Teaching portfolio – Benjamín Ragnar Sveinbjörnsson
Application for the Teaching Academy of the public universities in Iceland

This teaching portfolio includes the following sections:

1) **Teaching biography:** In this first section, I describe briefly my teaching experience and include a list of the courses I have taught through the years along with the number of students I have supervised.
2) **Teaching principles:** In the second section of this portfolio, I describe the main teaching principles that I keep in mind when I am organizing my teaching. These relate to student's motivation, critical thinking, communication skills and the learning environment.
3) **Case studies:** In the third section of this portfolio, I discuss 4 case studies from my teaching experience, primarily from the University of Iceland. In each of the 4 cases I describe an observation I made related to my teaching or the classes I was involved with, how I responded, and the main results I observed. I also list the evidence that can be found in the appendix of this portfolio relating to these case studies.
4) **Future teaching development:** Herein I discuss a couple of ideas relating to my future teaching that I would like to work on in the near future.
5) **Conclusions:** Brief final words describing why I am interested in the teaching academy.
6) **Professional references**
7) **Reference list**
8) **Supplementary documents:**
    a. CV
    b. Summary of course and teacher grades from teaching evaluations at the University of Iceland as well as a sumary of student performances (pass rate and average grade) in the 2 main courses I have taught at the University of Iceland 2017-20.
    c. Open-ended questions from teaching evals – fall 2020 (for Organic Chemistry for med students and Organic Chemistry 1), with comments relating to the cases marked with stars (case 2 – green, case 3 – blue) (*in Icelandic*)
    d. Mid-term teaching evals from Organic Chemistry 1 in the fall of 2020, with comments relating to the cases marked with stars (case 2 – green, case 3 – blue) (*in Icelandic*)
    e. An example of a teaching evaluation from Pomona College for Organic Chemistry 1 – CHEM 110A, fall 2016. (*In English*).
    f. Project descriptions for the first and second iterations of this assignment (*in Icelandic*)
    g. Student responses to question 5 from fall of 2020 (*mix of English/ Icelandic*)
    h. Examples of combined answers (*mostly Icelandic*)
    i. *J. Chem. Ed.* article
    j. Example of a bilingual midterm exam from 2019
    k. Guidelines for writing up manuscripts for my research students
    l. Report template for lab class
    m. Three example syllabi: 1) Organic Chemistry for med students – 2020, 2) OChem lab 1 – 2020, 3) Organic Chemistry 1 – 2019. (*All in Icelandic*)

Teaching biography

My interest in teaching sparked when I started volunteering and working in summer camps and youth groups around the age of 15. There my work included teaching and entertaining the kids through various activities and talks and I so thoroughly enjoyed it that my career path started to become clearer. My chemistry teaching career started in the final year of undergrad when I, along with 2 of my classmates, started offering some tutoring sessions for first year students. During graduate school at Caltech (2009-14) I sought out opportunities to be a teaching assistant and enjoyed it immensely. After Caltech I did a "teaching postdoc" at Pomona College where I taught 2014-17 along with doing research there. At Pomona College they placed a lot of emphasis on high quality teaching, offering regular teaching related seminars, workshops and departmental activities which introduced me more to pedagogy. As an example, I was involved in a departmental project where we went over all of the chemistry classes to write down clear intended learning outcomes for them, both as potential guidelines for visiting faculty and to have a clearer view of the intended learning outcomes for the major as a whole.

In 2017 I joined the Faculty of Physical Sciences at the University of Iceland and have been teaching there ever since. I primarily teach Organic Chemistry for 1st year medical students and Organic Chemistry 1 which a variety of majors have to take. I have also supervised 5 undergraduate students in their BS thesis, 2 at Caltech and 3 in Iceland, 2 masters students and my first Ph.D. student is scheduled to defend his thesis later this year. Additionally, I have had several summer undergraduate research students at Caltech, Pomona and in Iceland. For a list of courses I have taught, please see my CV.

