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Beyond ‘consumer – user’: living as stewards in a circular future

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This is a conceptual paper exploring the role of designers in moving the public from passive consumers and engaged users to active stewards of resources for future generations. The paper makes the case that the skills needed for a circular future are those used by communities of practice in the sharing economy. Results from a recent action research project undertaken by the author will be used as background for the discussion. The research explored the issues faced by library staff when planning and delivering new digital skills workshops to the public. The research team took a three-phase approach: engaging with the staff in a focus group exploring the barriers to digital skills delivery; actively observing staff during digital skills workshops with the public; and running group evaluation sessions to explore successes and failures experienced. Journals provided the researchers with insights into how some of the staff had developed their own personal learning outside the research project. The methods used produced qualitative data insights into the issues in this area and gave the participants space to develop their own solutions. This paper concludes by reiterating the importance of the role of designers in helping the public to embrace the circular economy through stewardship. The project discussed is used to frame further areas of research into the importance of communities of practice on future resource stewardship.

Keywords: circular economy; stewardship; sharing economy; communities of practice; action research

1 Introduction

The world is moving towards the point of no return. Carbon emissions need to be dramatically reduced by 2030 to prevent catastrophic climate change (Norton, 2018). Now is the time for radical action. The circular economy is poised to revolutionise how businesses operate and the way that the public consume (Ellen MacArthur Foundation, 2013a; Ghisellini, Cialani, & Ulgiati, 2016). For the circular economy to be adopted as quickly as it needs to be, designers must be at the forefront of the movement. The task is twofold: to ensure that all new materials, products and services fit the new economy; and to guide and facilitate the change in public attitude. The design of products and materials must look past the consumer/user dichotomy and advance to one of stewardship, where the value of an item is not just on how it looks and functions at the time of purchase but on its longevity, the sustainability of the materials used, and how easily it can be maintained, adapted and valued by future generations. This shift will require radical new ways of thinking and doing. Designers have the knowledge and skills to make these radical changes seamless.

This paper addresses the *Living* track of the IASDR conference. It makes the case for designers to move the public from passive consumers, to engaged users, to ultimately active stewards. It explores ideas of stewardship through a key aspect of the circular economy, the sharing economy (Cooper & Timmer, 2015; Hobson & Lynch, 2016), and the creation of communities of practice (Wenger, 1998b) to share ideas and best practice. The paper uses the Ellen MacArthur Foundation definition of circular economy, a model "*that decouples revenues from material input*" (Ellen MacArthur Foundation, 2013a, p. 7). This definition is currently the most widely used across business and academics (Gallaud & Laperche, 2016; Hobson & Lynch, 2016; Yang, 2016).

Research is presented that uses a mixed methods action research design to explore the creation of a community of practice in libraries across a region of North West England. The project focuses on the delivery of digital skills to the public, using participants from twelve libraries in towns and semi-rural locations. Using the data from this research the paper concludes by arguing that libraries are an essential location for the dissemination of stewardship skills. This paper's key contribution to the field of design is arguing for active stewardship on the part of everyone in a circular economy, with libraries at the forefront of the dissemination of these skills.

2 Design and the circular economy

Design has a huge role to play in the circular economy, from product designers ensuring that design for disassembly and reuse is built into every new product; to town planners re-thinking urban areas to make them easier to move around without the need for individual fossil fuel driven cars. As Enzio Manzini argues "*we are all designers"* (2015, p. 1) not just as individuals but groups, businesses and organisations too. People led design is at the forefront of moving to a circular economy; collaborations are needed between expert designers and other fields to come up with the materials, products, and habitats of the future. Design thinking is needed to help with *"sense making"* in the new circular world.

