

# OPEN ASSESSMENT WHEN WORKING WITH SUSTAINABILITY EDUCATION

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*It is often assumed that the novelty of sustainability in a university course is all about content and pedagogy. It is thought that the selection of content and the pace and manner in which the material is covered are the important aspects of working with this complicated complex interdisciplinary field. In an effort to move beyond traditional readings as content and presentations as pedagogy we turned our attention to assessment. The first author wanted to develop methods that required students to analyse, describe and reflect on their own understandings, and the second author was eager to work with her own expertise and experience. In this short paper we focus on some issues raised by what we call ‘open assessment’ i.e. the assignment is such that the assessment needed is not known at the outset. After the introduction and a short discussion we focus on the “Five by Seven” assignment, that asked the students to choose material from a diverse set readings and then design and or develop one of several responses. It was at this point that the power of open assessment emerged. The student choices ranged from traditionally academic forms of assessment to deeply reflective methods such as poetry and personal reflections. It was these, especially the poetry, that called for a new view of assessment and learning between student and teacher and among students.*

## INTRODUCTION

*We thought we had some common ground, by lunch we’d all agree,  
And then go out and save the world from the deserts to the sea.  
“Sustainable solutions”, those wily words of great renown!  
Easy to say and go on your way, but we needed some signatures down.*

This paper has its origins in the following remark sent from the second author to the first:

You put an amazing amount of effort into analyzing my haiku poems, and I can’t tell you how much I appreciate that. It took me a long time to contemplate the greatest barriers to sustainability education, and infinitely longer to find the right words to use. For some reason, a haiku series seemed the most logical way to show my comprehension of the complexity, lack of knowledge, and ‘wicked’ tensions innate in a transition to sustainable practices. Poetry works well as a communication medium for me, and I sincerely appreciate that you didn’t take it at face value, but went hunting for meaning.

Creative pedagogies and assignments that ask students to use and think about their own interests and values, increase engagement and investment in the subject. This is a gap however in traditional pedagogies for higher education. Current forms of

assessment do not uncover what students actually want to say about sustainability, what they want to learn, or the impact of their learning. In an effort to meet this need, we as teachers and researchers must find ways for students to learn how to transform learning processes into their own cooperative practices in HE (Boud, 2000). The shift from traditional higher education pedagogies to a more student centered and self-reflective approach is prompted by the idea that "...the objective of education for sustainable development in HE [higher education] is not only to teach the subject content, but also to employ appropriate pedagogies and teaching practices that would best enhance student learning" (Mintz & Tali, 2016).

From early on SE classes at the University of Iceland have incorporated in the course design structured class sessions to allow for discussion on set readings and activities. With time we achieved both depth and differentiation in course material, particularly in the closing weeks. The courses are Pass-Fail and individual assignments are evaluated by instructors or peers, but are not graded. An approach allowing for student choice is based on ideas that

...transformational or critical learning requires the learner to reflect upon her learning not only by herself, but with others. The ability to become a critical learner...requires the capacity to be able to reflect on what is known, felt and acted upon (Brockbank & McGill, 2007).

As such, class time is used for discussion and cooperation, and methods of assessment focus on written or spoken feedback. The course plan provides students opportunities to read, understand and reflect on what has been learned, and identify processes of intellectual or personal change.

## SO WHAT COULD OPEN ASSESSMENT LOOK LIKE IN PRACTICE?

*What do you mean we share;  
the birds,  
the fish?  
No more! I am an island!  
I am isolated? I am alone?*

The Sustainability in Education (SE) specialisation offers three graduate level classes, the first of which is now compulsory for students in the International Studies in Education Program (ISEP). First there is a broad introduction to the recent history of SE, introducing students to the key concepts of the course, expected learning outcomes, and finding out what topics in SE most interested them. The next course focuses on learning at the individual level and third on learning at the organisational level. The ISEP has in general employed challenging strategies for teaching in higher education, which have resulted in a need for cooperative, student-centered, and reflective forms of assessment. What does this look like in practice?