Since joining the faculty at the University of Iceland, I have finished 2 courses (15 ECTS) in the "Teaching Studies for Higher Education, Postgraduate Diploma" program and am hoping to finish the remaining 2 courses (15 ECTS) in the upcoming year. I really enjoy learning more about teaching theory, being involved in pedagogical conversations and putting the theories I learn into practice in the classroom. I am therefore excited about the possibility of joining the Teaching Academy in Iceland to further promote high quality teaching in higher education institutions of Iceland and find ways to engage fellow teachers in conversations about teaching practices.

Teaching principles

Education allows us to better understand the world around us in a variety of ways. In my opinion, it is an honor and a responsibility to be an educator and therefore I approach teaching with excitement, gratitude, and respect. Here below is the teaching philosophy with which I approach my classes.

Intrinsic Motivation

I believe that learning should be an enjoyable experience so I work hard to find things to spice up my lectures to motivate, stimulate, and challenge the students.[1,2] To this purpose, I use demonstrations whenever possible (e.g. Slinkys to demonstrate bond vibrations and exocharmic reactions[3]), draw connections to current pop culture (e.g. how crime shows use some of the analytical methods we discuss in class[4]) and occasionally write songs and/or parodies that summarize what we have been studying (e.g. *Can you see that aromat(ic compound)* that can be found on Youtube). I believe that understanding the demonstrations, the possibility of showing them to others, as well as understanding the science in pop culture is fun

and has the potential of being socially rewarding for the students. As such, I hope it increases their intrinsic motivation to study. I am also always enthusiastic about interacting with my students and use every opportunity to show them what fascinates me about the subject.

Seeing the textbook material in action can also be rewarding, both in lab classes and research settings. For my research students, I can discuss with them on a more personal level about what they find exciting about science and build on that. This can include the sheer thrill of discovery, working on a fun "research puzzle" or developing practical applications of our research that could improve our world in some way. I believe that intrinsic motivation is a crucial element in the learning and retention process for all of us and therefore I try to emphasize that aspect in my teaching.

Critical Thinking

While building on the internal motivation, I also aim to encourage students to ask questions. *I believe that this is important for the students to develop strong critical thinking skills and find various approaches to analyze the problems they encounter*. I especially enjoy getting the students to think about how we have come to discover what we know today. One way of doing this is using a Socratic questioning method,[5] asking them questions to guide them towards what conclusions we could draw from potential experimental results before we look at what the actual results were. That way we can get a dialogue started about what experiments we could do to test proposed mechanisms and relate their laboratory experience to significant discoveries where similar experiments were used.

In lab, I encourage the students to be mindful of the limitations of the experiments and accurately interpret the experimental data without over interpreting it. For those that get more involved in research later on, they are then hopefully in the habit of thinking about how to design informative experiments to test their hypothesis.

Developing the *intellectual curiosity* of asking *why* and *how things work* is an important aspect of becoming a lifelong learner of all things[6] so I strongly encourage that in my students. Even if we would omit the curiosity aspect, developing critical thinking skills is still important for us to engage with the world and find ways to evaluate the reliability of all the information we are bombarded with in today's world.

Clear Communication

Although gaining knowledge and understanding of the subjects we study is important, we maximize its usefulness by communicating our knowledge skillfully. *I believe communication is a skill we need to nurture and help develop in our students*. I have had the pleasure of being a TA in an oral presentation class for chemistry majors at Caltech, where we helped the students practice and develop their skills at communicating science, both to a lay audience and to an audience of their peers. At the moment I mainly teach foundational courses (for 1st and 2nd year students) but I would like to incorporate more presentations (powerpoint and/or poster) into advanced courses that I will hopefully teach more of in the future, where the students will not only receive feedback on the science but also on their presentation.

Lab reports are an excellent tool for students to develop their writing skills so when I grade those, I make an effort to give them specific and constructive feedback on things to consider when writing scientific papers. For my research students, I want to ensure that they

also get enough practice in communicating their science. Therefore, I have them write me regular updates on their progress and give them feedback on it. Once my group increases in size, I would also like to have them present regularly on their own research and/or on interesting topics from the literature to hone their presentation skills along with encouraging them to present at conferences.

