Addressing Workforce Discrimination with Design for/with the Disabled

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Executive Summary
Designing assistive technology for the workplace proves to be a complex task, since its core aim is to give agency to a marginalized population. It was shown with an example design solution that it is possible to come up with simple designs which not only focus on addressing the specific issues the users have, but also address them in a way which does not emphasize their particular disabilities. Participatory design, in which the disabled users take part in the iterative design process, is a way to reach these sorts of solutions. The design process itself should also be modified to give agency to the individuals, in order to make sure the design does not perpetuate the understanding that others know what is best for them, which causes the work discrimination and the lack of motivation and confidence in the first place.

Introduction
There are many challenges in practicing engineering design for social, political, and institutional change and improvement, and these challenges are even more evident when designing assistive technology for the disabled. It’s seen that people with disabilities still need to fight discrimination especially in employment, despite the Americans with Disabilities Act, a law enacted in 1990. The act requires employers to provide ‘reasonable accommodations’ which most companies don’t really want to invest in because they prioritize the cost-benefit ratio. According to the 1990 Act, reasonable accommodations consist of:

(A) Making existing facilities used by employees readily accessible to and usable by individuals with disabilities;

(B) Job restructuring, part-time or modified work schedules, reassignment to a vacant position, acquisition or modification of equipment or devices, appropriate adjustment or modifications of examinations, training materials or policies, the provision of qualified readers or interpreters, and other similar accommodations for individuals with disabilities.
Within this context, engineers and designers have the responsibility of creating affordable and attractive assistive technology solutions (reasonable accommodations) which help people with disabilities get work opportunities comparable to the ones nondisabled individuals get. These solutions need to not only consider the benefits for the employers in order to convince them to hire disabled individuals, the solutions also need to consider what the disabled individuals’ actual needs and desires are.

The Raritan Valley Workshop (RVW) in New Brunswick, the community partner for this thesis, actively tries to address the issue of employment discrimination. It is a business which provides packaging and fulfillment services to contractors by employing people with disabilities whose disadvantages prevent them from joining the normal workforce. Not only the workshop provides a job opportunity for its employees, it also provides job coaching services for them. The workshop applies the Easter Seals Supported Employment Model in order to best tailor the needs of the disabled employees. This makes the Raritan Valley Workshop a transitional workspace, where the disabled individuals try to put things in perspective, build confidence, and get support in order to reach their goals – while they are working.

These features of the RVW create a unique opportunity for assistive technology design. It’s a packaging and fulfillment center, which means the tasks consist of various degrees of manual labor and quality control checks. The workshop needs to be able to complete these tasks, requested from its contractors, in a timely, consistent and successful manner so that they can get the necessary financial sustainability which the business model requires. The workshop, thus, needs to provide reasonable accommodations to its employees so that they can complete the assembly tasks safely and efficiently. The workshop’s core aim, on the other hand, is helping its employees think about how they might want to advance in their careers by providing skill assessment and job coaching services, while giving them a job opportunity so that they can sustain themselves in the meantime. As it can be seen, the tasks completed by the employees are not important for the employees for what they are, but for how they affect their dependency and their confidence. The tasks only exist to make the business model a financially sustainable one, so that the workshop can keep assisting these people with disabilities.
Approaches and Results

After a partnership was formed with the Raritan Valley Workshop for my thesis, the specific design challenge was decided upon. The staff members of the workshop stated that they had a long term contract with the Rodon Company, which consisted of the assembly of window latches. Since they already know that the workshop will be assembling these window latches for at least two more years, making this process more efficient and a better experience for the employees would have a lasting concrete effect for the workshop’s near future. Both the employees and the staff members also stated that this was the task employees found most challenging due to a number of reasons. For this reason, the major part of my thesis focused on designing a device in order to improve the window latch assembly experience for the employees.

One of the major issues was identified to be the amount of precision and force required from the employees to complete these tasks, and how it sometimes did not match up with their physical capabilities. The accommodations which the workshop made available to the employees, such as using assistive objects like blocks, worked well in terms of getting the job done, but they only amplified the fact that they had their specific disabilities. Using these objects were found to be inefficient, since it was seen that it took the employees who need the help of an extra object an average of 40% more time than the ones who don’t. Especially since the workshop exists for the disabled individuals to build confidence while they’re thinking of their future career paths, the tasks really need to help them focus on their strengths and interests, instead of making them think of what their impairments are. Their work experience in the workshop should not focus on what they need to make up for the impairments they have, instead it should focus on the strengths and skills they have.

