

# GREENT PILOT DELIVERY IN NORWAY – REPORT COMPILED BY THE GREENT PROJECT TEAM

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Created by JA Bulgaria in collaboration with JA Greece, JA Latvia, Ungt Entreprenørskap Sogn og Fjordane (Norway), and JA Romania

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## I. Teacher feedback after individual lessons delivery

A total of 11 lesson activity reports were submitted by teachers from Norway. The 9 different lessons piloted by Norwegian teachers are:

First Name	Last Name	City / town	Name of school	Name of the GREENT lesson you delivered
Geir Løkke	Tomassen	Naustdal	Eikefjord barne- og ungdomskule	5. Biodiversity and natural systems
Geir Løkke	Tomassen	Naustdal	Eikefjord barne- og ungdomskule	4. Natural cycles and flows – material and energy
Hans	Græsli	Sandane	Firda VGS	9. Pollution
Hans	Græsli	Sandane	Firda VGS	7. Climate change
Leiv Johnny	Endal	Nordfjordeid	Eid vgs	20. What is green entrepreneurship?
Leiv Johnny	Endal	Nordfjordeid	Eid vgs	19. What is entrepreneurship?
Leiv Johnny	Endal	Nordfjordeid	Eid vgs	12. History of sustainable development
Linda	Storøy	Førde	Halbrend	5. Biodiversity and natural systems
Linda	Storøy	Førde	Halbrend	3. System boundaries, social systems, ecosystems
Linda	Storøy	Førde	Halbrend	2. What is a system?
Linda	Storøy	Førde	Halbrend	2. What is a system?

The students to whom the lessons were delivered ranged from 8<sup>th</sup> to 12<sup>th</sup> graders. According to the information submitted in the forms, a total of 277 students participated in the lessons. The actual number of unique students may be lower because teachers who piloted more than one lesson may have piloted it to the same group of students. The teachers who delivered the lessons are teachers in Science, Food and Health, Mathematics, Entrepreneurship, History, Geography, Outdoor Life, Social Studies, and Physical Education.

All teachers used 1 school hour to deliver the respective lesson. All of them did the introductory and theory sections of the lessons, then focused a lot on the practical activities, complemented by case studies (6 cases) and entrepreneur profiles (4 cases). Sometimes teachers skipped the reflection part in the end (4 cases) which may signal that the time had not been enough for them.

Confirming that, in 7 of the lesson surveys teachers report that the time was not enough for them and they had to skip some parts and even in 2 of the cases the teacher gave feedback that the time was completely inadequate. Interestingly, one and the same teacher who delivered the same lesson to a different classes of students said that in the first instance she managed to do all core sections and time was enough, while in the second instance the time was completely inadequate for her.

The overall assessment presented in Chart 1 below reveals the high appreciation that Norwegian teachers give especially to the case studies and entrepreneur profiles in the GREENT lessons. The score of 3.63 on the question related to assessing the level of difficulty of the content for students means that the Norwegian teachers view the content as slightly more difficult that is comfortable for their students.