There are three main kinds of student centered work used in SE classes: student-led discussions, student-selected topics, and developing student action competence through single or paired mini- or end-of-term assignments.

- *Student-Led Discussions/Activities.* In SE II, instructors have provided articles and each student selects a week and topic to make a presentation and lead a whole class in discussion of the same reading material. The second half of class has been reserved for a discussion or activity on additional class readings on the topic. Students can ask for time for an activity of their choice.
- *Student-Selected Days/Activities.* In SE I and III, several class sessions are left as unstructured student days. Students came up with SE topics of interest and are grouped together to make complimentary presentations. The last two classes of the semester in these courses are led by these student groups as they present their findings. A student remarked:

The most absorbing for me were assignments (where) students were left to their own devices, therefore they could develop them in their way...preparing the assignment(s) clarified a lot about the concept of “sustainability” to me.

One example of a *Student Led Day* was ‘Issues in Teaching Sustainability.’ Students prepared and presented in two groups, one on The Impact of Teaching Sustainability in Early Childhood Education, and another on Exemplary Sustainable Educational Settings. These presentations discussed concrete practices currently used to teach SE, and the activities and rationale being used to teach SE in early childhood education (ECE) settings in Iceland. Without direct student engagement and free reign, these are topics that would not have been introduced in class, but were of great interest to the participants. They also achieved a depth of learning not otherwise envisaged for the course. The discussion centered around student experiences learning about sustainability, from their own ECE, to higher education classes, to the two participants that taught in pre-schools. One of them said in an interview:

The experience that I have inspires me to pursue this study and learn more about early years sustainability education. My goal is to conduct a further research in this field and that I would be able to use this in order to contribute such information in the Early Childhood Education (ECE) level.

## FIVE BY SEVEN

*With the world's endless campaign about sustainability  
Curriculum integration of the concept is a possibility,  
From nurturing in the compulsory  
To complicated edification in the university.*

Five by Seven refers to a two-dimensional assignment in which students first choose what to read and then choose what to write. The product can be in a different style than the source (see Table 1 on next page).

**Table 1** Brief description of options in the Five by Seven assignment

	HBR, Collaboration, shared value					
	HBR, Sustainability a CFO can love					
	University policy document					
	Jnl. article on participatory virtues					
	Manuscript on conceptual change					
	Jnl. article on sustainability in HE					
	UNESCO <i>The treasure</i>					
To read	To write	narrative or informative	argument or persuasive	literary work such as a poem	reflective essay	personal expression journal

For students to develop action competence they need to strengthen their ability to work with texts and arguments in different ways. The course being discussed here focussed on organisational learning about sustainability and the seven articles on the vertical axis were selected with that in mind (see appendix). Students then chose two styles of writing from the horizontal axis.

1. Narrative: An article describing a problem with relevant background and circumstances.
2. Argument: Construct an essay that is likely to resonate with another party.
3. Literary work: Write a poem about the situation reflected in some of the writings.
4. Reflective writing: Write a short formal essay.
5. Personal expression: A journal entry or reflection.

One student who was usually a distance learner, but was on campus for a few months, used the Five by Seven exercise as an opportunity to write a personal journal reflecting on a range of sustainability issues not only in Iceland but also in the African country in which she was living at the time. The response from students was positive about the design of the assignment and the choice it gave students.

What I enjoyed most was...multiple options on how to interpret/express the concepts from two class articles. This assignment provided me with an outlet to channel class concepts through creative means, which I thoroughly enjoyed.

Four of the six students in the group chose to write poems, and it was at this point that the authors of this paper encountered a complication. The first author had designed the assignment and second had written a poem, a haiku. The poems were moving, personal, calculated, and thoughtful, and the poets were vulnerable. They deserved expert feedback for putting themselves on the line. Fortunately the first author had friends on both sides of the Atlantic who had the necessary expertise and within a few days they had given us feedback on the poems.