The Learning Environment

In all aspects of education, *I believe that it is important to maintain a safe and supportive learning environment*. I believe the students are more successful in learning when they feel comfortable[7] and towards this goal, I try to be aware of my own body language as well as theirs (even including where I make eye contact[8]) and promote a relaxed atmosphere. I am upfront with the students about lessons I have learned through my own career, and, recognizing that we all make mistakes, I encourage them to view mistakes as learning opportunities. In order to encourage them to ask questions as they develop their critical thinking skills, I make sure to give positive and constructive feedback to any and all questions about the material.

In the laboratory, I emphasize developing safe laboratory practices and utilizing the lab experience as practical and active learning. Although it is difficult to measure the safety, and inclusiveness of a learning environment, I am thankful that my students have perceived me as being an approachable teacher who cares about them and given me feedback to that end in my teaching evaluations, both at the University of Iceland (UoI) and at Pomona College where I taught a more diverse group of students.

I do believe that it is also important for the students to learn through problem-solving and therefore I am working towards incorporating more opportunities for that into the classroom and recently had weekly Kahoot quizzes in class (both in person and Zoom classes). I have also regularly put questions on the board where the students then take some time to work through the problem on their own, then discuss their solution with a classmate before we go over the solution together. While these practice questions can be helpful, I also encourage my students to aim for a deep approach to learning, which will help them solve more types of problems, rather than only taking a surface approach.

Overview of cases

The following four cases provide a more detailed insight into specific examples of how I have put my teaching principles into practice in the classroom. The first case involves adding a new assignment with an easy grade as an extrinsic motivation, but the assignment itself was designed to increase the intrinsic motivation by letting the students see how useful their studies can be for their future. The second case involves another new assignment introduced during covid-19 to help students stay on track with their studies with a grade bump offered as motivation, but the assignment also forces the students ask questions and can hopefully help with developing critical thinking skills. The third case describes an inter-departmental curriculum challenge and my response to that which led to a paper in *J. Chem. Ed.*. It also describes efforts I made to provide a more supportive learning environment, including moving my office hours to a more neutral and accessible location. The last case describes how I have worked to improve clarity of communication despite textbooks and lectures being in different languages and certain [redacted]. Further planned work relating to clear communications is subsequently described in the future teaching development section.

Case 1 – Journal assignment (intrinsic and extrinsic motivation)

Observation: The organic chemistry classes that I teach include students from several majors that need to take the course as part of their major requirements. These majors include: medicine, pharmaceutical sciences, food sciences, biochemistry, molecular biology, and chemistry. Unfortunately, there are always some students that do not see the purpose in taking the class and as a consequence, feel frustrated about having to take it which can result in lack of motivation.

Response: In the fall of 2018, I incorporated a new assignment to my classes. The primary purpose of the assignment was two-fold: 1) to help the students discover for themselves that organic chemistry is interesting and relevant to their studies, and 2) to get them started reading journal articles.

The assignment was that the students had to find a journal article of interest to them, read through it and the first year I incorporated the assignment, they were supposed to write a 2-3 page summary of the article where they also addressed specific questions including how the article related to their subject, and what they found most interesting about it.

While preparing this assignment, I discussed the idea with a couple of coworkers, including the educational developer of the School of Health Sciences at the UoI, Ásta Bryndís Schram. She supported the idea of this project and directed my attention to the importance of not only giving the students guidelines for the project itself, but also providing guidelines about finding and reading journal articles in general. This suggestion was especially important since a significant portion of the students in my classes are in their first year and have therefore a limited experience in reading journal articles. After hearing this suggestion, I ended up dividing the guidelines for the project into 3 steps: 1) choosing an article, 2) reading the article, 3) writing the summary.