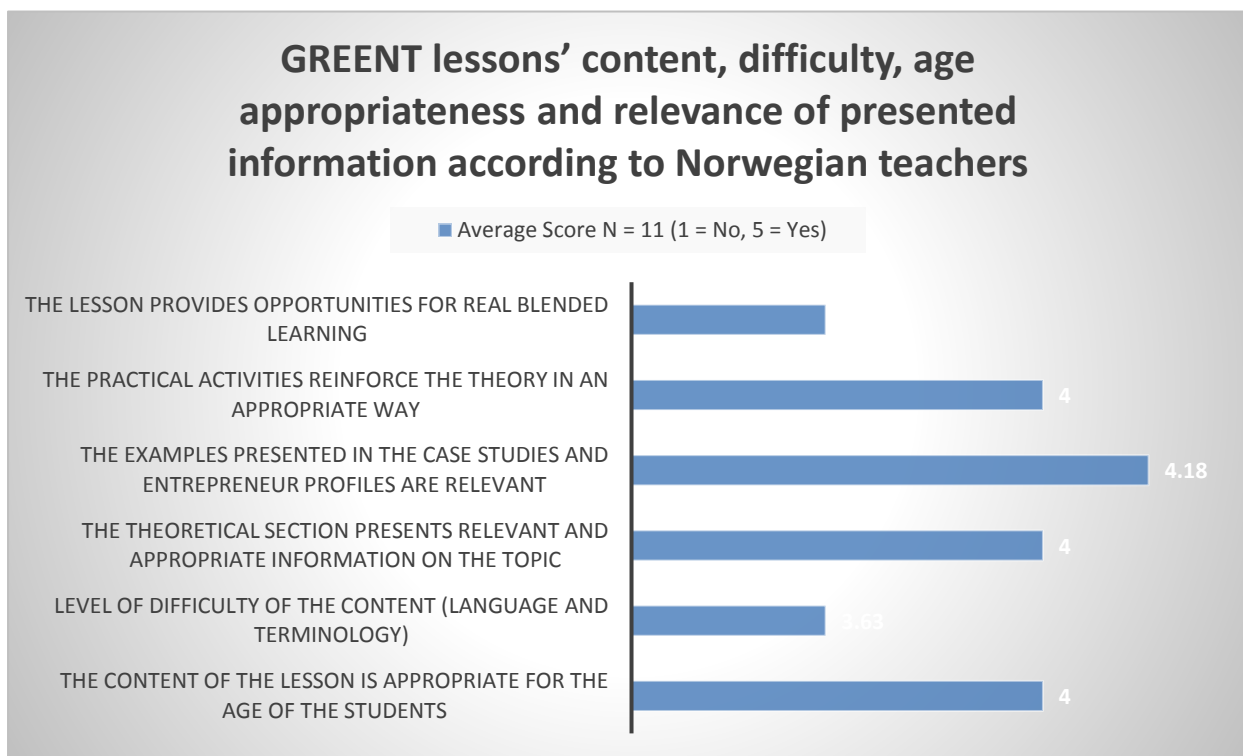


Chart 1. Assessment of Norwegian teachers related to GREENT lessons' content, difficulty, age appropriateness and relevance of presented information.

None of the teachers in Norway experienced difficulties with the fact that the online videos in the lessons are in English. In several cases, however, the teachers assessed that their students experienced difficulties with the English videos. One teacher reported that younger students (8<sup>th</sup>-graders) still lack a deeper knowledge of English in order to be able to get a full understanding of the lessons. The pre- and post-test was too difficult for these students and took a lot of time to complete.

An important aspect of the GREENT lessons is their influence on fostering and/or changing students' attitudes. The teachers in Norway were requested to give their assessment of whether the lessons they piloted have an impact on students' creativity, environmental responsibility and willingness to generate their own sustainable business idea. The scores are presented in Chart 2 below:

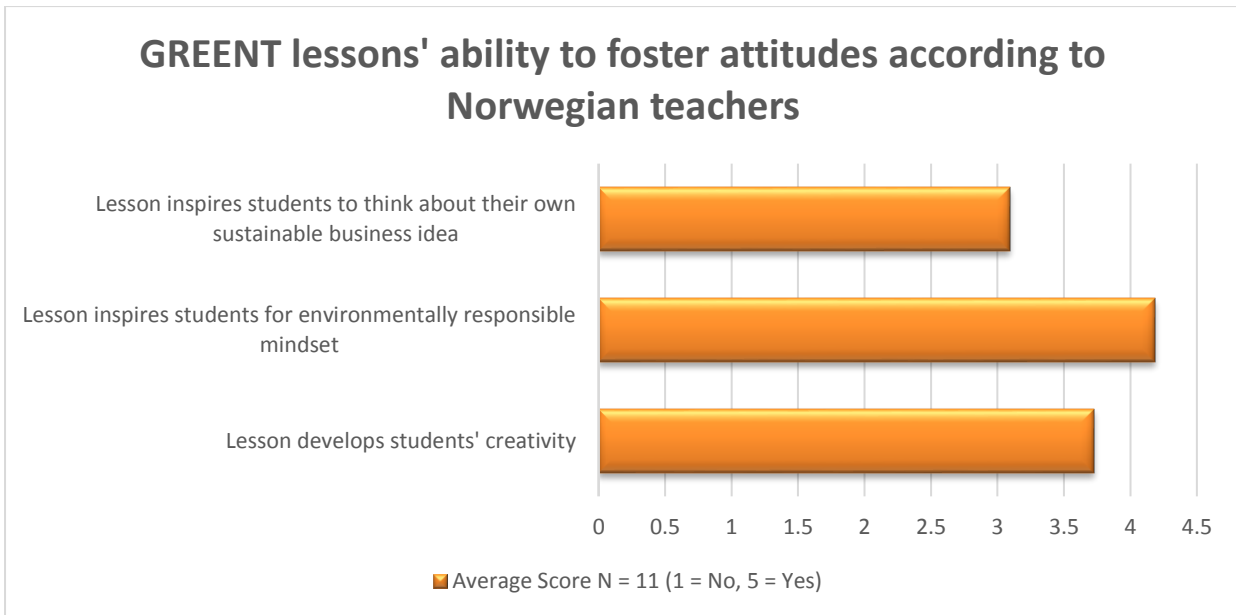


Chart 2. Assessment of Norwegian teachers related to GREENT lessons' ability to foster attitudes and creativity.

In terms of skills that piloting teachers thought were mostly developed by the GREENT lessons piloted in Norway, the leading ones are critical thinking, environmentally responsible mindset and reflection and self-assessment. Data is summarized in Chart 3 below:

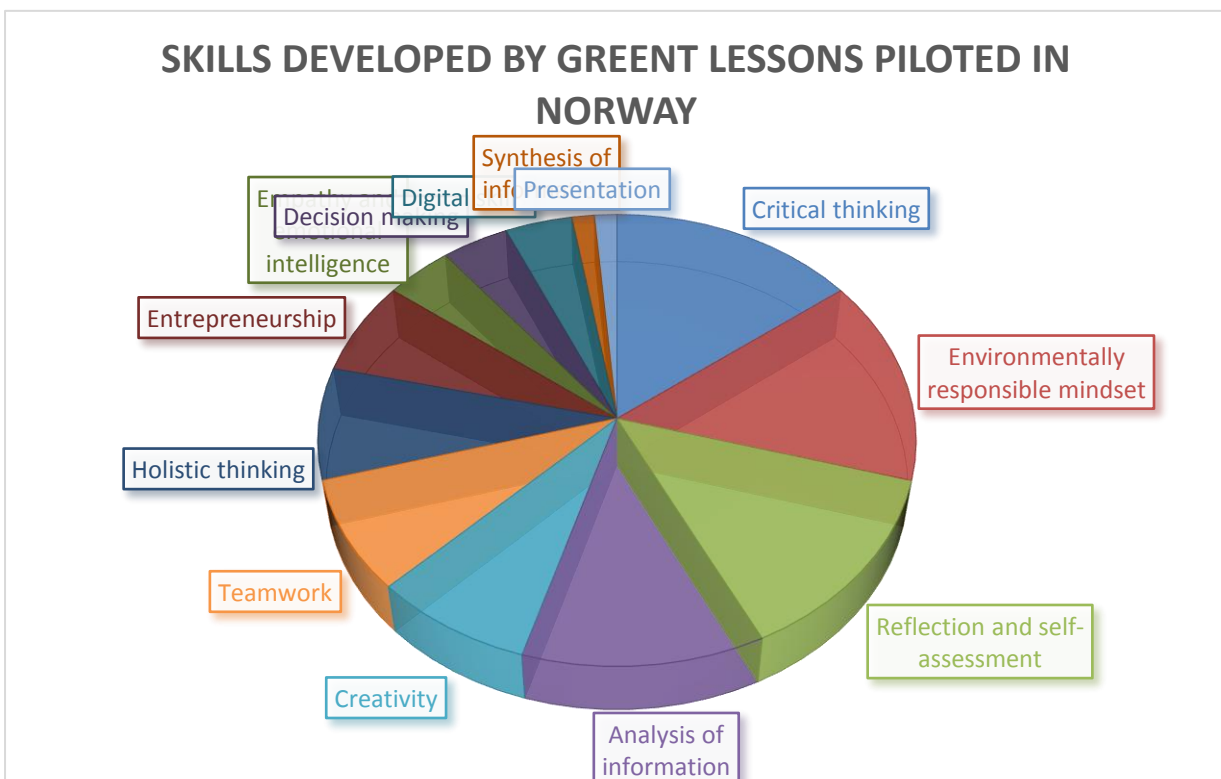


Chart 3. Skills developed by GREENT lessons piloted in Norway, according to piloting teachers.

The Norwegian teachers who piloted the content saw a number of cross-curricular links of the respective piloted lesson with the subjects from the compulsory curriculum that they teach – Social studies and religion, Science, Geography, Climate and environment.

An important overall recommendation was to consider shortening the teachers' manual because there are too many choices and text which might confuse teachers even if they want to get engaged in green entrepreneurship teaching. The organizers of the content should pick the best of it and cut the rest.



## II. Teacher feedback and recommendations on individual lessons

### 2. What is a system?

- Switching between activities in the lesson takes time, so it is not possible to do all lesson parts in 45 minutes.
- Game 1 worked much better than Game 2.

### 3. System boundaries, social systems, ecosystems

- The students asked good questions and came up with good answers when they discussed the characteristics of a green businesses.
- The time was not adequate to go through the practical activities, thus the lesson became quite theoretical.

#### 4. Natural cycles and flows – material and energy

- The carbon cycle song was fun. Nice way to "practice" or repeat fundamental ecology.
- A recommendation to support students with weaker English language skills is to use subtitled videos and translated diagrams.

#### 5. Biodiversity and natural systems

- If the teachers is supposed to do everything in the lesson, he/she would need much more time.
- At the same time, it is good that the teacher has a lot of options/ideas to choose from.
- There was still an issue with time and not all presentations with solutions of the bee problem could be heard during the allocated time for the lesson.

#### 7. Climate change

- The "Climate change 9 diamond Activity" went very well – the students got really engaged in solving the task.
- The theory was too much for the end of the semester because they students had a hard time keeping their concentration.
- It might be a good idea to make some tasks for the students in the "Intro" and the "Theory", so that they could investigate the facts and figures and use them in a more active way, so that this part becomes more engaging for them.

#### 9. Pollution

- The video "Man" was good to start a discussion. It was also fun to use SimCity in the practical part. The short group task in the theory section was also a good way to engage the students.
- The main issue is the shortage of time to make room for the good and interesting discussions. For instance after playing the SimCity game teachers need time to talk about it with the students, otherwise it will end up as a fun activity, but the students won't be able to see the links between pollution in real life and the game.
- A recommendation is to expand the theory a little bit because it seems too short right now.

#### 12. History of sustainable development

- This lesson needs at least 2 school hours in order to be delivered.

### **III. Overall teacher self-assessment after delivery of all planned lessons**

Apart from the feedback and recommendations teachers gave after piloting each lesson, they were asked to fill in a short self-assessment survey designed to gauge their perception regarding possible improvements in the level of their teaching skills and knowledge as a result of participating in the pilot. A total of 2 teachers from Norway filled in the survey although more teachers participated in the pilot. Since this is a very small sample to be able to make conclusions and comparisons, thus no visual graphics are presented here

