Measuring community resilience: developing and applying a 'hybrid evaluation' approach

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Measuring community resilience: developing and applying a ‘hybrid evaluation’ approach

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Abstract

Communities are increasingly encouraged to become more resilient, be more active and proactive, adapt to economic and social transformation, and possess the ability to change. Many initiatives aim to enhance community resilience, however there are few effective measurement tools which identify the influence of these initiatives on the resilience of participating communities. Our paper proposes a model for measuring community resilience combining both quantitative and qualitative methodological approaches. We utilise a *hybrid evaluation* approach (High and Nemes, 2007) which links existing international research with findings from an empirical study. We test our Capacity for Change community resilience model using findings from a longitudinal study including 292 face-to-face, semi-structured interviews. Our research contributes new learning on resilience measurement, and draws conclusions for practitioners, policymakers and researchers.

Introduction

There is a strong policy focus on enhancing resilience of communities through engagement, empowerment, asset ownership and capacity-building. In the UK countries, public policies and strategies are being implemented in support of resilience driven by the need to increase efficiency of public sector spending, and a focus on enhancing inclusion, self-reliance and sustainability of communities (Cabinet Office, 2011; Scottish Government, 2015). In addition, many communities are experiencing a period of social transformation due to demographic shifts associated with migration and ageing patterns, globalisation and advances in communications technologies (Munoz et al., 2015). While many communities are capable of adapting to these changes, others are less successful. Communities that are less capable of making these adaptations may face a threat of declining resources and quality of life of their citizens.

There is an extensive critical discussion regarding the definition and development of community resilience (Mackinnon and Driskoll-Derickson, 2012; Brown 2013). Nevertheless, wider engagement with resilience is reflected in relevant community toolkits (Wilding, 2011) and policy documents (Cabinet Office, 2011; Scottish Government, 2015). Indeed, Scerri and James (2010:41) argue that, *"over recent decades, indicator-based projects have become central to a broad range of community development and policy-orientated social research, particularly research which aims to engender or evaluate community sustainability or resilience"*. Despite this level of interest, and as noted by Steiner and Markantoni (2014), measuring community resilience remains highly challenging. There is a lack of easily adaptable and practical quality tools which enable aspects of 'change' (or conversely, consistency) to be identified in both qualitative and quantitative ways. Inadequate assessment methods make it difficult to measure how effective community-focused policy and project investments are.

This paper builds on the findings presented previously in this journal (Steiner and Markantoni, 2014) by revealing new data in a continuation of a longitudinal study that took place between 2011 and 2014. We begin by highlighting the key components of community resilience. We then present the three stages in the development of the co-constructed model for measuring community resilience, subsequently outlining an example of its practical use in a rural community development programme. Key findings are summarised, before concluding with implications for researchers, policymakers and practitioners.

Exploring community resilience

Community resilience and community empowerment

The resilience of communities is an increasingly-ubiquitous concept (Skerratt, 2013). It is used in fields as diverse as community development, economics, geography, politics, climate change, development studies and many others (Pugh, 2014), mobilised by

academics, activists, practitioners and policymakers often with quite different understandings of the term.

Whilst it is not the purpose of this paper, we recognise that the concept of 'resilience' in its 'social' form has been critiqued. Brown (2013) reviews extensively such critique and identifies a number of key strands. These include first, a failure to recognise resilience as socially contingent, rarely addressing the question of 'resilience for whom?' This can be linked to critiques which have called for a greater understanding of the power asymmetries within communities, and also potentially problematic 'top-down' initiatives 'within a context of austerity and reinforced neoliberalism' when applied to communities of place (Mackinnon and Driskoll-Derickson 2013:262). Second, resilience 'focuses on a system which is disturbed by external or exogenous forces, so it underplays the internal, endogenous and social dynamics of the system'.

Despite these limitations, engagement with the concept of 'resilience' persists, and for policy and practice seems for the foreseeable future 'here to stay' (Brown 2013:1). Pugh (2014:318) concludes that 'resilience embraces the importance of adapting and navigating our way through the precarious nature of complex life through self-organisation as opposed to hierarchical and ordered frameworks of analysis and intervention'. Indeed community resilience has evolved conceptually over time, to move from purely a focus on the capacity of communities to 'bounce back' to their original state toward a more 'human agency' focussed approach. Skerratt (2013:36) claims that 'human agency is central to resilience at multiple levels of individual, community, region and even through country-level within a context of constant (rather than episodic) change'. Resilience, is increasingly perceived as the ability of community members to develop and engage community resources to thrive in an unpredictable and changeable environment (Magis, 2010).