Given that the students were mostly in their first year, and that the purpose of the assignment was mostly motivational, I decided to give everyone full marks that turned the assignment in on time (10% of the final grade). As they had ample time to finish it, the only grade deduction that I incorporate was if they turned the project in late and to help them stay organized, I had a slightly earlier deadline for choosing the article to get them started on the project in a timely manner. Although I was aware that this assignment would lead to some grade inflation, I found it to be acceptable as the same standard to passing the course was maintained, i.e. the students had to pass the final exam (which had been 100% the first year I taught the course, but I reduced it down to 60% of the final grade using this assignment for 10% and the best 3 out of 4 mid-term quizzes for the remaining 30%. The number of midterm quizzes for the other course I taught was 3 and there the best 2 out of 3 quizzes counted for the 30%).

The first year I had this project, I found that a lot of students put a lot of work into the writing of the paper and some of them expressed that they found it quite time-consuming. I therefore decided to simplify the project by making them simply answer 6 questions relating to the article instead of writing it in an essay form. The questions they should answer are:

1) What was the goal of the research described in your article of choice?
2) What did you find most interesting about the article?
3) What were the main results of the research?
4) How does the article relate to organic chemistry?
5) What was your experience of this project?
6) How would you cite the article in a reference list?

Results: While it is difficult to know how much of an impact this assignment has on the students‘ future studies (especially regarding reading scientific articles), the reaction to this project has been overwhelmingly positive. The students appreciate the extrinsic motivation involved in the lenient grading which makes this essentially a “grade bump assignment”, but more importantly, they have also repeatedly expressed that they found the reading more interesting than they expected even though they also found the read challenging. Some of them also comment specifically on being surprised that they were able to understand or follow more of the chemistry in the paper than they expected and that it is cool to see how aspects of what we are studying are used or considered in actual research. These comments suggest that the project may also have a positive impact on their intrinsic motivation as they discover for themselves interesting aspects of the material and their improved understanding can boost their self-confidence and motivate them in their continued studies as they see its reward more clearly.

Picking the article tends to be one of the most challenging aspects for them, but I tell them that I can help them out with that and if they send me ideas of topics of interest, I send them a few articles that they can choose from. Overall, it is enjoyable to see how their perspective towards the class is positively affected by this project and I have been very happy with the student response to this assignment.

Evidence included in appendix:

- Project descriptions for the first and second iterations of this assignment (in Icelandic)
- Student responses to question 5 from 2020 (some in English, some in Icelandic)

Case 2 – Extra question assignment (Motivation and critical thinking)

Observation: With COVID-19, teaching was moved online for a significant part or even all of some classes. I used the opportunity to record and edit the lectures and also included weekly live Zoom lectures where I had Kahoot quizzes most weeks and some general class discussions. The Zoom lectures were also recorded and made available to the students.

Assignment-wise, the ones that counted towards the final grade were three exams over the semester, the journal assignment described in case 1, and a final exam. Additionally, the students were provided with non-mandatory suggested problems that were then covered in problem sessions. The students were strongly encouraged to tackle those problems and do it before looking at the solutions or watching the problem session videos.

However, in the online teaching environment, it became increasingly challenging for the students to stay motivated and disciplined in their studies throughout the semester. In the mid-term teaching evaluation, several students expressed interest in problem sets that would need to be handed in and some of them also expressed that they found it difficult to ask questions after watching pre-recorded lectures.

Response:

As the syllabus had already been published and the semester was half-way through, I did not feel like I could add a mandatory problem set for all of the students that would count towards the grade. However, I decided to try to find a combination solution to the problems and offered a new voluntary assignment with the reward that students who would be active in turning in the assignment could get a small grade bump at the end (about 2-3% increase to their final score).

Since we were covering about a chapter per week, the assignment was simply to submit 1-2 questions about the chapter material or if they had no questions, they could comment on aspects of the chapter that they found interesting. They were welcome to submit more questions as well and the assignment was open a week past our Zoom meeting about the chapter, so they could ask questions that came to mind afterwards as well. I would then respond to all of the questions that came, both personally to the students who asked them and I also combined the answers in a document and published on Canvas so that the whole class could benefit from the answers. The identity of the students who asked the questions was kept anonymous in those shared documents.