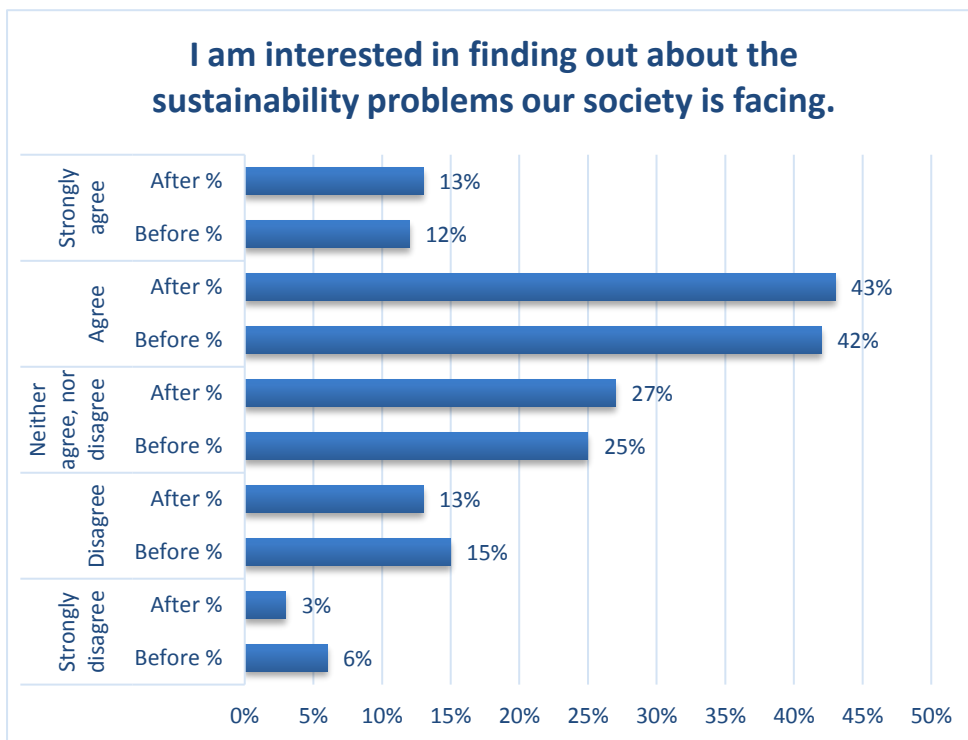
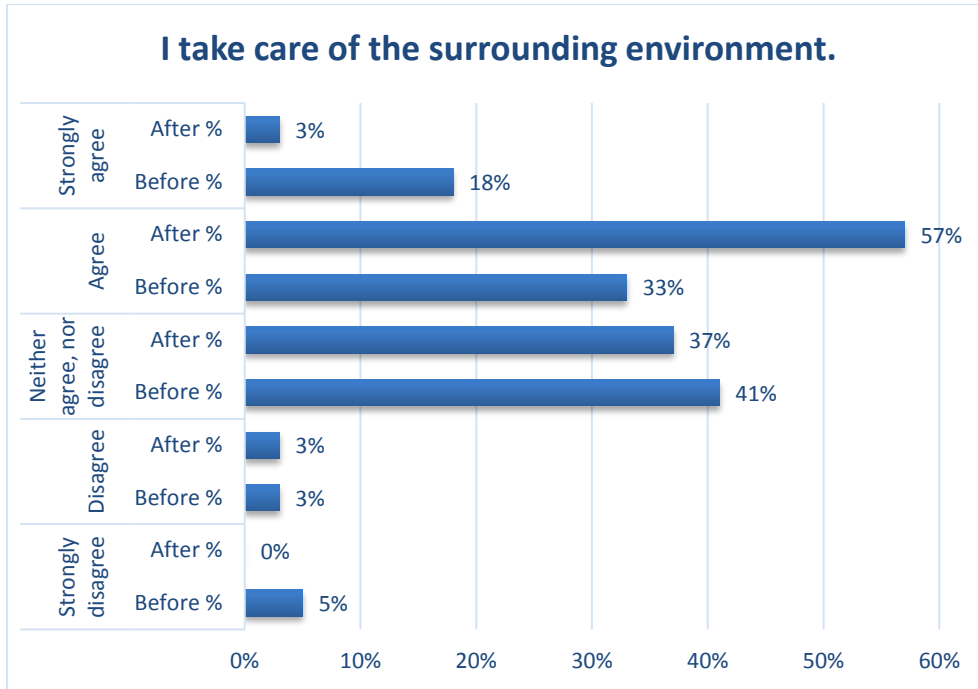
According to one of the piloting Norwegian teachers, the GREENT content represents a good database where they could find some good stuff to choose from when they will be teaching related topics. At the same time, the content needs to be more adapted to the national curriculum so that teachers could use the whole course. The timeframes for the lessons need to be more realistic.