Much of the work on design and the circular economy is currently focused on production (Blomsma & Brennan, 2017; Ellen MacArthur Foundation, 2013b; Ellen MacArthur Foundation & IDEO, 2017; Lofthouse & Prendeville, 2018; McDonough & Braungart, 2009; Yang, 2016). Design can add so much more to the circular future. The move to circular systems needs transformation, not only at the level of production but of how we consume (De Los Rios & Charnley, 2017). As society becomes more conscious of the impact of late capitalist levels of consumption, we are moving from being passive consumers to engaged users. The more engaged we become with the fight for the environment, the closer we will move to becoming active stewards of products and materials for future generations. Designers are the experts to ease society through this transition.

3 From consumer to user

Design is not just restricted to the products we use but covers every aspect of life: from the services we use, the layouts of our cities, our travel and communication networks. Designers have been at the forefront of the move from passive consumer to engaged user, providing the tools for co-creation, open design and transparent feedback in the design of products and services (Cruickshank, 2014; Rossetti di Valdalbero & Birnbaum, 2017). The skills and methods used to change passive consumers into engaged users must now be deployed to

facilitate the move towards active stewardship, ensuring the purchaser is demanding longevity of materials in all relevant products. This will help to accelerate the circular economy at every level.

Currently, there is a business lead in the move to the circular economy, but for it to be comprehensively adopted there needs to be a radical shift on the part of the purchaser. Designers are in an important position to help with adoption of the circular economy by the public, which could be the most difficult part of the new model to instigate. Research done by Kirchherr et al (2018) shows that *'lacking consumer interest and awareness'* is the most pressing issue preventing wide-scale adoption of circular economy (2018, p. 268). Persuading the public to change their habits and become stewards instead of consumers is where designers should be focusing their efforts. To embrace stewardship, we must reject the culture of constant consumption. Habits need to change to avoid buying new products: either by fixing what we already have, reusing a more durable item, buying second-hand, or borrowing. At the point of purchase this could be achieved by expressing the true value of a product or material and the full cost of that resource to the environment should be made clear. Arming the purchaser with knowledge will encourage the move from use to stewardship.

4 From user to steward

Previously environmental stewardship has focused on urban design (Felson, Bradford, & Terway, 2013), corporate social responsibility (Cai, Cui, & Jo, 2016; Kirchherr et al., 2018), or the responsibility of environmentalists in the natural environment (Milton, 1996). Within the circular economy stewardship is centred on manufacturers (Hill, 2014; Jensen & Remmen, 2017; Korpalski, 2002), with little focus on the role of the purchaser (Singh & Giacosa, 2019). It is not enough to be an engaged user of a product in a circular world, purchasing a product must come with the responsibility to be an active carer of that product, maintaining it and valuing the resources that go into making it. The move to stewardship demands a reconsideration of our relationships and interactions with everyday objects. Designers must facilitate the public to becoming active stewards, conscious of the products they buy, and the materials used to make those products. The idea of stewardship should extend to every aspect of life.

Perhaps the warm values of craft and creativity can help here, offering a positive vision of making and reusing, rather than the more austere and negative-sounding 'stop that!' message suggested by anti-consumerism arguments and shocking pollution news.

(Gauntlett, 2011, p. 58)

Repair and maintenance should become a normalised part of the transition to a circular economy. Care and responsibility for products should be a part of ownership, not just for use now but for future generations. The skills and knowledge needed to ensure this longevity can be developed through communities of practice where people come together to learn and share (Lave & Wenger, 1991). These ideas will be explored in more detail below.

The life of a material should be widely considered in the design of that product; some petroleum-based materials in use today will not degrade for many hundreds of years. It is the role of designers to create products and systems that see these products in use for

generations to come. The responsibility of ensuring the stewardship of these materials and systems fall to everyone.

