
IK BEN STER(K). Empowering young adults through a peer-to-peer talent development platform.

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Abstract

The goal of the project was to introduce FabLab and its open source technologies to the underprivileged young adults of a disadvantaged neighbourhood of Rotterdam in an attempt to stimulate them to learn how to empower themselves by making and sharing. The success of the workshop inspired the design of a peer-to-peer workshop platform combining social media, FabLabs, and ubiquitous technologies. The platform was tested in its elements, where students considered problematic became active co-creators in the workshops while collaboratively learning new skills. Key to project's success lied in leveraging the students' technological fluency by making digital fabrication accessible and engaging through a participatory bottom-up approach. IK BEN STER(K) showed to have the potential to build a thriving community of empowered individuals, serving as a "best practice" for future interventions in similar socio-cultural conditions.

Author Keywords

FabLabs, empowerment, young adults, learning-by-doing, workshops, making, sharing, social innovation

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design, Human Factors

Introduction

Afrikaanderwijk is a highly multicultural neighbourhood in Rotterdam South, where the generally low level of education of the inhabitants and their ethnic background relegates them in a lower level of society. An especially crude situation has been observed with the Afrikaander young adults, who seem completely neglected by policy makers: they usually attend lower education institutions and have little or no initiatives promoted by the neighbourhood to stimulate their passions and talents after school hours. Furthermore, they are frequently stigmatized as problematic, lowering their chances to improve their situation.

Young adults from Afrikaanderwijk were interviewed, gaining insights on their lifestyle, needs and passions. All of them showed to be tech savvy, digitally social and full of passions, yet with no engagement with their neighbourhood and little means to achieve their dreams for the future. A strong unexpressed potential was identified in the young adults, driving the decision to trigger a natural fluency in their relationship with new technologies: belonging to the first generation of digital natives [2], they withhold an inherent potential that can be unlocked in innovative ways.

The project explored these digital natives' potential by co-creating with them a workshop on 3D printing as a trigger for their empowerment. Stadslab Rotterdam, a technical workplace located in Rotterdam, provided the facilities and the know-how: within the FabLab 010, experimenting and Open Innovation were employed to facilitate a dynamic, hands-on learning process, in which the young adults developed shared ownership over their talent development.

Discovering the hidden stars

A Research through Design approach was used to design for social innovation (see [3] for details). By means of immersive ethnographic techniques the socio-cultural context of Afrikaanderwijk has been explored to unveil tacit needs and hidden resources of the area. A series of participatory design activities was carried out with the 'neglected' young adults in the age of 16-24 years (the "hidden stars"). Consequently, the following interaction vision was created to guide the design intervention: "**A constellation of stars. Each star shines of its own light, yet together they create a beautiful image. Invisible connections allow the creation of the pattern in the blue sky.**"

A group of students from a local school for problematic young adults was involved in the project, by co-creating a step-by-step workshop with their coach. The goal was for the young adults to develop new skills with the Open technologies available at FabLab through an interactive learning-by-doing experience.

The following steps were carried out once a week during the student's workshop hours:

- Share your passions: students were introduced to the FabLab and invited to share their passions and interests;
- Share your ideas: the students sketched an initial product idea through brainstorming;
- Share your Designs: at FabLab, the students transformed their design into a 3D model with Tinkercad and 3d printed it (see Figure 1);
- Share your Knowledge: students made an Instructable (tutorial) to share their knowledge with global community;
- Share your Opinion: students were invited to evaluate the workshop, learning how to provide feedback;

- Share your experience: the students presented their work to their own local community, becoming an inspiring force to their peers.



Figure 1 Share your Designs at FabLab 010.

Sharing, participating and making are the key principles through which the students went through a whole design process. The final outcome was not only the tangible product each student made at the FabLab, but also the shared learning experience between designer, coach and students, all co-learners and co-creators of knowledge at the same time. The students' pride and involvement were crucial in inspiring the design of peer-to-peer workshop platform, to make this experience repeatable and self-sustaining.

