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Design Education for Social Sustainability

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Abstract: In a changing world how do we educate students for equitable global sustainability and embed design for social need in curricula? This paper explores pedagogic methods for people-centred design and considers the benefits this can provide for students, whilst preparing them for future careers in a globally challenging environment. Examples of user-focused design relating to health, wellbeing and education illustrate social and community issues driving design ideation, process and outcome. Inherent value gained through experiential learning is analysed alongside associated assessment issues. Researched case studies indicate that students engaging with people-centred projects and learning through leading acquire enhanced multi-faceted professional and personable skills. A correlation is then explored between education for social sustainability and students gaining 'softer' employability skills. Studies suggest they understand the interlocking complexities of design and social behaviour and are better prepared as future sustainable thinkers and innovators. The paper culminates in the development of an educational digital content resource, the 'People-Centred Project Platform', designed for the clustering and sharing of information relating to community methods of working and is relevant for any arts and design discipline.

Keywords: Social Sustainability, Participatory Design, Design Pedagogy.

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Design Education for Social Sustainability

How do we as educators prepare students for future design careers in a globally challenging environment? Within university curricula we need to ensure we are educating future designers, as interdisciplinary thinkers, leaders and problem solvers with knowledge to address social and environmental concerns. Teaching design for sustainability requires an understanding of societal needs and human behaviour as well as concern for environmental issues.

This paper explores a pedagogic approach to community centred and participatory design through the use of tools and methods adopted and developed by 3D Designers. The educational benefits to students are highlighted, and a causal link established between participatory project work and the development of 'softer' employability skills.

Whilst preparing students as future thinkers, innovators and leaders, the transformative learning that takes place is recognised through the enhancement of long-term, life and professional skills.

Design Now

Design as a discipline is evolving with less emphasis on producing things and more focus on creating socially responsible ideas and solutions driven by people-centred, participatory design. Globally we are facing a critical environmental situation and need to question the role of the designer within today's society. In a rapidly changing world we need design thinkers to engage with socio-environmental issues and provide longer-term solutions for products and systems that can enhance life and well-being for all. Barnwell (2011, p.184) states that "Today we need new visionaries to provide sustainable visions to aim for; we need to shift our focus from things to people –we need to realign our design orientation".

Manzini (2010, p. 11) states that design schools can be "active agents of sustainable change" and can "promote social innovation which is sensitive to cultural and social diversity". Participatory design requires developing specific research methods to engage people in a design process, and initially techniques borrowed from the social sciences provided a framework for gathering information to drive solutions from a user perspective. Design ethnography techniques have since evolved to become owned and developed by designers, and Sanders (2001, p. 6) refers to the "blurring of boundaries" between designers and social scientists, and that designers "need to learn how to become involved in the creation and construction of the new tools".

Bichard & Gheerawo (2011, p. 46) question how designers can also be ethnographers within the normally tight time constraints of a design brief. They state that, "many designers who have engaged in ethnography have also re-imagined it" and give the example of the IDEO¹ methods cards, created for "design teams to use in empathic research and human-centred design".

Designers now have an intrinsic role in the whole research and design process and create their own visual and participatory research tools, gathering information, interpreting research and developing outcomes. In participatory design the 'user' becomes the participant and co-designer, and is central to the design process. Lee (2011, p.21) defines a current shift in design from "designing *for* people" (a user-centred design approach) to "designing *with* people" (a co-design or participatory design approach). Thus a more integrated design ethnography process is evolving to inspire people-driven design solutions. Designers have the ability to interpret raw

information experienced firsthand with users, and identify nuances and the unexpected that can inspire ideas and innovation. Design methods drawing on ethnographic and social science research practice have become established within the design profession and major design companies such as IDEO recognize the value in using design ethnography and have lead commercial innovation in this area. Julier (2007, p. 6) states, “design processes involved now go beyond the object and into the systems that both contain it and provide the infrastructures through which it flows”.

We need to prepare students as future designers and leaders in this field and develop effective pedagogy in people-centred design within curricula. Enabling students to use an immersive experience within the everyday, seeing life through others eyes and creating design solutions to address the social needs of our time.