5 Skills for stewardship

Within the circular economy and design literature there is a primary focus on products yet to be made, but a lack of discussion around the maintenance of products that are already in circulation (Lofthouse & Prendeville, 2018). There is a need for close collaboration between designers and makers of different disciplines to develop strategies for current and future stewardship. It is important that knowledge is shared at every level (De los Rios & Charnley, 2018). Skills for stewardship can be developed through maintenance of products already in circulation. Promotion of stewardship and transparency of the true value of a material could help to change public attitudes towards repair and maintenance (De Los Rios & Charnley, 2017; Singh & Giacosa, 2019). The skills needed can be shared through informal communities of practice which exist in physical and virtual spaces, where skills, tools and knowledge can be developed and shared (Gauntlett, 2011). Repair cafes and tool libraries are global examples of where communities of practice have made an effort to keep products out of landfill and reduce consumption. Repair cafés are "*community-supported events designed to help local residents fix and learn to fix their broken consumer products*" (Rosner, 2013, pp. 51–53). Makerspaces such as FabLabs are more permanent spaces often used by professionals and run collectively (Bjørner, 2013; Prendeville, Hartung, Brass, Purvis, & Hall, 2017). However, as Fleischmann, Hielscher and Merritt (2016) lament, their potential as spaces for sustainability are not often realised, "*if existing transformative social and environmental claims about labs should become a reality, there might be a need to debate more actively the role of digital fabrication technologies in wider change processes*." (2016, p. 126). These spaces will be essential in the move to stewardship, so it is imperative that designers work with these spaces to realise their full potential. In spite of the number of local programmes to keep waste out of landfill, wholescale adoption of these initiatives by the public will need policy intervention as well as a concerted effort to push for better awareness (Prendeville et al., 2017).

6 Sharing economy and communities of practice

These spaces and the ethos they promote are a part of the *sharing economy*. The sharing economy is argued to be a key component of the circular economy (Burger, Stavropoulos, Ramkumar, Dufourmont, & van Oort, 2018). Economist and author of *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist* (2014), Kate Raworth, describes the sharing economy as one "*in which the culture of ownership […] is giving way to a culture of access"* (2014, p.264). This access is increasingly provided through online platforms where tangible items can be rented, swapped or sold second-hand, and intangibles such as entertainment, music, software, and education can be shared for little or no cost to the user (Geissinger, Laurell, & Sandström, 2018). The sharing economy will be an essential part of future stewardship as the public learn to care for items they own and their natural environment.

Skill sharing and education through online platforms such as YouTube or in offline spaces such as repair cafés demonstrate places where communities of practice can be formed. Informal communities of practice in the sharing economy will be an essential part of

stewardship. Etienne Wenger (1998) developed the theory of 'communities of practice'; based on developing a shared expertise:

they are not defined by place or by personal characteristics, but by people's potential to learn together. Unlike the trajectory of a team planned from the start, communities unfold over time without a predefined ending point. Communities often start tentatively, with only an initial sense of why they should come together and with modest technology resources. Then they continuously reinvent themselves. Their understanding of their domain expands. New members join, others leave. Their practice evolves.

(1998a, p. 11)

Communities of practice are very much rooted in the domain of shared experience and expertise and should be an essential component of the move to a circular economy. The structure of a community of practice can be seen in Figure 1, where members become more or less involved over time. Through the establishment of informal communities of practice, designers can facilitate a move towards stewardship through the sharing of best practice and openness. At the first Festival of Maintenance (2018) held in London, Chris Hellawell, from the Edinburgh Tool Library, spoke about the community of practice that has developed organically through lending and sharing of skills and tools (James, 2018). David Gauntlett, in *Making is Connecting* (2011), expands on the ideas of the sharing economy and communities of practice; discussing how creativity and DIY, or fixing, culture are bringing people together, improving communities, and increasing engagement in local issues. He links creativity, sharing and making to circular economy ideas by looking at the Transition Towns movement; one that focuses on town level actions aiming to reduce fossil fuel reliance and improve residents' resilience (Transition Network, 2016).

The Transition movement stems from the idea that human beings are creative and can work well together to do great things. […] This helps us to build resilience and the creative capacity to deal with significant changes.