For this reason, the design solution in my project proposes a mechanism which helps the employees focus on what they can do. It proposes an alternative way to assemble the window latch, without making the employees conscious of the impairments they have. It’s a simple device in which they can place the three parts of the window latch, and once they lower the lever arm, the three parts are assembled in one motion. Not only the design
minimizes the force and precision required from the employees to complete the task, it also allows for them to assemble eight window latches at once, boosting their efficiency.

Almost all of design decisions were informed by observations of the employees, and conversations with them or the assistive staff members. Especially testing the initial prototype with the employees proved to provide great suggestions for modification.

Throughout the interactive, participatory design process another fundamental and important issue was identified. It proved to be incredibly challenging to find the right means of learning what the employees needed from the employees themselves. Surveys or conversations about how to improve their work experience weren’t a particularly productive medium for communication. The employees either have been dependent on someone to tell them what they need for so long or they have been struggling so much with trying to adapt to the environments around them, that they don’t even feel that they have the right to ask for something. The discrimination they’ve been facing, especially with regards to employment has decreased their self-value. This becomes an issue when one is trying to design for this population, a population which is in need of assistive technologies but does not particularly demand it. Even when asked the question “If you could get an engineer to design and manufacture any machine to help you with a task at work – what would it be/what would it do?” most employees either referred to a machine they already had, or they said they did not know. These individuals’ lack of self-confidence, caused by the discrimination they’ve experienced, is also reflected in the fact that they do not leave the Raritan Valley Workshop to work elsewhere, although they know they would be ‘better off’ in terms of financial status and in terms of being ‘fully included’ in their respective communities by taking part in the normal workforce.

For this reason, my thesis project also experimented with an alternative mode of communication. Socially engaged art, a form of art rooted in the 1960s, provides a great platform for this since it democratizes the process of creation by making the participators a crucial part of the work. It also avoids the networks within the existing system which cause this discrimination in the workforce in the first place by avoiding commercial art and focusing on creating environments and social structures for exchange instead of the art object. Stemming from inspirational historical references in socially engaged art, studio activities were designed and organized in the Raritan Valley Workshop. The studio activity
involved eight employees at once, and they were presented with images of their workplace which they could alter in whatever way they wished. There was also a to-scale model of the workshop which they could alter as well. They could use Play-doh, construction paper and markers in however way they wanted to. Each individual was set free to focus on their own priorities. They were encouraged to do whatever they wanted, and throughout the whole activity ideas were generated as a group and put up on the walls. The communal brainstorming activity proved to be a much more successful way of engaging the employees to provide much more insightful thoughts and concerns. More agency and freedom was given to the employees, due to the open-ended and non-linear approach of the workshop. The interaction did not involve many presumptions about the employees’ needs, it just experimented with a new platform of expression. They were very engaged and started to practice their free agency much more than they did when they were asked to answer direct questions on how to improve their experience with the window latch sequence.

The end goal of organizations such as the Raritan Valley Workshop, as well as assistive technology attempts is to give agency to this marginalized population. How are we to give more independence, agency and freedom to this population, if we don’t even find a way for them to independently voice what they think they need? If the aim is social change, new structures and modes of interaction are crucial, such as the studio activity implemented as a part of this thesis.

**Implications and Recommendations**

For small and short-term design projects and challenges which help the sustainability of the Raritan Valley Workshop, designers should spend more time with the employees to be able to get a full understanding of the needs and wants. Participatory design can help the designer pinpoint certain challenges and find the most efficient solution. The window latch assembly sequence, for example, was modified into a much more efficient and pleasant experience for the employees just by understanding what about the process is challenging for them. The designer should also be aware that their product crucially affects the employees’ work experience, and that it’s important that the product does not emphasize the fact that they ‘need’ an assisting technology to be competent. Assistive technology for
the workplace should not be about helping the disadvantaged people ‘catch up’, but to provide them with the tools to do what they want with the skills they have – just like any other product designed for any other population.

In the longer run, the disabled individuals should be not only involved in, but also in charge of the process of providing assistive technologies and reasonable accommodations in the workplace. The scars of the discrimination they’ve been facing, and how this has led to a lack of self-confidence and drive can only be addressed if platforms are provided for them to feel like they are in control and are independent. Entities and institutions involved should understand that this takes time, patience and a reconsideration of about almost any decision previously made, which is why they should support socially engaged art as a way to experiment with different modes of communication. This experimentation is ideal for a setting like the Raritan Valley Workshop, since all the employees are a part of this marginalized population and the workshop not only successfully provides an environment these individuals are happy in, it also has great knowledge of and experience with the networks involved in the workforce which cause the discrimination in the first place. This should be utilized by the workshop to not only help their own employees move forward but also to contribute to the global discourse around service to individuals with disabilities.

Works Cited