Linked to this, empowerment seems to be an important component of the concept of resilience because, in order to develop community resilience, community members have to

be able to actively engage in building the capacity to thrive in an environment characterised by change (Skerratt and Steiner, 2013:326). It has been suggested that this 'empowering' community-led development is key to improving the sustainability of disadvantaged regions and providing local people with the capacities to respond positively to change (Herbert-Cheshire, 2000). Philips and Pittman (2009) indicate that community development consists of (i) capacity building (developing the ability to act); (ii) social capital (the ability to act) and (iii) community development outcomes (community improvement). The first component, capacity building, is essential for empowering people to be open to new attitudes to change and to be motivated in order to reach a level of preparedness to operate to their maximum potential for the development of their community (Herbert-Cheshire, 2000).

However, we are also mindful of the complexities of community empowerment, the decoupling of 'empowerment' from 'development' and the less-than-critical ways in which such concepts are often employed (Skerratt and Steiner 2013). In a rural context Shortall (2008) and Shucksmith (2010) have highlighted the need to examine capacity at local community level for inclusive development, civic engagement and governance processes which ensure that community participation in development does not favour only the articulate, well-networked and vocal. Pugh (2002) also highlights the importance of considering differences in power and capacity in the context of development studies, whilst more broadly critical accounts of the 'tyranny' of the 'language of participation' are also evident (Cooke and Kothari, 1998) and unproblematic assumptions regarding the appropriateness and mobilisation of the 'local' and 'localism' have been critiqued (Featherstone et al., 2012). Therefore, it is important to recognise the importance not only of the variations in capacity and engagement within communities, but also - as we will demonstrate - between different communities.

The dominant discourse concerning community resilience has centered around bounce-back from external shocks, the capacity to absorb disturbance and the ability to change while retaining the same function, structure and identity (Wilson, 2012). However, community

resilience is not necessarily about maintaining the current characteristics or the ability to 'bounce back' and 'stay the same'. Rather, the concept often suggests systemic change, adaptation and proactivity in relation to stresses and challenges. Its main feature is adaptive capacity represented through a continuous process which enables a community to thrive, despite ongoing change. Therefore whilst acknowledging the drivers of such change can be diverse and problematic, we present a methodology which allows for a range of impacts emanating from a specific community development project to be tracked with reference to the characteristics of community resilience.

In community development, key components of 'resilient communities' include social (Aked et al., 2010) and economic (Leach, 2013; Steiner and Atterton, 2014, 2015) features. Existing evidence suggests that in order to develop community resilience it is necessary to possess adaptive capacity in both dimensions. In terms of process, resilience is generally conceived at an individual level and, through the mobilisation of social capital[1], collaboration and community engagement, can lead to resilience at a group and subsequently community level (McManus et al., 2012).

Social resilience

Community resilience is an important indicator of social sustainability (Magis, 2010) whereby personal and collective engagement of community members is essential to thrive. Resilience represents the ability of individuals and communities to learn from past experience; be open, tolerant and inclusive; have a sense of purpose, be positive about the future, and have efficient leadership (Hegney et al., 2008). Resilience reportedly promotes greater wellbeing (Aked et al., 2010) by creating common objectives and encouraging community members to work together for the 'greater good'. Consequently, building community resilience requires in part a community developing its social capital (Putnam, 1995).

[1] Here 'social capital' is discussed in its broad sense and includes aspects of bonding, bridging and linking capital, tangible and intangible resources as well as the relationships between them (Putnam 1995).

Much of the literature proposes interdependency between social and ecological/environmental issues (Adger, 2003). This is because human activities impact the resilience of ecosystems (Alberti and Marzluff, 2004). However, at the same time, the natural environment influences how people feel about and how they interact with their surroundings. The environment also has a role in attracting new residents and visitors, and building a sense of community pride. An attractive natural environment encourages outdoor activities, and possibilities for connecting with nature (Aked et al., 2010). Hence, social and ecological systems are interdependent and there is evidence that human and natural systems are now co-evolving (Berkes et al., 2003).