(Gauntlett, 2011, p. 20)

Resilience through creativity and building local connections will be an essential part of the move to circularity. As growth is decoupled from resource productivity the public will need support in moving to the circular future. The rest of this paper will examine how communities of practice can be established to provide skills and education to the public, using the example of a project conducted by the author.

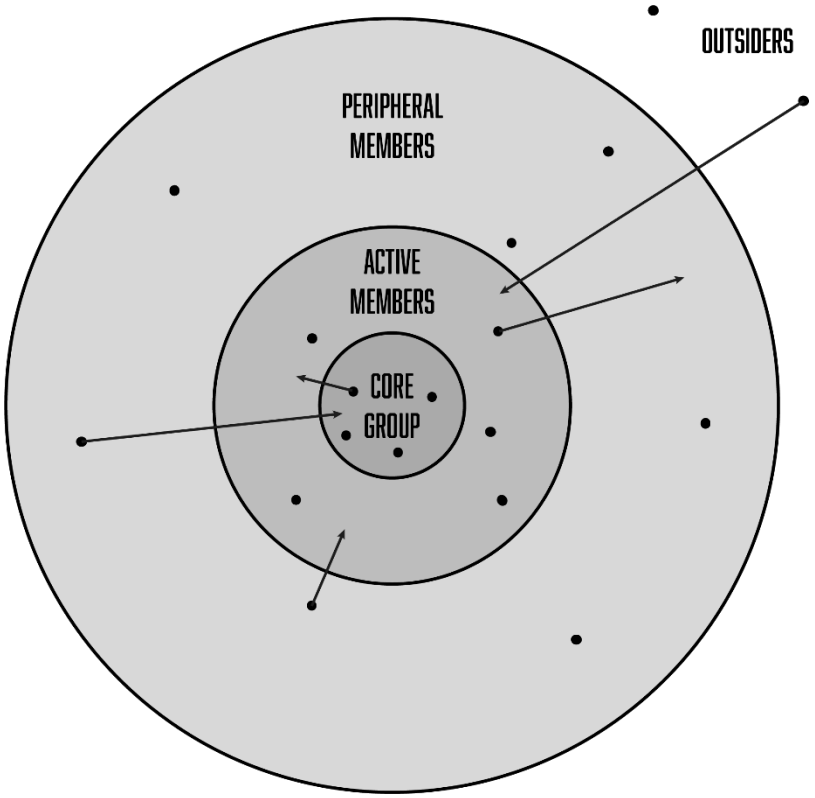

Figure 1. Degrees of community participation and movement of participants. Adapted from Wenger, McDermontt and Snyder (2002)

7 Libraries as a place for stewardship

The discussion around repair cafes and makerspaces in this paper has so far not looked at the issue of locations for these events to be held in. The research has shown that cities can provide a number of places of stewardship (Bjørner, 2013; Prendeville et al., 2017). However, many smaller, more rural locations do not have the capacity for such places. Outside cities, libraries provide the ideal locations for the creation of communities of practice, where engaged users can become active stewards. Traditionally, libraries have always been places of stewardship, where knowledge is shared and maintained for generations. Designers can learn from librarians and develop models of what life can look like in a circular future when stewardship, protection and maintenance of resources are key tenets of our lives. Libraries are not just passive places of learning; their role is changing. Once quiet libraries are becoming active spaces for collaborative learning and sharing. The role of the librarian is changing too; they are being encouraged to expand their skills to include new forms of learning such as digital literacy and creative media technology exploration (Arts Council England, n.d.). Using these familiar, traditional, public locations designers can engage with librarians to create communities of practice around new skill development, while instigating new forms of stewardship. Libraries are the ideal place to train the public to become stewards of a sustainable, circular future.

The move to stewardship of materials is currently being facilitated by the new technologies of Big Data, IoT and AI. These technologies promise a radical shake up of work and consumption, requiring new skills to navigate the future jobs market and new attitudes to products. A 2017 NESTA report argues that that:

our future economy will be built on creativity and technology. […] UK labour market projections show that the rate of growth for both creative and STEM (science, technology, engineering and mathematics) occupations will be more than double the average job growth across the whole UK economy.