Pedagogic process model for participatory design

Pedagogic methods are used to embed user-centred and participatory design in the course curriculum. Students on the 3D/ Sustainable Product Design bachelors course at Falmouth University engage with projects involving different groups of people in the community. Methods of interactive designing with people underpin project work, often relating to health, wellbeing and education. Students are required to question the context surrounding their projects and the role and impact of their designs on people, society and the environment.

The eclectic nature of design utilises an ability to gather and synthesize information and to search for a seed of inspiration to spark ideation. Bichard & Gheerawo (2011, p. 54) refer to this as “the search is for creative insights” and that “designers relinquish their leadership position when working with users”.

Studio based teaching is intrinsic to our discipline and naturally creates a conducive environment for orchestrating collaborative idea generation. The additional step is to take research and ideation methods out of the studio and into the community to create firsthand design experiences outside the familiarity of the studio environment. This demands a different approach to a user-focused or client focused activity, it can be a dive into the unknown and the unpredictable, and requires engaging with people who don't necessarily connect with a design language, often in challenging situations.

Students whilst studying engage with participatory design methods through community focused project work. This is introduced to second year students through staff-led group projects, which aim to develop research methods and equip students with knowledge and experience of designing with people. Initial workshops explore issues such as diversity and inclusivity to engender respect and acceptance of others and challenge preconceptions of people and society. Students focus on designing with people for people within the local community, using creative research methods they engage with people and look for design problems and creative solutions.

In the final year students run their own context driven self-directed projects and it is at this point that their individual interests develop and the extent that they engage with community methods of working is determined.

Pedagogic process

A pedagogic process toolkit was developed to enable research and process to be mapped within user-led and community based student projects. It assists collaborative working and identifies sections covering the whole project journey from approaching organizations to assessment. It acts as a self-directed project tool to assist students organising projects, and an advisory checklist for staff to oversee the process. There are

three main sections covering: Preparation, Process, Engagement and Assessment. Preparation at the start of the process can be staff and/or student led and Assessment at the end is primarily staff-led. The Process & Engagement section is predominantly student led and is divided into subsections: Introduction, Interaction & Invention, Outcomes and Evaluation.

Table 1. Pedagogic Process Toolkit

Preparation	Process & Engagement			Assessment
	Introduction	Interaction & Invention	Outcomes	Evaluation
Preparation	Project pre-planning e.g. Making connections Enabling a multiple working relationship between stakeholders Arranging preliminary meetings/ site visits Communicating with organisations Establishing project parameters, participants and time frame Establishing a critical framework associated with the subject Identifying appropriate research methods			
Introduction	Engagement activities Building trust with user-groups Establishing project rules for social engagement Setting the scene & context			
Interaction & Invention	Co-generation of ideas Iterative process developing and testing ideas with and for people			
Outcomes	Actual: object/ system/ concept/ event/ recommendation Social: conclusion/ celebration/ giving something back			
Evaluation	Student led evaluation Compile evaluation from all stakeholders: organisers, participants, students			
Assessment	Establish work required for assessment Ensure learning outcomes are fulfilled Project outcome: object/ system/ concept/ visualisation Process journey: evidence, record, reflect			

Two case studies illustrate how this process can be applied to a design project. The projects are examples of inclusive, social and community led projects, organized by final year students, they follow a collaborative methodology and working practice within the pedagogic process toolkit.

Case study 1 - BootUp Garden project

A group of disadvantaged school pupils participated in a co-design project organized and directed by a final year student. It involved liaising with stakeholders: activity garden staff, school staff and pupils. The pupils participated in co-design and idea generation activities over one term and created water collection and transportation solutions for the site. The project generated a recycled water container, which grew out of the co-design participatory process. However the most important outcome was the sense of community generated through shared participation and the social and educational benefits gained by the pupils. At a celebratory concluding event, all pupils were presented with a book that documented their journey and discovery and it was

this 'giving back' that was most meaningful and memorable. Key learning success factors were reflected in the confidence gained by the pupils, and the confidence gained by the student, learning through leading.

