

C2C in education: What is learned in the cradle is carried

ABSTRACT

As sustainability rapidly becomes a key priority for businesses and institutions worldwide, so does the need for job candidates with a strong knowledge of sustainability and responsible innovation. Inspiring a next generation of innovators and thought leaders, Venlo and C2C ExpoLAB works with forward-thinking schools, colleges and universities to integrate the principles of 'systems thinking' and Cradle to Cradle into their management programs and curricula.

World's first Cradle to Cradle Master's program was initiated by the municipality of Venlo and C2C ExpoLAB in the academic year 2010-2011, in order to integrate the principles of Cradle to Cradle into university curricula. This case study is about how the Master's program is translated into the continuous learning line in the region of Venlo.

THE NECESSITY

There are many interesting job vacancies in Venlo, related to Agro & Food, logistics and manufacturing. Beside, more and more companies produce or markets Cradle to Cradle certified products. In the province of Limburg, approximately 100 C2C certified products are produced or marketed. So, there is a need for employees who can work from the Cradle to Cradle paradigm.

However, the demand does not match the supply. There is a clear need for high educated people. For Venlo it is important to connect these high educated people to the region. Beside, it will boost innovation in businesses when the average knowledge level on Cradle to Cradle and Circular Economy is increased in the (working) population.

EMBEDMENT

The embedment of Cradle to Cradle in education in Venlo is twofold. On the one hand, the municipality has taken a leading role in anchoring the principles of Cradle to Cradle in local education from primary school till bachelor degree.

Beside, where Venlo is not a university city, cooperation is sought with renowned universities in the Netherlands to start with a Master's program. The ultimate aim is the translation of the Master's program into the local educational institutes.

WORLD'S FIRST CRADLE TO CRADLE MASTER'S PROGRAM

One of the strategic goals of the municipality of Venlo is to attract more high educated people to the region. The objective for a masters program is to encourage highly educated individuals to see the added value of a Cradle to Cradle approach, and understand how it can be applied.



During their master's, students learn about Venlo's ambitions and projects, and also are connected to a project or company for an assignment or internship. In addition to an in-depth theoretical curriculum, partnerships have been established with a large number of businesses in the Venlo region, enabling students to put their knowledge into practice. Sponsored by the municipality of Venlo and C2C ExpoLAB for 5-years, this initiative provides a valuable opportunity to further encourage innovation in the region, and secure top talent in the field of Cradle to Cradle and sustainable innovation.

Since 2010 Prof. Dr. Michael Braungart is the holder of the academic chair Cradle to Cradle at the University of Twente in Industrial Design Engineering (IDE), with the first worldwide master specialization on Cradle to Cradle. It is a combined initiative of EPEA/Braungart consultancy, the University of Twente and endowed by the city of Venlo through the C2C ExpoLAB.

In the Cradle to Cradle master track of IDE of the University of Twente, students learn to expand their interests and responsibility beyond just aesthetics. The questions are:

- What is the role of the design professional?
- What are the responsibilities of that role?

Designing is often recognized as an artefact business, but in effect it is a consequence business. Ninety percent of a product's consequence is determined in the first 10 percent of the design process (Source: course manual).

DESIGN IS THE FIRST SIGNAL OF HUMAN INTENTION!

In the Cradle to Cradle master track students study how they can and need to put more quality criteria in the design at the beginning of the process and understand the link between total quality and total beauty. Overall with the Cradle to Cradle concept there is an opportunity for designers to become pivotal players in the industrial transformation, adding strategic value, through a comprehensive strategy around biological and technical nutrient flows (Scheelhaase, Braungart - course manual).

The program consists of lectures and assignments. Every year, the assignment is linked to a project or company that is inspired by Cradle to Cradle in Venlo. For example, students designed the Floriade2012 award (an horticultural exhibition in The Netherlands, carried out every 10 years), a giveaway (promotion material) for Venlo or a storyteller element that translated the C2C-elements of the new City Hall Venlo.

C2C Design Paradigm 1 content:

Lecture 1:

- C2C Introduction – Why we need C2C?
- Ambitions of Venlo and the role of C2C ExpoLAB

Lecture 2:

- Cradle to Cradle introduction – interactive lecture

Lecture 3:

- Designing with Cradle to Cradle, Practical experience
- Cradle to Cradle Design Protocol

Lecture 4:

- Eco-Efficiency vs Eco-Effectiveness
- Cradle to Cradle Assessment Methodology and certification

Lecture 5:

- Cradle to Cradle – the Biosphere day – understanding the whole cycle
- Nutrient flow management, current praxis and C2C prospective

Lecture 6:

- Cradle to Cradle Product Certification in praxis
- Certified products

Lecture 7:

- How Cradle to Cradle adds value to products
- Q&A – Discussion with Michael Braungart.