Economic resilience

Communities are influenced by both internal and external economic forces such as economic growth, stability of livelihoods, and equitable distribution of income and assets within populations (Norris et al., 2008). Community resilience is supported through a resilient local economy with diverse businesses and employment opportunities (Steiner and Atterton, 2014, 2015). Access to a range of products and services is an important factor which enables people to carry out their daily activities effectively (Leach, 2013). The availability of products and services helps individuals and communities to function well and recover from adversity reducing vulnerability and creating stability. Conversely, their absence is detrimental to the quality of life of its members (Hegney et al., 2008).

A diverse and innovative economy recognises the interdependency of businesses and the wider community, where businesses and citizens can cooperate to keep money circulating within the community (Steiner and Atterton, 2014, 2015). Hegney et al. (2008:33) state *'money spent and re-spent within the community builds more business, keeps more people employed, more services active in support of the community, and raises quality of life.'* Vibrant private businesses can help to retain and attract further investment in the area

which, in turn, contributes to growing the private sector and increasing the resilience of local economies and the communities that depend on them.

Implications for the study

It has been argued that a self-reinforcing cycle is evident at community level, in which community resources enable community objectives to be met, and community resilience can be built which, thereafter, can generate additional resources and capacity (Smit and Wandel, 2006). However, as other commentators have noted (Edwards, 2009), coherent community action, based on mobilisation of assets, is not a "given" due to inherent and sometimes entrenched power figurations (High and Nemes, 2007). Further, as briefly outlined, the concept of 'resilience' has been subject to ongoing critical debate. We therefore do not propose a problem-free notion of either 'community resilience' or 'empowerment'; rather we seek to explore the challenges inherent within initiatives seeking to enhance community resilience through community empowerment, and demonstrate a methodology for tracking some of their impacts.

Co-constructing a model of community resilience

The Capacity for Change Programme

The model for assessing changes in community resilience presented here has been developed alongside, and tested as part of, the Capacity for Change (C4C) programme run by LEADER in South-West Scotland[2].

C4C targeted small, less-resourced rural communities in Dumfries and Galloway who had not engaged with LEADER or any other major funding streams. Less-resourced communities

[2]LEADER is a European funding programme which supports bottom-up local projects and provides grass-roots funding to help build stronger rural communities.

were defined as communities which have lost local services over recent years, and were identified by LEADER officers as a key part of a co-construction process in 2011. As part of this process officers had analysed previously-funded LEADER projects, identifying that particular communities regularly apply for external grants to run community projects. This, however, left other communities (potentially with lower capacity) without the support and opportunities for development. Hence, it could be argued that strong and proactive communities become even stronger and weaker communities that do not engage do not access essential support, potentially becoming weaker. This "Darwinian development" leads to inequalities which LEADER officers felt to be against the ethos of LEADER. In order to address the challenge of potentially widening disparities, the C4C initiative was therefore introduced as a 24-month programme which sought to enhance the capacity and resilience of rural communities*.* The programme involved a project manager supporting the community in question to develop a shared project, utilising a small amount of funding and supporting them to develop further funding bids.

Norms of LEADER evaluation and the shift to a hybrid approach

A further driver for this research has been the observation that standard LEADER evaluation is underpinned by exogenously-derived indicators which seek to meet the audit and monitoring requirements of the European Commission. However, exploration of how meaningful these evaluations are to those carrying them out showed a lost opportunity for "social learning" (High and Nemes, 2007:111). The Dumfries and Galloway LEADER team recognised this, and asked that we co-construct with them a more meaningful evaluation process for C4C. We brought together 'exogenous knowledge' with 'endogenous knowledge' akin to what High and Nemes (2007:114) have termed "hybrid evaluation", whereby: *'rather than placing endogenous and exogenous evaluation in opposition, it may be more useful to consider evaluation in terms of the production of hybrid knowledge...shared understanding that arises in the interactions facilitated in the project. Hybrid knowledge is negotiated...A hybrid evaluation...would require evaluation to be reconceived as concerned with the*

production of hybrid knowledge that is systemic and multi-layered.' The key driver in this process is the relevance of local context, and the role of *'power figurations with intertwining relations of dependency and accountability'* making any attempt to seek an 'objective' evaluation impossible when evaluating social impact, given that *'understandings of such impact are intrinsically socially constructed'* (ibid: p.106). We argue that it is this local context and multiple meanings which are not captured in the standardised LEADER evaluation approaches.