Table 2. Case Study 1, BootUp Garden project.

	feedback from stakeholders
Pupils	"loved it, it's better than school" "less restricting and more creative than school"
Garden Manager	"helped with team work and confidence building" "developing their social skills" "through the process of design, the children have learnt that they can turn their ideas into practice"
School Teacher	"The children have learnt team work, being creative, to take part in discussions, practical skills, making friends, problem solving and the ability to work independently" "The project has been a fantastic experience for the children who have learnt to be creative and voice their own opinions. They have gained confidence"
Student	"Being asked their opinions and working on a live brief has given the children a sense of responsibility and determination" "Empowering children through design, using design as a tool to build confidence. - Learning social skills through design" "I learnt so much - changed how I design - more valuable way of designing"

Case Study 2 – Memory Game

Using co-design methods this final year student worked with a group of dementia sufferers, their carers and a NHS Dementia care trainer in a 'Memory Café' venue. Trust was established over several weeks of visiting the centre, and the memory game was co-designed with the participants using cognitive stimulation activities. The final product was an interactive memory prompt, which created discussion and reminiscences amongst the group.

The student (designer) was leading the process as a more user-centred activity and the group, in the latter stages, became a focus group to refine and test the concept. The memory game was successful as a product with commercial possibilities. The success of the project was mainly due to the social interaction with the group and the student's role as facilitator of the process.

Table 3. Case Study 2, Memory Game project.

	feedback from stakeholders
Occupational therapist	“We’ve all enjoyed this and got a lot out of it, it’s fantastic” “People in further stages would really benefit from this reminiscence too” “A good way to learn about other people. Sensitive issues were raised and discussed”
Health care assistant	“It’s a great conversation maker”
Memory impaired clients	“We are getting more confident” “Recalling happy days” “Finding out things about people which you may not ask directly”
Student	“I gained a better understanding of how valuable user engagement can be during the development of concepts” “A rewarding experience of working with people in the 'real world'”.

Both case studies required sensitive introductions and building trust and respect within the groups. It was important to establish a good relationship with them over a period of time and also create an end (celebratory) point to the project. Although the pedagogic process was similar both outcomes were different in their quality, refinement and commercial potential. In both studies the Preparation, Process and Engagement, and Assessment stages were clearly defined. The product outcomes were exemplary when matched with context and community engagement. Feedback and evaluation, a crucial component, from all stakeholders was commendable as was the students’ clear contextual understanding of their process and journey. In both cases the process journey and social interaction benefits were almost more important than the specific product outcomes.

Learning, Assessment and Pedagogy

Findings suggest that the project outcomes may not necessarily score highly on traditionally assessed design outcomes, such as product innovation and marketability. In many instances outcomes, often as a result of true collaboration, reached by collective consensus, can be diluted rather than driven by a designer’s personal vision. However, what is apparent is the journey, the learning transition that students undergo experientially. Innovation is happening through process and engagement and not necessarily through project/ product outcomes.

Kolb’s model of experiential learning’ illustrates a cyclical process encompassing: ‘Experiencing, Reflecting, Generalising and Applying’ (Kolb 84, p. 42). If we apply Kolb’s model to people-centred design projects, the cyclical nature of design process areas correlate with Kolb’s definitions. His model includes convergent, abstract thinking and divergent, actual, experience. It provides a close correlation with a participatory design process methodology emphasizing the importance of journey and outcome. It also provides a checklist that can ensure all aspects of a design process are considered for assessment. The cyclical model is non-hierarchical and illustrates equality of process and outcome.

This then raises the question of the value (assessment) placed on the students’ individual learning journey and the process of assessment. The benefits accrued by students need to be reflected in assessment by establishing clear guidelines on how and what is assessed, the criteria used and grading applied. Assessment must also allow for the unpredictable and the organic nature of community involvement in project

development and recognise the value of experience, good or bad (a negative experience can often lead to a meaningful educational transition). Assessment needs to allow for the complexity of learning and the connections made between multi-faceted gathering of eclectic knowledge, metacognition and experience. Assessment criteria should focus on assessing participatory process, social engagement and allow for a range of possible outcomes.

Learning Outcomes need to be specified to ensure distance travelled, individual growth and personal skills gained by the student are acknowledged. Learning Outcomes (UK) as defined by QAA (2010) are segregated into 'Subject specific' and 'Generic'. Subject specific qualified by discipline are tangible and (in design) visible, but generic can be intangible, subjective and more difficult to evidence. Socially interactive projects provide a mechanism for making generic skills meaningful, as the success (or not) of the project is dependent on the effectiveness of the student's generic skills, such as: Management and leadership, Preparation & organization, Working with people and Communication skills.