(Bakhshi & Yang, 2017, p. 1)

Digital skills will be at the forefront of this change and the dissemination of these skills to different generations is crucial for a thriving economy. Using the libraries as a place to develop these skills can provide access across age ranges (Bertot, 2016; Blikstein, 2013; Bossaller, 2017). In the move towards a circular economy it will be essential that as many people are skilled for the future as possible. New business models based on these technologies are helping to accelerate the move to the circular economy. Manufacturers who embrace future tech are able to maintain control of their materials and track them through the product life-cycle (Bressanelli, Adrodegari, Perona, & Saccani, 2018; Kirchherr, Reike, & Hekkert, 2017; Pagoropoulos, Pigosso, & Mcaloone, 2017). To ensure the retention of the material, the user must become a key stakeholder, sharing usage and maintenance data with the manufacturer. The more that users are made aware of the technologies collecting data and understand how that data is being used, the more conscious they will become in the use of those products, encouraging the idea of stewardship.

As libraries undergo transformation to broaden their offerings, designers can make use of this by collaborating with librarians to bring ideas of stewardship to the public. Libraries have a key role to play in demystifying the technologies that will be embraced by future circular manufacturers. Libraries are a safe comfortable environment for the public to be exposed to these new technologies (Zach, 2011). Using libraries as locations to run digital skills workshops is a positive step towards demystifying these technologies, not only for the public taking part, but also for the staff delivering them.

8 “Common Knowledge”

The Arts Council has been the development agency for libraries in England since 2010, and the promotion of digital skills is a key part of its agenda. Its work in the libraries has focused on four priority areas: (1) promoting libraries as a community hub, (2) making the most of creative media and digital technology, (3) ensuring libraries are resilient and sustainable, and (4) delivering the right skills for those who work in the libraries (Arts Council England, n.d.). These priorities can be addressed through the establishment of libraries as centres for circular stewardship. An action research project, “Common Knowledge”, was developed by Transformation North West researchers in collaboration with twelve libraries in a region of North West England to respond to these priority areas. The project aimed to increase digital project delivery within libraries while encouraging an embracing of the unfamiliar by staff. An approach was developed that used Mixed Methods Research within an Action Research framework. The researchers used a mix of facilitated workshops and observation to understand how the staff felt towards the digital skills they were expected to deliver. Surveys and journals were used to track the changing attitudes of staff and explore whether a community of practice had been established through the development of connections with other participants. The data from these sessions was used to create appropriate interventions in the delivery programme. As previously argued, encouraging an exploration

of the unfamiliar and demonstrating new ways to interact with technology is an important step towards passive consumers becoming engaged users and ultimately active stewards.

The project developed in response to library management identifying a unwillingness among library staff to 'step outside of their comfort zone'. Staff were reluctant to deliver public workshops in subjects where they lacked confidence, such as digital creativity or coding, due to a perceived lack of experience in those subjects. These observations are reflected in Arts Council England's report *Envisioning Libraries of the Future: Phase 1 & 2: "staff in many places lack some of the most important skills needed for the future – be it […] using digital technology, […] or leadership in a fluid environment."* (2013, p. 3). As part of their Arts Council remit a programme of creative digital engagement sessions had been run, bringing in outside experts to deliver workshops to the public. The funding for this programme was coming to an end so the management and council were keen to pass the delivery of workshops on to staff. Training was provided in two ways: either in depth training early in the year but without the opportunity to deliver to the public until a later date, or a brief training session followed by a supported workshop with the public. Despite positive uptake for both styles of training sessions, both sets of library staff were reluctant to develop programmes of their own without an outside facilitator. They reported not feeling they had the skills or confidence to deliver digital skills workshops to the public. The management team invited the researchers to develop a project that could explore the barriers the staff felt towards the delivery of the programme and and identify where interventions could be made to provide better support. Through facilitated sessions the research team and management hoped to find easily implementable solutions to the barriers faced. Due to funding restrictions faced by the libraries the research team agreed that the implementation of a community of practice would help to strengthen the self-directed learning of individual librarians, providing them with a platform to share ideas and experiments. The establishment of a community of practice would be assessed by establishing whether new ties had been created by library staff members, using social network analysis gathered through surveys and qualitative data from journals.