(University of Twente - Program C2C Design Paradigm)





VENLO C2C EDUCATION GROUP

In addition to the Master's program at the University of Twente, a C2C education group is founded in Venlo with local educational institutes to implement Cradle to Cradle into curricula. Already several projects have been initiated with educational organizations in the Venlo region. These vary from lectures and workshops to make students aware of the principles of Cradle to Cradle, and teach them how to put these principles into practice. Some of the results are:

- Around 150 students and teachers have attended C2C inspiration sessions, workshops and presentations, being challenged to see and innovate through the vision of Cradle to Cradle themselves;
- School management and staff attended tailored trainings and master classes, helping them to integrate Cradle to Cradle into programmes and curricula;
- Cradle to Cradle as part of internships and assignments;
- Initiated by CITAVERDE College, a Cradle to Cradle inspired Pavilion 'C2C Base Camp' was part of Floriade2012. Around 2 million visitors that were at the international exhibition were inspired by the Cradle to Cradle principles;
- A Cradle to Cradle inspired primary school will be built in 2015.

In February 2011, a representative of every educational institute participated in a 4-day Cradle to Cradle training. The training gave not only inspiration and a good mindset, but gave also a boost on the implementation of the Cradle to Cradle in education. Together with school management and staff of all educational institutes the following ambitions were determined:

1. Cooperation with C2C Leaders: Cradle to Cradle as a link between (potential) employers and prospective employees
2. C2C in the curriculum: so that pupils and students know and understand the principles of C2C and, where possible, are able to apply the principles
3. C2C in the organization: applying Cradle to Cradle principles in the learning and working environment of the educational institutions. Educational buildings form a source of inspiration and a learning tool for young people and teachers.

EXAMPLE: C2C BASE CAMP

One of the pavilions at the Floriade 2012 fair was a C2C Base Camp. At the C2C Base Camp, children, together with their parents and supervisors, were given the opportunity to build huts using materials inspired by Cradle to Cradle.

With the C2C Base Camp - a subsection of the Floriade event - awareness is created for the C2C principles among junior visitors.

To accomplish this, a closely cooperation between CITAVERDE college, other institutions in the local educational sector, local government, entrepreneurs and C2C ExpoLAB was set up.

Students between 15-18 years old were engaged to explain the principles of Cradle to Cradle to the youngest children, aged 5-12, in their own way. This proved to be successful and gave a very positive dynamic to the exercises for the youngest participants.

The children built the huts with materials from the technological and biological cycle using typical household tools, motivating at the same time the continuation of the activities at home with their families. In the process of building the huts, the children were considered as the designers and the parents the supporters.

THE RESULTS

Until today, developments are taken place in education. So far, the following results are achieved:

- Students have been able to follow the Cradle to Cradle Master Track since 2010. By doing so, more students are aware of the benefits of C2C and have the knowledge to apply the principles into practice;
- Students and teachers have attended inspiration sessions, workshops and presentations, being challenged to see and innovate through the vision of Cradle to Cradle themselves;
- Students, governance and local business are connected by Cradle to Cradle related internships and assignments;
- Due to one of these internships, the Dutch company Van Houtum located in the Venlo region, was able to optimize their products' packaging in line with Cradle to Cradle principles;
- Assignments are translated into practice, such as the Floriade2012 Award among others;
- Companies and local governments are inspired by lectures, internships and educational projects. This has resulted in new innovations within their businesses;
- School management and staff attended tailored trainings and master classes, helping them to integrate Cradle to Cradle into programmes and curricula;
- A primary school set the goal to build a newly Cradle to Cradle inspired building as shining example and learning tool for students, teachers and residents;
- A local education institute has built a pavilion at Floriade2012, called C2C Base Camp. This has resulted in awareness within the local education, teachers, students and 2 million visitors of the Floriade2012;
- Local educational institutes have embraced Cradle to Cradle within their lectures and internships;
- Cradle to Cradle has been embedded in both organizational (directors) and performing (teachers) level.



LESSONS LEARNED

The experience gained in the application of C2C in education has also yielded lessons learned. These can be summarized in to following aspects:

- Embedment is crucial at both levels bottom-up and top-down. Not only the school management and staff should embrace the principles of Cradle to Cradle, but also teachers and other employees needs to have a clear view of the added value of C2C;
- Cradle to Cradle is not a stand-alone program and should be part of an existing program. Suitable programs to combine with C2C are: Finance, Marketing, Industrial design, Building industry and others;
- Cradle to Cradle curricula should match the demand from businesses. Without a proper alignment this would be less effective.

Please visit the C2C-Centre website for more experiences and knowledge,
www.c2c-centre.com