#### IV. Student pre- and post-test results

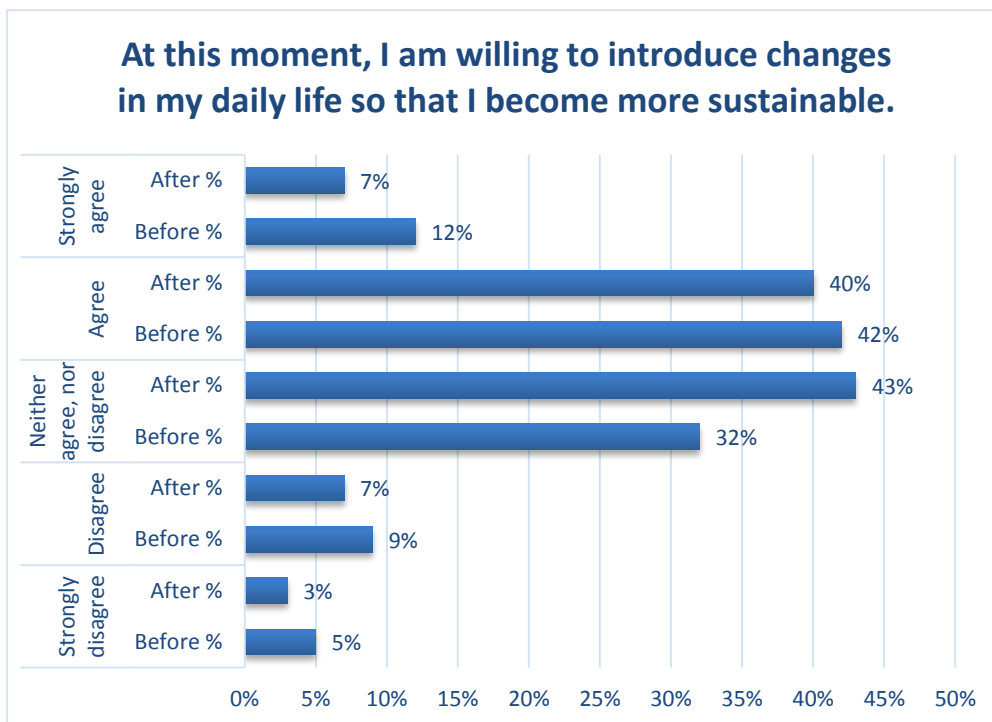
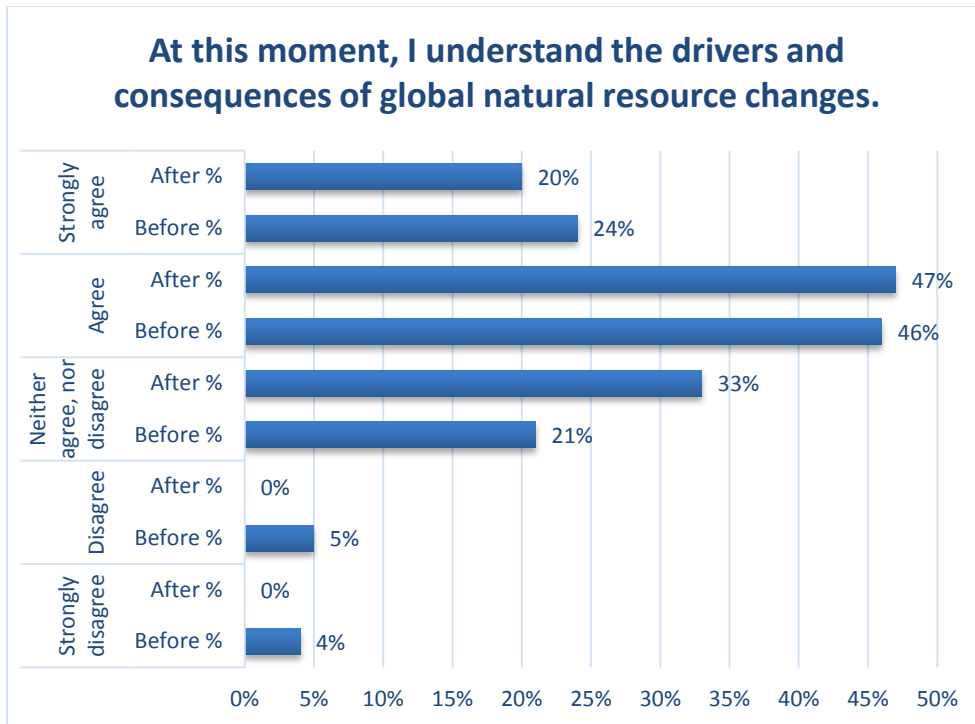
In order to gather information on the improvement of students' knowledge and perceptions, we designed a test with 10 closed- and open-ended questions which teachers were asked to distribute to students before and after the piloted lessons. The results should not be treated as too reliable, as some students who took the test were exposed to only 1 pilot lesson while other were exposed to 3 and more, thus the level would undoubtedly vary because the test questions cover aspects from several of the GREENT lessons. Also, mainly due to the fact that the piloting was done at the end of the school year, many students did not fill in the post-test (and filled in only the pre-test) which does not allow us to compare like for like. However, we believe it is useful to present the results as a vantage point.