One of our colleague expressed doubts about offering an assignment to students which he was not confident of assessing himself. For us however, the point of a university course in a field of study such as sustainability is that students have the opportunity to go beyond current knowledge, practice and vision.

## DISCUSSION

*But how bad are things?  
Asbestos is horrible,  
Is agriculture?*

*You said and I said,  
He said, she said, we said, what?  
I'm really confused.*

*Is it possible  
To sit down and talk about  
The problems we face?*

Our view is that the 'open assessment' in this assignment raised important issues of learning and of sustainability, the latter being a 'real world' concept. In SE we feel that both teacher and student must be constantly challenged. If the assignment had been well within the comfort zone of both parties (a typical short essay) little would have been learnt. We conceived of 'open assessment' as a tool for meaningful learning. This is why having the range of assignments in the Five by Seven is important as it requires forms of assessment that vary with the choices students make. Learning takes place not only when the assignment is being carried out but also when it is assessed and discussed. The intentional incorporation of reflective learning contributed to focussed student investment and critical learning. Using and developing creative pedagogies and assignments created an immediate need for alternate forms of assessment that called for measures of learning and personal impact, while meeting the current needs of students.

Boud (2000) notes that sustainable assessment encompasses the abilities required to undertake activities that necessarily accompany learning throughout life in formal and informal settings. We agree and feel that current forms of assessment frequently do not uncover what students actually want to say about SE and what they learn. Nor does it elicit action competence. The current norm of summative vs. formative assessment is guided and bounded by the known rather than the unknown. Sustainability is all about the unknown. Specifically in the field of ESD/SE active, experiential, interdisciplinary, collaborative, and student-centered learning are all highly recommended (Cotton & Winter, 2010; Domask, 2007), as pedagogical approaches that have an authentic aspect which enable students to associate their learning with real-life issues (Mintz & Tali, 2016). Assessment must reflect this also.

## CONCLUSION

*He pointed out the plethora of journals we don't read.  
Saying nothing more, was out the door and back upon his spoke-ed steed.  
Chagrined we set our bags back down and resumed our talks anew.  
He'd hardly been ten minutes in our midst, but he sure told us what to do.*

Our conclusion is that assignments like the Five by Seven can lead to very high student engagement and investment in working towards an understanding of the

material. This kind of work requires careful preparation but can lead to unexpected versions of teaching and assessment and indeed a new product at the end of classes. One student has left us with a challenge:

My biggest takeaway was learning about different approaches to education, namely the “education through activism” concept. I wish I would have learned methods to teach adults about sustainability, which is such a politicized concept, carefully guarded by psychological defense mechanisms. I wanted to learn how to positively bypass people’s mental obstacles, their unwillingness, to listening about climate change and sustainability.

## REFERENCES

- Boud, D. (2000). Sustainable assessment: Rethinking assessment for the learning society. *Studies in Continuing Education*, 22(2), 151-167.  
<http://doi.org/10.1080/713695728>
- Brockbank, A., & McGill, I. (2007). *Facilitating reflective learning in higher education* (2nd ed.). Maidenhead: Studies in Higher Education.
- Domask, J. J. (2007). Achieving goals in higher education: An experiential approach to sustainability studies. *International Journal of Sustainability in Higher Education*, 8(1), 53-68. <http://doi.org/10.1108/14676370710717599>
- Frisk, E., & Larson, K. L. (2011). Educating for sustainability: Competencies & practices for transformative action. *Journal of Sustainability Education*, 2(March), 1-20. [http://www.jsedimensions.org/wordpress/content/educating-for-sustainability-competencies-practices-for-transformative-action\\_2011\\_03/](http://www.jsedimensions.org/wordpress/content/educating-for-sustainability-competencies-practices-for-transformative-action_2011_03/)
- Winter, J., & Cotton, D. (2012). Making the hidden curriculum visible: sustainability literacy in higher education. *Environmental Education Research*, 18(6), 783-796.  
<http://doi.org/10.1080/13504622.2012.670207>

## ATTACHMENT 1: EXCERPT FROM THE FIVE BY SEVEN ASSIGNMENT

### STEP 1

Here is a list of seven texts coming from very different directions but they have in common that they have something to do with learning in organisations and learning about sustainability. Identify the key issues in each article (about 100 words each).