Pedagogy for Employability (Pegg et al. 2012, p. 30) refers to staff and students working together towards a common objective and that "students are active partners in the educational process" also "it is important that a learner is able to recognize the part that each activity in which they engage plays in helping them demonstrate the attributes expected". Knight states that it is "vital that they recognize what they have been learning" (Knight et al. 2003). Through reflective learning, recording project journey and development, students analyse and acknowledge what they have learnt. It is important that they learn through an iterative process of experiential and reflective learning and evidence this transition for assessment. For example process journey could be evidenced through reflective analysis of: journals, reports, sketchbooks and blogs.

Observations & feedback

Participatory and community driven projects enhance the students' learning experience by making them aware of issues around equality and diversity and the influence that they can have on social change and improvement. Through a holistically socially focused design education, students become flexible in their thinking, are open to ideas and gain respect for others' opinions. The educational benefits of community focused experiential learning encourage students to develop their ability to deal with complex social situations. They also experience the multi-faceted roles of the designer as facilitator, director and co-creator and their design ability is enhanced through designing with and for others.

Student feedback on their experience

All students expressed a positive experience when working on people-centred and community focused projects:

Table 3. Student comments.

<p>"Changed my attitude to design" "I value opinions and ideas" "No one is exactly who you think they are" "Collective thinking" "Just talk to people to allow ideas to flow" "Research never stops" "Incredible experience" "Work equally together" "Seeing what they think through the eyes of the child" "They reacted better if I asked them to help me help others"</p>
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A survey was undertaken with 22 students who had graduated over a three year period, 2009-12, to ascertain their perceived benefits of working on people-focused design. This included students who had worked on Dott Cornwall² projects whilst studying, where they greatly benefited from working alongside professional companies³, gaining experience of using meaningful research methods and how these were applied to social design contexts. Thackera (2011, p.7) described Dott's methodology as, "start with existing grassroots activity and then create frameworks and platforms that enable these activities to grow and develop".

Graduates were asked to reflect on the people-centred projects they had worked on whilst studying at university and to comment on their personal and design experiences. They analysed how community interaction had influenced their projects' direction and outcomes. They were also asked to list the personal and professional skills they had learnt and developed and how their experience had influenced their current career choice and their future prospects and ambitions.

All graduates expressed the positive benefits of working with people and all stated that they gained increased confidence in themselves, their ability and ultimately confidence as a designer. They also found it had influenced their employment choice, how and where they were currently working and their ambitions for their future careers.

Table 4. Graduate comments

<p>"I gained a great sense of community working with local people" "All round experience and confidence" "Learning how to approach people" "a rewarding experience of working with people in the 'real world' "I definitely gained confidence in both my personal and professional skills" "I learnt a great deal of social skills" "Improved my time management, telephone manner and design skills" "Working with the user enhanced the quality, content and professionalism" Employability context "Working in a design communication role - I have always loved telling the stories behind my designs" "applying worldwide for jobs focused on sustainable and social design" "Creating informative and functional designs that resonate with the public service customer of the future"</p>

'Softer' employability skills

A constant factor that kept emerging from feedback was confidence; all students stated that they gained self-confidence from working on community focused projects.

The sharp rise in university fees in England has increased universities' focus on the employability characteristics of graduates. Elliott (2010, p.106) refers to the benefits of students' participation in education for sustainable development (ESD) projects as "developing knowledge of the wider social and environmental implications that surround their future professions". Students working on user-centred and community based projects experience multi-faceted roles such as: designer, organiser, facilitator and communicator. Indirectly they develop enhanced professional and 'softer' employability skills. They gain confidence in working with people, are equipped to face challenges, adaptable to change and are proactive initiators of collaborative working, able to identify and solve problems and tackle real world situations.

Research into transformative learning of 3D Design graduates who worked on socially interactive projects indicates there is a strong correlation between acquiring enhanced long-term life skills as a student and improved employability prospects. There is a causal link between working with communities, learning by leading and gaining 'softer', yet complex, employability skills such as empathy and self-confidence.

Knight & Yorke (2003, p.29) describe the 'softer' concept of employability as "encompassing developments that ought to stand them (students) in good stead for a life time".

