4. Cases

We assigned the reflective writing exercise to students in three courses in the academic year 2016/2017. All three courses take place within the major Governance (social and political sciences) in the four-year Liberal Arts and Sciences undergraduate programme at the University College Freiburg (Germany).

The structure and content of the Governance major is strongly interdisciplinary and, therefore, potentially fragmented. Students take courses in 13 modules, such as political philosophy or political theory, politics, economics, law, international and regional governance, and so on. As curriculum designers, we strive to create some connections ourselves, by introducing the same topics, authors, and theories in different consecutive courses. Ultimately, however, it is key that students connect knowledge from a variety of socio-political disciplines themselves, since they are free to select courses for each module. The structure of the Governance major drives students towards weakening semantic gravity of knowledge. Our exercise gives further shape to this challenge.

Two of the courses are introductory courses in political theory, very similar in content, and taught by the same instructor in parallel. Students in these courses are mainly 2nd year students, who take the course to complete a mandatory module in the major. The third course is a course in international law for senior undergraduate students, also in the major Governance, but not mandatory for the students. Classes very more or less homogenous in that they included none, a few, or several students from more than one study programme and several years of study (Table 4).
In all three courses, we introduced the assignment as a mandatory part of the course assessment in the middle of the course. The guideline size for the answer was 500-750 words. Students had seven to nine days to complete the assignment and submit it via the online learning platform of the university. Assignments were submitted anonymously (students signed their work with enrolment numbers, which is standard practice in these courses) and evaluated according to a common grading scheme, jointly developed by the authors. Thus, we kept the conditions similar across the three courses. One major difference was, however, that the assignments in the courses in political theory were graded (7.5% of the course grade), whereas in the course on international law, the assignment was evaluated as pass/fail. We introduced grading because it better fitted the course requirements in the political theory courses, and because we wanted to study whether grading influences the reflection. For this study, grades as such are not important, so we will not discuss grades and grade distributions here. Still, we can note that all of the students who submitted the reflective comment for a grade achieved a positive grade, and only one student in the pass/fail case failed at first attempt (the student was asked to revise and resubmit the assignment).

<table>
<thead>
<tr>
<th>Group characteristics</th>
<th>Political Theory 1</th>
<th>Political Theory 2</th>
<th>International Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of the group</td>
<td>15</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>Seniority</td>
<td>second and third year</td>
<td>Second</td>
<td>third and fourth</td>
</tr>
<tr>
<td>Homogeneity</td>
<td>low</td>
<td>High</td>
<td>medium</td>
</tr>
</tbody>
</table>

*Table 4. Overview of the courses*

2.5. Coding rules

Two research assistants pre-coded all submissions; then the authors double-checked and refined the results. We discussed problematic cases until reaching agreement on coding. We used the following definition of a “case”: a connection between two or more courses, including the current course, of one type (similarity, difference, development, challenge, application, or contextualisation) on one ground (topic, theory, author, or method). This definition excluded certain types of reflection from coding: connections between the current course and life
experiences of the student; reflections on the current course and learning within it; reflections on another course without direct connection to the current course; and reflections of a very general nature or vague statements. We subdivided complex reflections in cases: different types of connection with the same ground or different grounds with the same type of connection were coded as separate cases.

We relied on explicitness for coding the connections. Cases where the student implicitly made a connection between two courses, but did not explicitly present the connection, or where the formulation was vague, unspecific, were not coded. Typically, the student hinted at a connection between courses or claimed it existed, but failed to demonstrate it. In such cases, the connection was usually clear to the course instructor, but not other coders.²

In addition to connections, we have identified general conclusions on the exercise itself and its use and have coded them separately. We found these conclusions useful to see how students reacted to the exercise and how they contextualised the reflection for themselves.

3. Results

3.1. Number of connections

We coded 192 cases in the 54 submitted assignments. In addition, we coded 16 meta-conclusions. On average, students established 3.6 connections per assignment, with little variation across the three courses (see Figure 1). Thus, the fact that the assignment was not graded in the International law course did not have a substantial impact on the number of established connections.