8.1 **Delivery**

The project was delivered through facilitated group sessions. The introductory sessions were run twice, once in the south of the region and another in the north. The researchers used visual tools to initiate discussions around barriers to digital skills delivery with participants, and to provide baseline data for further sessions. Exploring how pervasive digital skills are within the library, participants were asked to list all the activities run at their libraries and those with a digital element were then identified. This demonstrated the prevalent nature of digital and opened up the discussion around how much it is already integrated into library service delivery. This exercise led on to a word association task that explored different definitions of digital; exposing reasons for developing participants' skills and highlighting barriers to the uptake of these skills. Key words from this exercise were then used to develop a Socratic Wheel which determined how confident the participants felt about these areas. The Socratic Wheel is a "*deceptively simple and powerfully visual tool"* (Chevalier & Buckles, 2013, p. 120) that allows for the establishment of baseline criteria which can be used to evaluate, assess and compare participant profiles throughout a project.

At the start of the session the participants were asked to complete a survey to determine the level of connection between themselves and their colleagues also taking part in the project. It also asked participants to assess the level of community within the library service as a

whole. The researchers found that inter-library community was almost non-existent, but within the libraries there was a strong feeling of community. In order to provide another layer of analysis of new connections created between participants and self-directed study, participants were asked to keep a journal throughout the duration of the project.

Due to the geography of the region, shift patterns and poor public transport it was important to provide two introductory sessions to ensure that there was a representation from libraries across the area. The first session took place in the south of the region where the council and library management are based. This group consisted of a lot of senior and management level staff and the researchers found that the attitude towards the digital skills agenda was positive. The fact that some of the senior staff who had initiated the programme were participants may have influenced some of the discussions, but the surveys allowed for the opportunity to discuss feelings more candidly. The second sessions in the north of the region consisted mostly of librarians and assistant librarians. The participants in this group expressed a lot more caution towards the digital skills programme and there was a feeling that the north libraries were neglected in terms of finances and resource support in comparison to the south. The word association task led to a lot more negative words about digital than the first group. However, participants were pleased to be given the opportunity to meet each other, find common issues and work through them together.

Following the group sessions, refresher workshops were provided for staff who needed them, followed by supported workshop delivery with the public. The researchers observed the delivery of these sessions in different libraries over the summer delivery programme. Evaluation sessions were conducted where successes and failures were discussed, and the survey was repeated. The results of this survey fed into the social network analysis, which will be discussed below.

8.2 Social network analysis

At the start of each group session a survey was conducted with participants to determine the strength of professional connections between each of the participants, and whether the participants felt a sense of community within the libraries. The aim of questioning the strength of connections between the participants at the beginning and end of the project was to provide data so the researchers could identify whether any of the relationships changed over the course of the project, which would signify the strengthening of a community of practice (Kezar & Gehrke, 2017; Wenger, 1998a).