Key 'softer' life skills that are orchestrated, promoted and acquired through experiential learning on people-centred projects include: communication skills, powers of negotiation, empathy, people skills, social responsibility and confidence. Feedback confirms that students working on people-centred projects find it instils confidence in their ability to relate to people, work with other disciplines and indirectly enhances their employability skills.

In the CareerEdge model of employability (Dacre Pool and Sewell 2007), self-confidence and self-efficacy link to self-esteem & ultimately employability. This model is a useful holistic tool as it considers the whole spectrum of learning of the student and it illustrates a complexity of different factors contributing to employability. Confidence was the key characteristic that emerged from student feedback on people-centred projects. Confidence in self instils confidence in ability and ultimately employability. Confidence cannot be taught but can be nurtured in the curriculum and we need to recognize that 'softer' employability skills tend to be acquired over time, are just as important as professional subject skills but may take longer to develop.

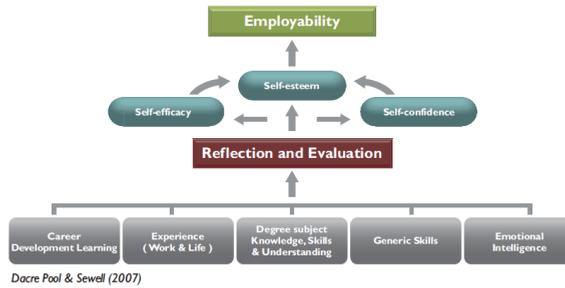


Figure 1. Dacre Pool & Sewell (2007)

People-Centred Project Platform

Building on pedagogic development with people-centred participative projects, it was recognized that students could be better prepared for working within communities and the interlocking complexities of linking design and social behaviour. It was also identified that many students across different subjects in Art, Design, Media and Performance work in uncontrolled project environments external to the University and share many similar issues. This led to the development of an educational web based resource, the People-Centred Project Platform. It provides a digital platform for the clustering and sharing of information relating to working with people and community focused methods of working. It is a shared learning and teaching resource accessible for all arts disciplines; a package of advice, tools, methods and training to cover different scenarios associated with external project working. It also provides guidance for protocols and regulatory frameworks for students to work confidently and safely within the community and share good practice across disciplines through an on-line project forum.

This collection of resources enhances pedagogy and technology enhanced learning. It encourages flexibility of learning, facilitates the sharing of knowledge and ideas, and allows for networking and community building between disciplines. The resources can be selected and incorporated into modules to aid and supplement subject delivery. It consists of six content sections: Methods, Social, Connecting, Legal, Paradigms, Shared.



Figure 2. People Centred Project Platform.

Table 5. People Centred Project Platform, content sections.

People centred project platform					
Methods	social	connecting	legal	paradigms	shared
Methods	Examples of social science and design ethnography research methods. Techniques of working with and engaging people to find out what they think, do, feel, like and wish for.				
Social	Guidelines for working with people, groups and communities. Advice for running workshops and forums and promoting cultural and social awareness.				
Connecting	Advice for approaching people and organisations. Communication methods Establish a critical framework.				
Legal	Legislative advice Regulatory frameworks and responsibilities.				
Paradigms	Links to key examples Exemplars of external companies and organisations.				
Shared	A forum space for sharing ideas and exhibiting project work.				

The cross-disciplinary nature of the collection of resources is appropriate for any course where students engage with community-focused projects and work with people outside of the university environment.

Conclusions

Research indicates that there is a causal relationship between students engaging with community-based, people-centred projects whilst at university and gaining 'softer', yet implicitly important, long-term, life and employability skills. We need to acknowledge the transformative learning that takes place, possibly over a longer time frame, and allow flexibility in our assessment processes and design of learning

outcomes to recognize this journey. It could be argued that the same students would succeed in employability terms without a social engagement experience and there is also an inherent link with personality traits and an ability to engage with people. However, the corollary of research has indicated that nurturing people skills through working on social innovation projects increases empathy and self-confidence. This is directly linked to gaining professional confidence and ability, and correlates with enhanced employability skills. These socially orientated skills are not only applicable to designers, they can be applied to students across a spectrum of courses and provide a common theme for linking interdisciplinary projects and practice.

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Su Vernon

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