1. Delors, J. (2013). *The treasure within: Learning to know, learning to do, learning to live together and learning to be*. What is the value of that treasure 15 years after its publication? *International Review of Education*, 59, 319–330.  
<http://doi.org/10.1007/s11159-013-9350-8>
2. Rusinko, C. A. (2010). Integrating sustainability in higher education: A generic matrix. *International Journal of Sustainability in Higher Education*, 11 (3), 250-259. <http://doi.org/10.1108/14676371011058541>
3. Macdonald, A. (2012). *Issues of conceptual change in working with sustainability*. Unpublished manuscript, University of Iceland.
4. Ferkany, M., & Whyte, K. P. (2011). The importance of participatory virtues in the future of environmental education. *Journal of Agricultural and Environmental Ethics*, 25, 419–434. <http://doi.org/10.1007/s10806-011-9312-8>
5. University of Iceland. *Sustainability and Environmental Policy*. Approved March 2012.
6. Kuehn, K. & McIntire, L. (2014). Sustainability a CFO can love. *Harvard Business Review*, April 2014, 66-74.
7. Nidimolu, R., Ellison, J., Whalen, J., & Billman, B (2014). The collaboration imperative. New partnership models can protect the environment and create value for everyone. *Harvard Business Review*, April 2014, 77-84.

### STEP 2:

Here below are five different ways [1] of reacting to, interpreting or reporting on the message in the texts. Choose **two** possibilities from A to E (see below), and prepare a response to the texts and issues which you identified in Step 1.

- A. **Personal expression** Write a journal entry (short reflection) about one or two articles, knowing it might be read but giving free vent to personal and emotional response.
- B. **Narrative (Informative story)** possibly like a *Grapevine* or *Iceland Review* article. Construct a chronological narrative describing the problem, with relevant background information and circumstances.
- C. **Argument (Persuasive)** Construct an argument that is likely to gain some measure of acceptance by another party.
- D. **Literary** Write a poem about the situations described in the articles.
- E. **Reflective essay** Write a short formal essay incorporating your summary from Step 2 in which you respond to a question or a thesis statement. Your response further develops ideas identified in your summary and reflects on the larger significance of some of the issues in the readings (about 1000-1200 words).

This exercise was adapted from William Coles, *The Plural I: The Teaching of Writing*.

## ATTACHMENT 2: POEMS PRODUCED DURING FIVE BY SEVEN ASSIGNMENT

### **Child and Sustainability**

Inside the child's mind if one can see  
A bunch of knowledge and serenity,  
Curiosity and pure heart that needs to be fill  
By the competent teacher who has the will.

Learning can be personal or influential,  
With the right lesson and delivery for sure it can be fruitful  
The question, what lesson to learn? might be ask,  
A lesson for a lifetime can be a complicated task.

With the world's endless campaign about sustainability  
Curriculum integration of the concept is a possibility,  
From nurturing in the compulsory  
To complicated edification in the university.

An empowered child will soar and come out,  
Packed with knowledge and virtue that is right,  
Bringing change and inspiring the world,  
As he influences his acts in the threshold.

*Maricris Castillo de Luna, 2015*

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### **I am an island**

I am an island,  
small island, isolated with borders.  
I am me, you are you, we do not touch.  
Stop telling me things, I am an island!  
Don't tell me we share;  
the air,  
the ocean.  
That, but no more, I am an island.  
What do you mean we share;  
the birds,  
the fish?  
No more! I am an island!  
I am isolated? I am alone?