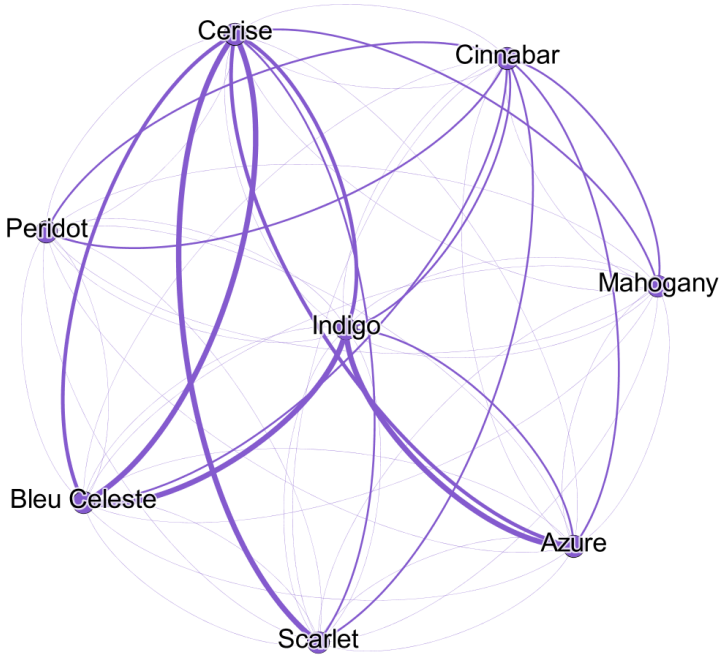

Figure 2. Connection changes between Group 2 participants. Thicker lines indicate a strengthening of the ties between participants.

Of the two groups that took part there was a completion rate of about 50%. From the first group four of the ten participants took part in the evaluation and eight of twelve from the second group. The participants who took part in the evaluation session were asked to repeat the connections survey, so the researchers could determine whether any ties had developed or strengthened during the project. The data revealed that there were a few members of staff who had developed new ties with colleagues from outside of their libraries through working together, participating in training workshops and email communication (see Figure 2). Journals submitted by participants detailed some of the establishment of new ties.

A core group of interested staff developed over the course of the project. These participants had gone beyond the original scope of the project establishing an informal community of practice, sharing knowledge and skills with one another, and complementing the work they were doing with external research. The management were aware of some of these participants, and were keen to provide support to the group. The journals helped to identify quieter, less obvious participants who were also acting beyond the remit of the project.

8.3 **Project evaluation**

The discussions in the evaluation sessions focused on how useful the librarians had found being able to meet colleagues from other libraries and share best working practice. "[I]*t was great to explore what 'digital' and technology means to different people. I will take away the expression "we are all learning together" – to use when up against people who are resistant to technology*" (taken from a participant journal). The researchers witnessed a lot of cross-library collaboration that they were told had not taken place much before. The journals also revealed that some of the participants are now learning digital skills such as coding as part of self-directed study. One participant applied to do an MSc in Digital Media Design off the back of the project, planning to take back the skills learned through this course to their role as a librarian.