² The following non-case illustrates the problem: “What I liked about the two dimensions of political theory and law is that my theoretical background is now challenged by actual cases and laws that apply to them. This is a very refreshing way to approach problems, instead of only looking at the different theories, which we normally often restrict ourselves to.”
Figure 1. Number of assignments with different numbers of connections, by course

Across all courses, about a fifth of students identified only 1 or 2 connections. It is possible that these students struggled with the assignment, or did not put enough effort into it. Some students, however, clearly decided to focus on one or two particular connections they had found. In other words, the number of connections does not necessarily reflect the effort invested in the reflection and the level of sophistication. For example, one student in the International Law course identified only two connections, but discussed these cases extensively. The following extract from the student’s response illustrates a well-developed connection (case coded as challenge):

Example 1: In a class on Conflict Resolution [...], we discussed the concepts of unconventional warfare and asymmetric conflicts in the aftermath of 9/11, both prevalent in the War on Terror. The Operation Enduring Freedom was the United States’ response to the terrorist attacks in 2001 and addressed at the al-Qaeda network and like-minded Islamist terrorist organizations. Even though I was very critical about this war and its effectiveness and effects in the Middle East, I never really doubted the legitimacy of the intervention as such. Being aware of the Security Council Resolution 1368, which recognized the right to self-defence in the particular case, I did not acknowledge the fact that customary international law and treaty law actually limit the scope of the right to self-defence to the attack of another state. While I would not claim that the War on Terror was less legitimate because of this fact knowing that the Security Council expressed its support for the military intervention, it alludes to the difficulties of responding to these new forms of threat.
The vast majority of students in all courses identified 3 to 4 connections in their assignments, followed by the number of students who identified 5-6 connections. Only 9 out of 54 students drew between 6 and 8 connections. The level of heterogeneity in courses (students from different years of study and a considerable proportion of exchange students) does not seem to influence the distribution of the number of established connections in an expected way. In fact, in Political Theory 2, which was the most homogenous group, half of all connections came from the assignments of only 29% of students. The figure is 39-40% for the other two courses.

Overall, these findings indicate that in general the students do not experience problems with finding connections between the courses, even though they received minimum of instructions and only in the form of the task description itself.

3.2. Distribution of connection types

Figure 2 presents the distribution of connection types we have identified. It appears that the most commonly established type of connection (a third of all cases) was development, and the second most commonly used type was contextualisation (17%). Similarity and difference – the most basic connections in our operationalisation – together made up one fourth of all connections.

![Figure 2. Distribution of connection types across the whole sample, N=192](image-url)
Results were very similar in the three courses, as shown in Figure 3. This finding supports the idea that without special training students are likely to identify some types of connections, such as development, more often than some other connections. Interestingly, this is the case for both comparatively more complex (application) and comparatively simple connections (difference).

**Figure 3.** Distribution of connection types by course

Yet, it is important to point out again that a ranking of connections is problematic: the logically simple connections of similarity, difference and development do not necessarily reflect a “lower quality” of reflection than more complex connections of challenge, application, and contextualisation. The example below (coded as *development*) illustrates this issue; in our opinion, the presented connection relies on a considerable intellectual effort invested by the student in thinking about how six different courses (plus the current international Law course) contributed to his/her understanding of international society:

*Example 2:* The law approach to international affairs thus extends my view on how the international society works, a topic that was addressed in various ways in my previous courses. One issue that was treated in all courses was the relation between individuals and bigger entities, such as societies, nations, states, or organizations. In the course “Introduction to Social and Political Sciences”, first insights were
given into social contract theory, collective action, and political agenda setting. The political approach to the relation between individuals and states, especially the justification for statehood, was deepened in the courses “Introduction to Political Philosophy” and “International Politics”, whereas the focus in the first of both lay on the relation between the individual and the state, and in the second course on the relation between states and other international actors, such as international organizations. In “Introduction to Economics” we saw international relations through the lens of economics, learning about theories on what role an individual, an enterprise, or a state takes in the international free market system. We furthermore discussed theories on how individuals make decisions and evaluated the concept of the homo economicus. [The student continues by connecting two more courses on the same issue].

3.3. Challenge and change in the students’ responses

Our assignment required students to identify an instance where the current course challenged their knowledge or belief, established in another course (Question 2). Not all students answered the second question of the assignment in the manner we expected. We have identified 42 instances where students either identified a challenge and/or a change of their opinion. Still, many students did describe a challenge, but its origin was not in building bridges between different courses, but in the current course or in their life experience in general. Based on our coding rules, we did not include such cases in the analysis. The high share of students who did not answer the second question by drawing a connection between two courses cannot be explained by the fact of grading of the assignment: many of these students were enrolled in Political Theory 1 or 2, where the assignment was graded. It is possible that the question was more challenging than we thought, but it is also imaginable that some students did not understand the second question or found a challenge originating in life experience more interesting or personally relevant.