*Ásgeir Rafnsson, 2015*



## **A Series of Haiku on Barriers to Sustainability**

Conservation. Green.  
Sustainability buzz,  
Peace. Hope. Love. Light. Save.

Tree Hugger, so weird.  
I don't want to live like you,  
That might be a cult.

Endless debating  
On fracking and construction.  
No compromise allowed.

Absolute change now!  
Systemic alteration  
Of our lifestyle choice

But how bad are things?  
Asbestos is horrible,  
Is agriculture?

You said and I said,  
He said, she said, we said, what?  
I'm really confused.

Is it possible  
To sit down and talk about  
The problems we face?

We'll need more food soon,  
But with less oil than we use  
To produce it now.

Is global warming  
Calving glaciers and making  
Sea levels rise up?

Stop that production!  
Cease your pollution and save  
What little we have!

Wait, that's a problem.  
I still need to be able  
To feed my family.

So, which bring safety,  
And which annihilation?  
I can't tell, can you?

*Sydney Ross Singer, 2015*

## Cowboy poetry

(For tone I recommend “The Devil Went Down to Georgia” by the Charlie Daniels Band. <https://www.youtube.com/watch?v=A7p817ErVsQ>)

Well it was cold and windy on that day. We were holed up in a meeting room,  
And the only thing darker than those storm clouds was our general feeling of doom.  
See, we’d all come down to make a deal to try to rectify our wrongs  
But there was no fun when the day was done. We were on a dilemma’s prongs.

We thought we had some common ground, by lunch we’d all agree,  
And then go out and save the world from the deserts to the sea.  
“Sustainable solutions”, those wily words of great renown!  
Easy to say and go on your way, but we needed some signatures down.

That’s when we heard a strange old sound, and not knowing what it bode,  
we turned to see a stranger come a-bicycling up the road.  
He stowed his pedal powered steed and strode up to the door,  
Then walked right in like an old friend, and with dignity took the floor.

“Now I heard you deliberating, wasting time and getting mad  
when you should have started with some self-assessment, and looked at what you had.  
You each have resources of your own for collaboration if you will.  
But you’ll have to trust each other with some commitments to fulfil.”

Then he took a whiteboard marker and started drawing up some lines  
Asking us about the good life and questioning common paradigms.  
“You see,” said he, “This will never work if you try to do things on your own.  
The problem is awful wicked, so the seeds of virtue must be sown.

“Those of you in education, teach the kids to collaborate.  
And the rest of you: don’t sit idly by. Today is not too late  
to learn to work together. First find a partner who shares your view.  
It’s easier to see you both agree when your needs are their needs too.

“These business folks are interested but they’re fearful to invest.  
They need proof of value return or their stakeholders will divest.  
They could learn a bit from judo, from momentum and power flow  
They’re just itchin’ for a bandwagon to jump on ‘n green their portfolio.

“Competitors can join up, though it might go against the grain.  
I don’t mean a monopoly, though it would be to mutual gain.  
You both use the same resources, you have common interests to protect.  
Why not compete on targets to meet and earn some self-respect?

“You’ve got to listen to each other. Find common ground and be versatile.  
Skills for inclusiveness and engagement will always be in style.  
And quit being territorial, protecting your projects from meddling minds.  
Shunning locals who dare to be vocal is both ignorant and unkind.”

“But how do we start?” we asked this sage. “When we hardly can agree  
on nomenclature, returning to nature, or the value of technology?”  
“Well I guess you got to ask for help. Good thing it’s standing ready by.  
There are matrices for everything you could ever hope to try.”

He pointed out the plethora of journals we don't read.  
Saying nothing more, was out the door and back upon his spoke-ed steed.  
Chagrined we set our bags back down and resumed our talks anew.  
He'd hardly been ten minutes in our midst, but he sure told us what to do.

*Jodie Birdman, 2015*