Developing the hybrid evaluation approach for C4C (Stage 1)

As presented, community resilience is multi-sectoral, multi-scale, constantly in flux and contingent upon the interplay between its components. Conseqently, Stage 1 of the development of our hybrid model explored social and economic resilience components both at individual and community levels (Steiner and Markantoni, 2014).. The stage was composed of three phases. It first did so with reference to the literature (Phase 1); then through scoping in the field with LEADER officers and selected communities (Phase 2)[3]; and finally through formulation of survey questions for data collection in the field (Phase 3; see Table 1).

[3] In this study, community is regarded as a group of people who live within a geographically defined area.

Table 1. Hybrid model for assessing community resilience in C4C

Phase of the study	Indicative Examples	Nature and Basis of Resilience				
		Individual Social Resilience	Community Social Resilience	Individual Economic Resilience	Community Economic Resilience	Examples from literature (Phase 1) and focus groups (Phase 2)
PHASE 1 National & International Literature Review - Evidence from academic journals, community toolkits and policy documents	-Magis (2010)	✓	✓	✓	✓	*Community resilience (…) is the existence, development, and engagement of community resources by community members to thrive.*
	-Forgette and Boening (2011)	✓	✓	✓	✓	*The concept (…) refers to the degree to which (…) a population is aware of their individual and community vulnerabilities.*
	- Aked et al. (2010)	✓				*Feelings of happiness, contentment, enjoyment, curiosity and engagement are characteristic of someone who has a positive experience of their life.*
	-Steiner and Atterton (2014)		✓		✓	*Jobs, entrepreneurship and business performance are key tangible areas to which community capacity building can contribute, and this is accompanied by more intangible factors including increased social capital and social cohesion.*
PHASE 2 Field work - Evidence from a scoping stage study	Safety and happiness	✓	✓			*It is a safe place where people look after each other. It's a good place for me and my family. The community is very supportive.*
	Employment opportunities			✓	✓	*There's nothing (…) no employment opportunities. Young people have to find jobs elsewhere (…) community is getting older.*
	Community engagement			✓		*We have a number of community projects. People help as much as they can because it's our place.*
	Infrastructure				✓	*Businesses can't develop here. What we need is good broadband, good infrastructure and premises.*
PHASE 3 Formulation of the survey questions	Development of resilience questions based on existing research evidence and conducted field work	Individual Social Resiliency Questions	Community Social Resiliency Questions	Individual Economic Resiliency Questions	Community Economic Resiliency Questions	All community resilience questions are presented in Table 2

✓– indicates components of resilience identified in the literature review and through empirical scoping-stage field work

Phase 1 – related to conducting a detailed literature review in the field. This involved 'unpacking' the four components of resilience and verifying how they are described, defined and measured through a rigorous review of existing national and international evidence: academic papers, community toolkits and policy documents. While the majority of documents intended to explore the meaning of community resilience (linking it to other related concepts of social capital, sustainability, wellbeing, vulnerability and other), very few papers proposed how to measure it. We classified themes from the literature into one of four emerging resilience components related to the nature of resilience. Some authors focused and described only selected components of the concepts and other related to all four of them. This is reflected in Table 1 (using '✓' signs). In addition, Phase 1 also incorporated analysis of the strengths and shortcomings of existing models measuring/describing resilience (for more details see Steiner and Markantoni 2014).

Phase 2 – consisted of a scoping study to gather information on what community resilience meant to the LEADER officers and local communities, and to validate and challenge findings from Phase 1. Five focus groups were conducted by the lead author in communities that were either perceived by the LEADER officers to be more or less thriving. The LEADER officers acted as 'gatekeepers'. The focus groups enabled the identification of a number of themes which were subsequently classified into the four categories of resilience presented in Table 2. These themes were then thoroughly checked with the LEADER officers, to ensure that they related to their understanding of community resilience and its components.

Phase 3 – through combining findings from Phases 1 and 2 we identified the overlapping themes for capturing social and economic, as well as individual and community, resilience. These themes were used to develop research questions. This approach enabled contemporary national and international evidence to inform and be informed by local settings and perceptions of those living in the local area. The latter was very important due to differences in social, economic, geographical, political and historical contexts of our study and the contexts presented in the (international) literature. Questions deliberately avoided

using ‘academic jargon’, seeking to set previous academic work into conversation with the lived experiences and perceptions of community members and practitioners.