My thought-process for this assignment was to give the students an extra incentive to keep up with the work, help them practice their critical thinking skills through finding and asking questions about the material, and provide them with more formative assessment.

Results:

Unfortunately, only about 20-30% of the class took advantage of this assignment. I do not know the reason for why the remainder of the class did not participate in the assignment, but potential explanations could include: 1) the reward was too small, 2) they were too busy with other schoolwork or life in general, 3) they felt they were already so far behind that they could not catch up with the questions, 4) I did not advertise the assignment well enough (especially since it started mid-semester) or some of the students simply did not follow the class announcements too closely anymore.

However, those students that did participate did seem to benefit from the answers and most of them got a grade bump in the end. The average grade of participating students was 7.8 out of 10 before the grade bump, compared to 6.3 for the remainder of the students who never submitted any questions through this project.

It was also really fun to see some of the insightful questions that came and be able to dig a little deeper into the material in the answers. Once the students who had not taken advantage of this assignment started e-mailing me questions right before the final exam, it was also nice to be able to both show them how common some of the questions were, and have the answer ready and written down in advance. Although I know that some of the students looked at the combined answers documents, I do not have a sense of how many actually did that and suspect that there were not too many who did.

As we look towards teaching on-site again in the fall of 2021, I am seriously considering formalizing this project as part of the class grade from the start of semester. Many students can be shy about asking questions in class or e-mailing their teachers questions that they might have,[9] so this can hopefully break that question barrier, and seeing what questions are common can also help guide me in what aspects of the material we need to look closer into.

Evidence:

- Examples of combined answers (mostly in Icelandic)
- Midterm evaluations from the class in the fall of 2020, with comments that motivated the conception of this assignment highlighted in green (in Icelandic).
- Open ended questions from the teaching evaluations with comments regarding this assignment highlighted in green (in Icelandic).

Case 3 – First year students (Prerequisite research and the learning environment)

Observation: In 2017, the pharmaceutical science department requested that their students would be allowed to take the course „Organic Chemistry 1" in their first year, during the same semester that they would take the prerequisite course in general chemistry. Most of the chemistry faculty was against this but we did agree to test accommodating them with this.

In 2017, the students complained a lot about how fast the material was being covered. I was not teaching the course at that time but had just joined the faculty that year and was asked to offer four 2x40 minute extra lectures for the students. The majority of the chemistry faculty was opposed to keeping the 1st year students in this course again without them having taken the pre-requisites before. I was expected to take over the teaching of this course the following year and wanted therefore to be involved in the conversation about its future student group.

Response:

A committee was formed with representatives from both chemistry and pharmaceutical science to discuss the situation regarding the first year students. I was one of the chemistry representatives. We discussed the concerns and different perspectives and found that the pharmaceutical department was looking at emulating a Norwegian curriculum, but it turned out that it included less organic chemistry overall, with the 1st semester coverage being more superficial than what we have in Iceland. While we could offer a one-semester analogous coverage in the first year, the pharmaceutical department wanted their students to obtain a deeper knowledge and stay in the 2-semester organic chemistry sequence we have.

As I had taught General Chemistry 2 at Pomona College, I remembered that although there were certainly some topics that were beneficial for organic chemistry from a pre-requisite perspective, there was much less than I had thought while only teaching OChem. I had also spoken to the teacher who had taught the OChem 1 course in Iceland, the fall of 2017, about his experience in teaching the mixed audience. One thing that I found interesting from that conversation was that when one of the students was looking at the final exam, the teacher realized that he had thought the student was in their first year based on in-class interactions, but they were actually in their second year. I decided to look at the grade statistics from the fall of 2017 and provided the committee with those results. The preliminary results were as follows:

- Out of 67 students that were following the old curriculum or were in other majors (taking it in their 2nd year of studies), 73% passed and the average grade of the students that passed was 7.06 out of 10
- Out of 36 students following the new pharmacy curriculum, 61% passed and the average grade of the students that passed was 6.25 ouf of 10.