Of the 42 identified cases, 18 cases described a challenge posed by the current course, without explaining how it has been resolved. In 24 cases, students explained how a connection between two courses led to a change of their understanding or belief. We found it important to identify the source of the change, and consequently coded change as a dummy variable (no change / change) in addition to connection types, so that change and any other category, including challenge, are not mutually exclusive.
Interestingly, some connections between courses were more likely to bring change. By definition, similarity and application do not invite the students to reflect upon problematic connections highlighting incoherence or conflict, and thus they did not lead to change. On the other hand, 28% of challenge cases and 22% of contextualisation cases led to change (Figure 4). For one, challenge is a type of connection, by which the student highlights problematic aspects of a topic, case, or theory. For example, in a course the student may realize that her previous or current understanding of an issue is limited, incomplete, incoherent or deficient in some other way. This situation can be resolved by finding a way to overcome the problem – that is, by a change, – for instance, by switching from the theoretical to the legal view on an issue, considered less complex or more objective. Likewise, contextualisation is reinterpretation of old material with knowledge gained in the current course. Such reappraisal can not only add a new perspective to the student’s understanding, but also lead to a change in knowledge or opinion: the student may realize, for instance, that an old theory is not obsolete, but useful when confronted with fruitful applications of this theory to contemporary cases. A similar, albeit somewhat simpler, logic applies to the cases where change is generated by difference and

**Figure 4.** Types of connection in relation to change, N
development.

A case from Political Theory 2 illustrates how students present a change of their original opinion. The student discusses how a challenge generated by new information leads him/her to a change of opinion:

Example 3: In addition to providing me with knowledge that I can interconnect to other courses, this course has also helped me to challenge my previous opinions I held to be true. For instance, previous economic courses [...] teach the widely accepted economic aim of profit maximization. In my previous opinion, favouring a minimal state precipitates most innovation and economic growth and, therefore, is in the interest of society. This theory can be also found in Nozick’s libertarian philosophy and in texts by Ray Kurzweil which we read for the course on life and technology. To me, it was justified when companies legally try to avoid taxes or when a society puts efficiency as its highest value. However, Rawls’ concept of justice as well as the ones of Pope Leo XIII and Pope Pius XI made me consider a more holistic economy. When taking Rawls’ concept of the original position into account, redistributive policies that benefit the least well-off are plausible. Moreover, the popes and Rawls also indirectly address the problem of negative externalities caused by the consumption of public goods, such as fish stocks. Therefore, the primary theory of profit maximization seems too short-term oriented to me and bears the potential of causing social unrest due to inequalities.

3.4. Students’ response to the assignment

In their responses to the assignment, some students commented on the assignment itself. In these comments, a handful of students expressed positive attitudes towards the assignment, and the opportunity of building bridges. These students found reflection to be a valuable tool to gain an overview of their academic development. Some students also reported that they found it easy to find connections between the different courses. Below is a typical positive response (from Political Theory 2), where the student comments on both of these aspects:

Example 4: These three courses only include a small fraction of connections which can be drawn from the discussed topics. I have specifically chosen courses out of three different modules because I found it interesting how many commonalities after all exist. I believe it is important to interconnect different topic areas also collectively, since it helps us to see things from a broader perspective and to critically ponder on what really matters.

Students in all three courses made similar positive comments. Still, these spontaneous comments (not invited by the assignment itself) are not numerous enough to see what
prompted them: for instance, was it the grading of the assignment, which induced these positive responses. Interestingly, however, only two students in one course (Political Theory 2) made negative comments about the assignment:

**Example 5:** However, I see a problem with this learning diary question as it imposes certain expectations on the answers. There seems to be a necessity to find the right link between different courses. Finding such links is not always possible or easy, especially if one has not taken many classes with similar topics, for example, if this course is taken as an elective.

**Example 6:** Finally, I would like to mention that I find it a bit critical to make the task to reflect on one’s individual learning process part of the graded examination of this course. Even though the question is focused on academic content, I believe the learning experience of each student to be very personal and thus not up to the lecturer’s assessment. Making the writing assessment obligatory, but pass-fail, would seem more suitable to me.