IK BEN STER(K) workshop platform

The students responded very well to the workshops, learning how to bring their idea into a tangible output without prior knowledge. The success of the workshop inspired the design of a peer-to-peer workshop platform combining social media (Facebook and

Instructables), FabLabs and ubiquitous technologies. The platform aims at allowing a community of students to share and develop their portfolio of skills through a series of self-organized hands-on workshops within their school/youth center. The workshop platform was evaluated in its elements through with the students of the school involved in the previous workshop. A viral, bottom-up approach was adopted to seed the students, see [3] for details. A few students were invited to join the Facebook group IK BEN STER(K), where they were sensitized to laser cutting through inspirational posts and invited to join a new workshop on laser cutting. Students participated in the FB group in various degrees, showing the potentials of the system, and joined the workshop with their coach. In one day they sketched their new design, learned the basics of Adobe Illustrator to transform the sketch into a vector drawing, and used the laser cutter to transform their design in a physical object (see Figure 2). The students evaluated the workshop very positively, and the workshop platform was evaluated with the coach through a storyboard, giving feedback for improvements. A second workshop on laser cutting was proposed on the Facebook group, to evaluate the acceptance of the workshop format with the school and to confirm the students' empowerment through the activities. Once again, the school management didn't seem favor the educational experiment, but thanks to the relationship of trust built with the coach and the students, the workshop was successfully carried out.

The social impact of the second workshop exceeded expectations: not only students from the school joined the workshop, but also a school from another neighbourhood asked to join after learning about the event through word-of-mouth. The students demonstrated to be very comfortable in the workshop environment at Fablab 010, and all of them managed to sketch and laser cut their own creations. The coach from the new school was positively impressed by the initiative and expressed the wish to implement the

platform in the school's educational program. The students remarked that the workshop allowed them to express their creativity in a fun and tangible manner. It wasn't perceived as traditional learning, rather as an occasion to develop new skills while inventing together.

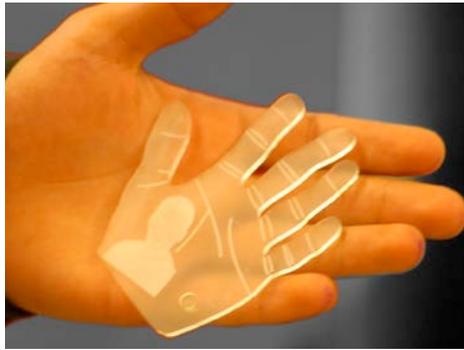


Figure 2. Finished student work with laser cutter.

Relevance of the concept

The workshop platform, co-created and tested within the local school and FabLab 010, made the skills visible to their owners as well as to their local community. By receiving ownership of their learning process, the students' learning experience became more effective and lasting. This shows how a participatory bottom-up approach to education, sensitive to the inherent potential of digital natives, is able to transform reluctant students into empowered individuals. In this workshop model, the learning experience is shared among the participants in the workshops, who are all at the same time co-learners and co-creators of knowledge through participation and making. Moreover, FabLab itself provides an excellent framework to facilitate the ignition of practice-based education, as demonstrated by the Fab@School project, launched in

2008 by Stanford University [1]. Yet, the IK BEN STER(K) workshop platform can serve as a best practice to go a step further in lowering the threshold of access to digital fabrication in education. By connecting the people to a network where the FabLab is one of the nodes, a learning community can spread beyond the physical environment of a school. On one hand the school is alleviated from the cost of implementing an internal FabLab, on the other students are entrusted with the tools to shape their own learning curriculum, inspiring others to do so. FabLabs all over the world can use this process in a very cost-effective way in order to create new co-learning processes that can reach out to underprivileged and uninitiated communities in a more inclusive way, empowering individuals to contribute to *open social innovation*.

Acknowledgements

The current project was part of a Master of Science graduation project in Design for Interaction at Delft University of Technology carried out with FabLab 010 in Rotterdam, The Netherlands [3].

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