We ended up agreeing to continue the experiment of allowing the first year students to take the course alongside the prerequisite and the following fall of 2018, I took over the teaching of the course and have been teaching it with a mixed audience of 1st and 2nd year students since then. I remained curious to see how important the prerequisite seemed to truly be, which was part of the reason why I was open to giving the experiment a further shot, to see how the student performance continued to compare based on whether the students had finished the prerequisite course or not.

In an effort to provide a supportive learning environment, especially for the first year students, I made an effort to encourage the students regularly in class and convey to them that I had faith that all of them could succeed, both 1st and 2nd year students, although it required a

lot of work. I emphasized that all questions were welcome in class and reacted positively to all questions, also those that related to prerequisite material and found that it was not only 1st year students that had those types of questions. I strongly encouraged the students to contact me with any further questions either via e-mail or use the office hours offered. In 2019, I moved the office hours from my office to a more public area in the school (Háskólatorg) in an attempt to have them at a more neutral and "safe" location as well as lower the "energy barrier" of coming to me to ask questions (especially since my office is in a locked building which they would otherwise have to ring a doorbell to get into and sometimes wait a while for someone to open up for them). Along with that, they also had the option of requesting to meet with me outside of the "official" office hours and I accommodated those request whenever possible.

I kept track of the student performances on the midterm exams based on majors to see how well the students were doing and remained in touch with the head of the pharmaceutical science department to keep them up to date on how their students were doing, including in comparison to other students, and also shared other information with them such as comments from the teaching evaluations.

Results

In 2018, the students did not take much advantage of the office hours, neither 1st nor 2nd year students. In 2019, there was a group of 1st year students that was often studying in the area where I had moved my office hours to and since I was there, they often came over when they had questions. I was glad to see that the more neutral and accessible location seemed to increase the number of students who used the office hours. Some second year students also took advantage of these office hours, but not many.

The statistical analysis of the student performances was intriguing and showed that although the students who had finished the prerequisite did do better than those who were taking the prerequisite simultaneously, the difference was not statistically significant. There was even one midterm exam where the first year students outperformed the second year students. This led me to look closer at the literature where I found more examples of curricula at other higher educational institutions where students take organic chemistry in their first year.

I ended up writing the results of this statistical analysis in a manuscript which was published in the *Journal of Chemical Education* in early 2021.[10] In the manuscript I included a comparative discussion with other curricula organizations as it relates to the general chemistry/organic chemistry sequence order.[11–13] I also discussed the importance of being aware of potential prejudices that we might have towards certain groups of students or that might be among the student groups and the importance of addressing those prejudices so students do not have to have negative experiences in their studies related to those, neither from the teachers nor from fellow students.

There are still always a few students that comment on the difficulty of following the material and that I seem not to be aware of their lack of chemistry background for the course and that I seem to assume that they know more than they do. It remains a challenging balance to introduce the material in adequate detail for the students with little chemistry background without boring the second year students who have mastered the prerequisite material and do not need the revision. I am hoping that extra prerequisite-directed lecture videos in the future might benefit the first year students so that they can catch-up without everyone needing to revise the material to the same extent, but that would also allow those who want to revise some of it to do so.

Evidence:

- *J. Chem. Ed.* article
- Teaching evaluations with comments relating to this case in light blue (in Icelandic)

Case 4 – Language barriers (clear communication)

Observation: There are 2 observations here that I would like to share. 1) In Iceland, most of the textbooks used in chemistry are in English while the teaching is expected to be done in Icelandic. Some of the students learn better from reading the textbook and do not always remember the Icelandic translations from class. [redacted]

Response:

1) I encourage my students to discover how they learn best so that they can use those skills onward through life instead of depending on a teacher. Recognizing that that might mean that some of them primarily learn from the textbook, I try to make sure to have all exam questions in both Icelandic and English so that they do not have to get confused about a translation from class that they might not have heard or remember as well as the term used in the textbook.