Even though these are individual cases, it is important to discuss them. It may be the case that more than these two students had a similar negative understanding of the assignment, but did not want to write about their critical concerns, as the assignment was graded. Our reading of these negative comments is that the students felt, on the one hand, at unease with the teacher’s expectations concerning the assignment and, on the other hand, did not feel comfortable sharing their personal reflection. As these negative comments were made only in one of the courses were the assignment was graded, it is likely that the grading either induced or exaggerated these uncertainties and feelings of vulnerability. In addition, some students also commented on the very same aspects after they had received their grade for the assignment. However, none of the negative - or positive - comments about this assignment appeared in the anonymous course evaluations (the response rate was 100%). These difficulties should be considered when designing reflective assignments (see discussion in section 4).

4. Discussion

The main conclusion from our explorative study is that it is possible, even with relatively limited instructions and time use of the instructor, to encourage students to successfully draw connections between different courses they take during their studies. Based on our results, we are confident that reflective writing exercises can support reflective transfer and
encourage students to reconsider and perceive their learning process as more coherent and better integrated. We cannot hope it to be the case of all students, but the analytical richness and multiplicity of the connections presented by our students demonstrates the potential of self-reliant student effort to bridge the fragmentation of the modularized study programmes, and enhance cumulative learning.

Concerning the design and future use of reflective exercises, we draw four main conclusions from our study. Firstly, as for the grading of the assignment, in our study grading did not have a substantial influence on the quantity or quality of the reflection. Possibly, the main benefits of reflection can be obtained without grading, thus significantly reducing the workload of the instructor. Our findings are, however, in contrast to Allan & Driscoll’s (2014: 48), who suggest that grading reflective exercises makes students take them more seriously. We therefore recommend to introduce reflective exercises as pass/fail assignments, and to consider grading them as an option if the initial response fails to meet the goals.

Secondly, and related to the first point, the use of reflective exercises has been connected with ethical hazard, as pointed out by Hickson (2011: 832). Reflection, especially since it is individual in nature, may expose students, “reveal their weaknesses in a way that [is] destructive, harmful and unprofessional” if used without sensitivity. As discussed in section 3.4., some students felt uneasy describing their personal learning despite the anonymity of the assignment. They considered the task more sensitive than we had expected. Such differences in perception may be partly explained by different preferred learning styles (Callahan 2000 cited in Allan & Driscoll 2014: 48), and enhanced by the use of particular vocabulary (“personal”, for example), so we can recommend careful framing and formulation of the task, evaluation, and discussion in class.

In addition, in case the assignment is graded, we agree with Allan & Driscoll (2014: 48) that instructors should talk “to students about why reflection is factored into the course grade and what benefits it has for them as learners”. For example, if the students are assured that there are no right or wrong answers in such assignments, and that the instructors do not expect them to make any specific connections, this may reduce the uneasiness.

Thirdly, the scope of our reflective assignment is limited, as it mainly asked students to make
connections between courses. To support the integration of knowledge, it would be beneficial to require students to reflect upon their current course as part of their overall study programme. That is, instead of asking students to build bridges between different courses, it may be desirable to ask them to construct threads throughout the different courses and put more emphasis on contextualizing learning within the thought-through and explicitly presented intellectual priorities of the student’s individual learning pathway.

Finally, the potential of untrained reflection via reflective exercises may be limited, especially when a thorough discussion of expectations and results lacks. Scaffolding reflection throughout the curriculum and not only introducing it in individual courses should bring better and more long-term results. If reflection was a reoccurring theme in each of the undergraduate courses or modules, students could become more accustomed to reflection, and, consequently, more confident and proficient in it. We can therefore recommend including short pass/fail reflective assignments requiring students to build bridges between courses in their study programme, based on an individually defined learning goal, in several courses each year. This setup would encourage students to think actively about possible connections between the courses and the use of knowledge across contexts throughout the course, instead of only when completing the assignment.

**Bibliography**


Boud, David, and Nancy Falchikov. 2006. “Aligning Assessment with Long-Term Learning”, *Assessment &
Evaluation in Higher Education, 31(4), 399-413.


McLeod, Gopi Anne, Jenniefer Barr, and Anthony Welch. 2015. “Best Practice for Teaching and Learning Strategies to Facilitate Student Reflection in Pre-Registration Health Professional Education: An Integrative Review”, Creative Education 6, 440-454.