Deploying the hybrid evaluation approach in the field (Stage 2)

Twenty quantitative questions were constructed to measure resilience. Respondents could give answers using a scale from zero (very negative) to ten (very positive). The overall level of resilience consists of a combination of responses from the four categories. Within each category, all criteria are weighted equally and present a mean of the collected scores. In addition, to understand better the responses twelve qualitative questions were also included. The questionnaire was piloted and revised to improve clarity and minimise bias. This process was conducted in close discussion with the LEADER officers, as part of the on-going hybrid evaluation process. The resulting resilience questions are presented in Table 2.

As highlighted in previous studies, the value of integrating qualitative and quantitative methods has long been recognised, but has less frequently been translated into research practice (Plano-Clark et al., 2010). The quantitative and qualitative elements offer a more complete picture than could be generated by any one method alone, and when deployed as part of a hybrid evaluation approach aid the ‘triangulation’ of research methods to produce more reliable research findings (Bryman et al., 2008). Open questions provided interviewees with the opportunity to express views in areas that did not lend themselves to closed ‘numeric’ questions, allowing us to build knowledge that encompassed *“hard and measurable trends and facts as well as soft and unmeasurable values and perceptions”* (Holden, 2006:179). Our qualitative questions informed and ‘unpacked’ the quantitative findings (Brannen, 2005; Scerri and James, 2010), and we found that a mixed methods approach was integral in measuring and understanding resilience.

Table 2. Resilience questions

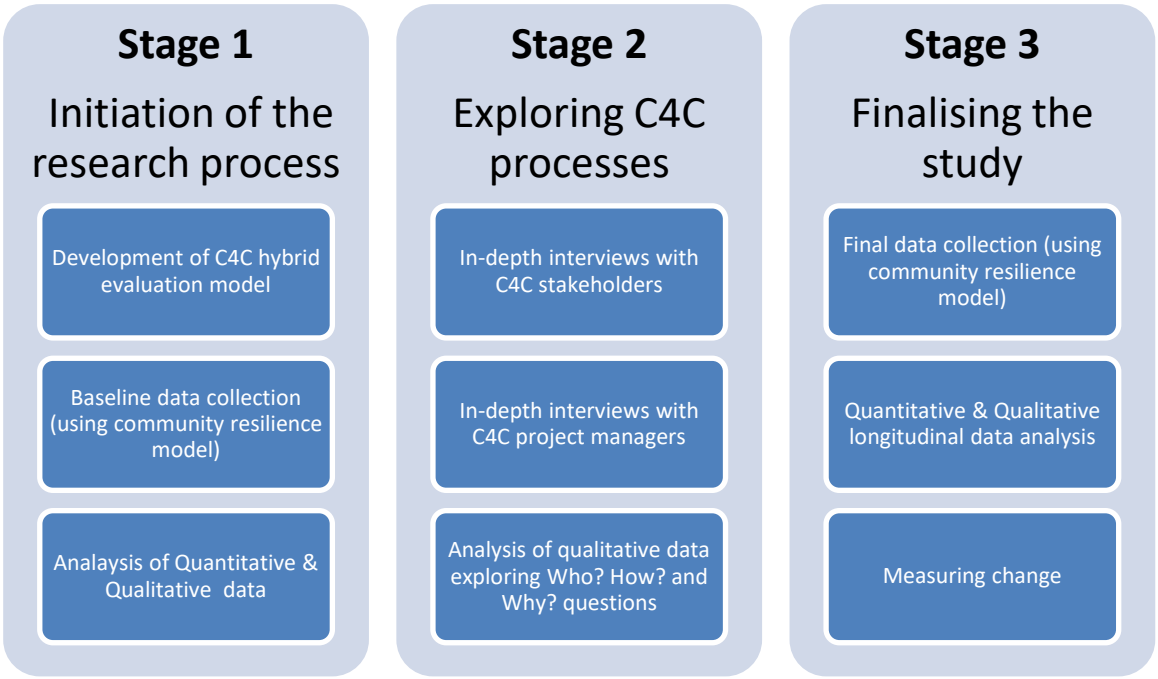
SOCIAL INDIVIDUAL RESILIENCE	SOCIAL COMMUNITY RESILIENCE
To what extent do you engage with other members of your community?	To what extent are all members in the community encouraged to be involved in community life?
Please could you give an example of this?	Please could you give some examples of this?
To what extent do you use facilities in your village?	To what extent do your community members utilise, maintain and care for existing resources in the village?
How much do you use green spaces and appreciate natural environment in your community?	To what extent do you think your community succeeds in developing and improving this village?
	Please could you give examples? How this could be improved?
To what extent are you happy with your life in this community?	To what extent is the community you live in able to learn from the past in order to develop ideas for the future?
Could you tell me why you think that?	
To what extent do you feel part of this community?	How strong is the sense of community determination to act together in the village?
Could you tell me what makes you feel that?	
	Could you tell me why you think that?
ECONOMIC INDIVIDUAL RESILIENCE	**ECONOMIC COMMUNITY RESILIENCE**
To what extent do you use your skills, expertise and knowledge you have (in your village)?	To what extent do available services meet existing and future business needs of the village?
What would encourage you to use your skills more widely?	
To what extent do you think you would be able to develop your skills in your village?	To what extent do community groups work together to generate income for the village?
What would improve this situation?	Please could you give me some examples?
To what extent are local resources accessible to you to improve your economic situation?	To what extent does your community use village based goods and services?
How would you rate your personal financial stability/security?	To what extent do you think your community makes most of what it has to improve its economic situation?
	Please could you tell me how you feel this could be improved?
To what extent do services and infrastructure in your village meet your current and likely future needs?	To what extent do you think this village is capable of developing more job opportunities?
What services would make your life better?	How do you think this could happen?