[redacted]

Results

1) I do not ask my students which translation they use so I do not know how many use each translation. However, I got a verification that some students do indeed use the English translation as I forgot to update the English translation properly for one exam question. This resulted in different answers depending on which translation the students read. One of my Icelandic students who had been using the English version of the question pointed the difference in translations out to me after I had graded according to the Icelandic translation, leading to a regrading offered to all of the students. It was an interesting and humbling way to see that there were students using both translations.

[redacted]

Evidence:

- Example of an exam in both languages
- Guidelines for writing up manuscripts for my research students

Future teaching development

I believe that it is important to constantly work on improving ourselves, and that includes improving our teaching and our classes. I am therefore always on the lookout for things to update and try out in my classes. There are currently two aspects that I am mostly thinking about updating in my classes in the near future and they are described here below.

Chemistry laboratories and reports

One of the ongoing class development project I have been working on is the organic chemistry lab classes. I have updated the intended learning objectives and syllabus to make it clearer, added a report template with guidelines about each section (similar to what journals often offer) and this past year I also incorporated pre-lab videos, since the experiments often relate to material that has not yet been covered in lectures.

There are two major things that are next on the update list for the organic chemistry lab classes in the next few years:

1) Some of the experiments are too long (some running 6 hours instead of 3-4 as they should according to the timetable), and there is an over emphasis on certain lab techniques compared to how commonly people use them after their undergraduate studies. I am planning to revise and prioritize the intended learning outcomes in collaboration with my fellow organic chemistry faculty. Then we will work with 2 students that I am hiring this summer to help update the lab experiments to ensure that they can be finished in a timely manner, that they are engaging from a student perspective, and put more emphasis on teaching relevant lab techniques.
2) When I was finishing up my time at Pomona College, the chemistry department there started discussing taking a stepwise approach to teaching lab-report writing. This type and similar approaches have been described in the educational literature with good success, both in organic chemistry and related subjects.[14,15] This should lower the students' workload to some extent and should also allow for more effective feedback, since the teachers do not need to read a full report every single time.

I regularly discuss some of these ideas with the supervisory teacher for the general chemistry lab classes, so if these updates prove successful in the organic chemistry lab setting, it will provide more momentum to get a more focused conversation going within the whole chemistry department, about revising and updating some of our older lab experiments, at least where we see strategic opportunities to enhance the effectiveness of our teaching methods in lab.

Flipped classroom

For a while, I have wanted to try out a flipped classroom, but have been worried about the time it would take to make all of the video lectures and also about the students not watching them before class. Although COVID-19 brought various struggles, it provided the time and opportunity to record video lectures for the whole class, so those are now ready to be used and thus, one of the problems solved.

During the filming of an interview for a "flipped teaching symposium" within the School of Engineering and Natural Sciences (SENS) about lessons learned from teaching during Covid times, Edda Ruth Hlín Waage, the educational developer of SENS, who was interviewing me, shared with me that she has introduced short exams at the start of her classes that count towards the final grade. She has found that this helps enforce it that students come prepared to

class. This idea from Edda was really encouraging and I believe it will help solve the other major problem I had been worrying about.

I am hoping to test out a flipped classroom in one or both of my classes this fall and am now working on seeing how best to use the classtime in a fun and varied manner. I do have Kahoot quizzes ready, that I used in live video lectures during COVID-19, as well as various practice problems, but I want to continue to look for more ideas to use in the classes themselves for a flipped classroom.

Conclusion

As I hope is evident from this teaching portfolio, I am passionate about teaching and finding ways to enhance the learning experience for my students and approaches that help them gain mastery of the material. I enjoy participating in teaching related seminars and workshop and just discussing teaching-related ideas with my co-workers when the opportunities arises. It would therefore be an honor to join the teaching academy and participate in these conversations on a more national level, and promote these conversations further along with good teaching practices and teaching development.

Professional references

For professional references, please feel free to contact:

- Dr. Sigríður Jónsdóttir (sigga@hi.is, 525-4802), Research Scholar and chairman (stofustjóri) of the chemistry division at the Science Institute.
- Dr. Elín Soffía Ólafsdóttir (elinsol@hi.is, 525-5804), Dean of the Faculty of Pharmaceutical Sciences.

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