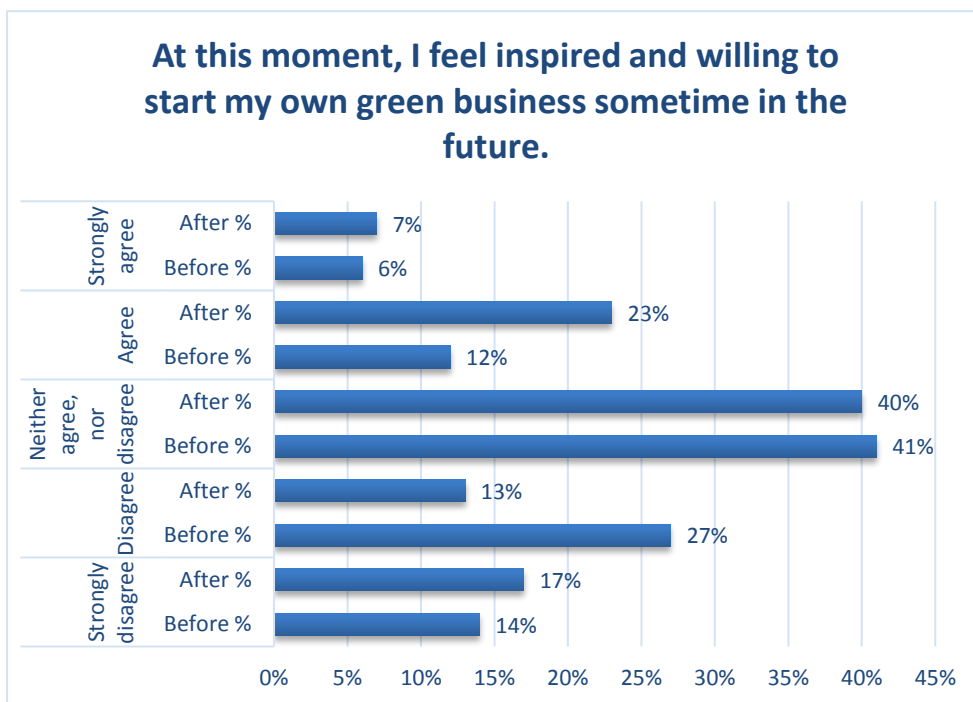
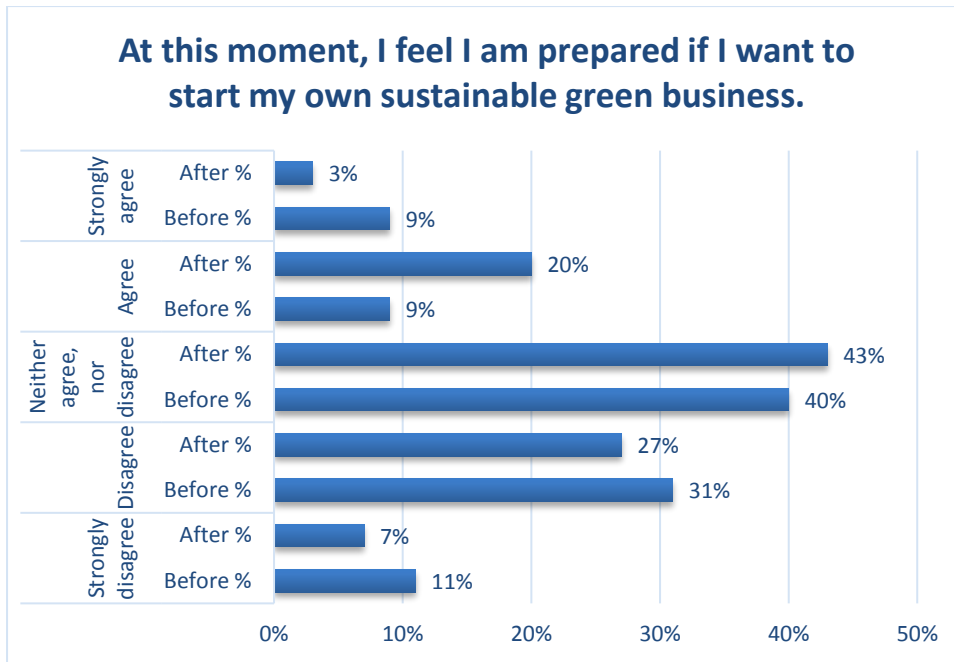
In Norway, a total of 100 students completed the pre-test and 30 completed the post-test.