Application of the community resilience hybrid evaluation model

Generating data

Seven communities were invited to take part in the C4C programme and six of them decided to participate. Our community resilience model has been applied in the participating C4C communities in order to test the robustness of the hybrid model and assess the C4C intervention and any changing levels of resilience in the participating communities. In our research alongside C4C we used a three-stage, longitudinal approach in which a sample of community members were interviewed twice – before and after the community intervention (see Figure 1 – Stage 1 and Stage 3), with an additional qualitative sub-sample of interviews to assess in more detail the complexities of process[4].

Figure 1. Three stages assessing impact of Capacity for Change



Stage 1 has been described above (also see: Steiner and Markantoni 2014). Stage 2 began with the LEADER officer working with communities to identify their preferred direction(s) and approach(es). The research component of Stage 2 began when community projects were

[4] Our focus here is on the construction and deployment of the hybrid evaluation model together with findings from Stage 1 and Stage 3.

sufficiently developed, in order to gather in-depth information on *how* 'change' happens, *who* facilitates the process and *why* it is/not possible. We identified two groups of potential C4C community interviewees: (i) those who were actively involved in C4C from the start, and (ii) those who joined the programme sometime later. This helped to reveal aspects of people's motivation and willingness to support C4C. In addition, the C4C project officer was interviewed every six months during the 24-month project. This approach developed our understanding of C4C processes, validating findings and identified diverging and converging perceptions of C4C by stakeholders.

Stage 3 used the same interview questions as used in Stage 1 with as many interviewees as possible from the initial sample. This longitudinal approach helped to measure self-reported changes in resilience.

C4C sampling and interviewing format

Sampling: To identify respondents, a snowball sampling approach was adopted. This method is useful when the desired population is hard-to-reach, and when the sampling frame is not easily accessible (Bryman and Bell, 2007). We accessed informants through contact information provided by other informants, using informal social networks to identify additional respondents who are hard to locate or recruit as study participants, and where other means of obtaining information are not feasible (Noy, 2008). We aimed to collect views from 10% of local population; the sample frame consisted of community members with diversified socio-demographic characteristics to capture a wide range of perspectives on community resilience.