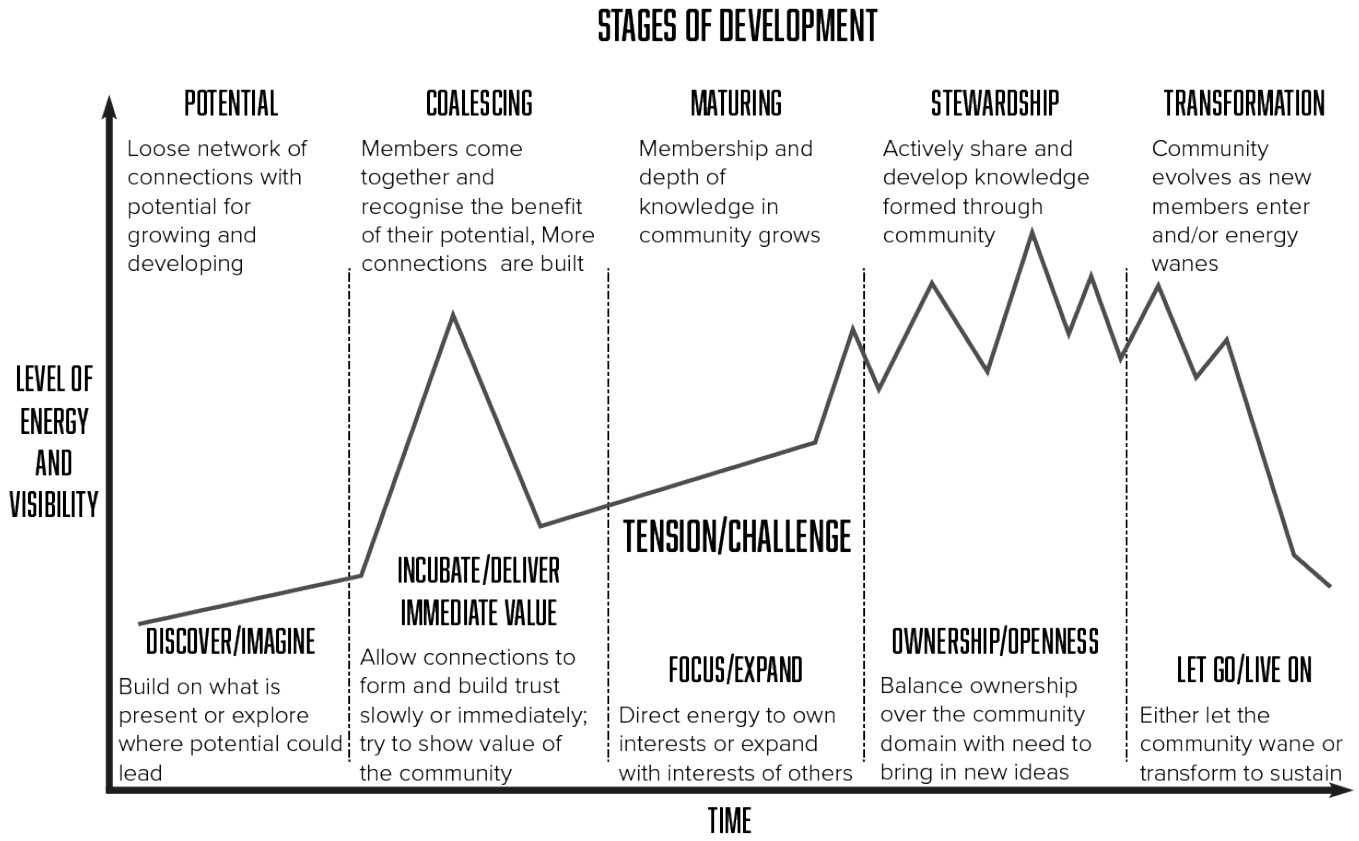

Figure 3. Stages of development in a community of practice. Adapted from Wenger, McDermontt, and Snyder (2002)

The quantitative data used in the social network analysis revealed the formation of a community of practice which was backed up by the qualitative data provided in the journals and feedback sessions. Using the *Stages of Development* described by Wenger, McDermott, & Snyder (2002) (Figure 3) it is clear that through the project there was a recognition of the **potential** at the start, and a **coalescing** during the delivery of the summer programme. The strengthening of ties in the social network analysis demonstrates the formation of the community of practice between different libraries. With support from the library management team to run events and discuss with colleagues, the researchers hope that the community of practice created will expand to include library staff who did not take part in the project and other interested stakeholders.

9 Conclusion

The project detailed here demonstrates just a small part of the move to stewardship. By providing library staff with the tools and time to create a community of practice around digital skills delivery, the research demonstrates that libraries are the ideal hub for towns and more rural areas to share ideas and practice around stewardship. Designers need to embrace their local libraries as locations of learning, and skill sharing. They should work with staff to create sustainable solutions. Collaborating with staff to establish communities of practice within libraries, accelerating the dissemination of skills needed for a circular future. Further research is to be undertaken, exploring other ways communities of practice are aiding the move towards a circular future and how these communities can include public stewardship in the fight for a better climate. While it is crucial for a circular and sustainable future that manufacturers become material stewards, it is also essential that we become stewards of the products we own. Good practice will ensure that these products last as long as possible, but it is up to designers to create products and systems of which consumers will want to become stewards.

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