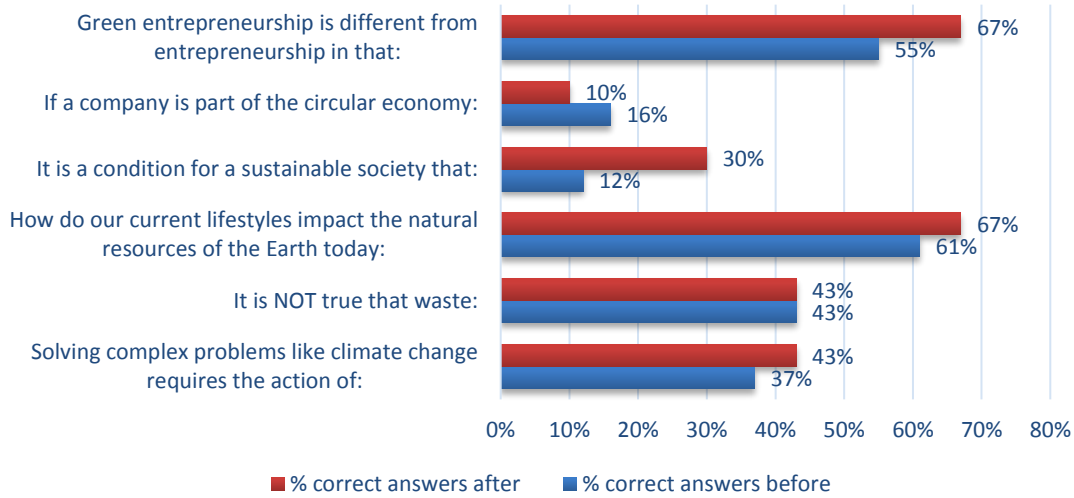








## Correct answers on knowledge questions Norway



## Students' perception of the value of GREENT Norway