Interview format: Semi-structured interviews were selected for a number of reasons. Firstly, it reveals information and issues which the interviewer may not have expected (Bryman and Bell, 2007). Moreover, *'(it) allows interviewers to probe and the interviewees to give narratives of incidents and experiences is likely to result in a more holistic picture of people's*

understandings than a conventional survey analysis' (Brannen, 2005:182). This approach helped to build knowledge in the field and inform subsequent iterations of the interviewing process (Stages 2 and 3). Secondly, interviews are a useful method to explore and examine feelings and attitudes of diverse people with *"each interview varying according to the interests, experiences and views of the interviewees"* (Valentine, 2005:111). Thirdly, semi-structured interviews enable a large amount of information to be generated covering a variety of topics (Valentine, 2005). Finally, after face-to-face discussions (which enabled the building-up of a rapport between the researcher and the interviewees) respondents were asked to provide contact details of other community members. All interviewees were ensured anonymity, therefore village names are not revealed. During interviews notes were taken including interviewees' numerical ratings of resilience. Interviews took between 40 and 120 minutes.

Key findings

Three out of six participating C4C communities successfully completed their projects developing different products and services aiming to bring a positive change in their locations. 'Success' was defined as completion of a project within the duration of the C4C funding stream resulting in the outcome identified by the community.

Our qualitative findings indicate that developing community resilience requires tailored and context-specific support that matches local needs. Implementation of community projects is not linear and the delivery of interventions was associated with the risk of failure. Successful implementation appears to require long-term interventions, on-going input and a collaborative approach supporting equal and harmonised development. The development of community resilience appears supported by appropriate funding models, strategies to include more marginal members of communities, enhancement of social capital and willingness to participate, as well as the assistance of a project officer who acts as a mentor

and project facilitator. Community empowerment, on the other hand, starts with community engagement and community participation (for a fuller discussion see: Skerratt and Steiner, 2013).

The findings presented in this paper show quantitative findings from Stages 1 and 3 of the study. In order to measure change in self-reported resilience and its components, we utilise a longitudinal component of the study and present findings that refer to the six C4C communities that took part in the programme. To test our model of resilience across C4C communities, the responses were divided into two groups: (i) completing communities and (ii) non-completing communities. After data cleaning, the 'completing communities' group included the responses of 81 community members, with 56 community members in the 'non-completing communities' group (Table 3).

Table 3. Self-reported mean levels of four resilience components before and after C4C intervention across completing and non-completing communities

Component of Resilience	Completing communities		Change in resilience level	Non-completing Communities		Change in resilience level
	Resilience Score before C4C	Resilience Score after C4C		Resilience Score before C4C	Resilience Score after C4C	
Individual Social Resilience	7.15	7.61	+	7.40	7.21	-
Community Social Resilience	6.44	6.46	+	5.92	5.40	-
Individual Economic Resilience	4.47	5.75	+	5.25	5.21	-
Community Economic Resilience	4.24	5.16	+	4.55	4.37	-

(+) – indicates increased level of resilience; (-) indicates decreased level of resilience

Table 4. Self-reported levels of resilience across participating C4C communities prior to and after the C4C intervention (values based on mean)

Outcome of project	Level of overall community resilience		Findings
	Before C4C intervention	After C4C intervention	
Completing communities	5.58	6.25	**+** p-value = 8.785e-06; α= 0.05
Non-completing communities	5.78	5.55	**-** p-value = 0.4256; α= 0.05

(+) – indicates a positive change; (-) indicates a negative change

Data presented in Table 3 and Table 4 were collected between 2011/2012 and 2014 in six villages in Dumfries and Galloway and the findings refer to the level of self-reported overall community resilience. Our findings indicate that communities that completed the C4C project (within the specified project deadline) increased their level of resilience in its all four dimensions as well as the overall level of resilience. However, the level of all components of resilience decreased across communities that did not succeed in finalising their C4C projects. Therefore, the results emphasise the challenging nature of developing and delivering effective programmes to support community resilience, and in a unique contribution to the literature, demonstrate the potential *negative* impacts on communities should such programmes be unsuccessful. Such an approach also demonstrates the ways in which a hybrid evaluation approach has the potential to capture more comprehensive information regarding the shifting levels of community resilience over time and the relative impact and efficacy of community interventions.

Of all the resilience components, individual social resilience received the highest score, followed by community social resilience, individual economic resilience and community economic resilience. The findings therefore show the importance of 'unpacking' the concept of resilience and exploring its individual components. Despite a relatively high level of overall resilience, a community might face specific challenges. Those challenges might relate to social or economic dimensions and/or at individual or community levels. Another particularly interesting finding is that both economic and social aspects of individual resilience received

higher scores than community resilience. This would suggest that individuals evaluate their personal circumstances as better than those that exist at community level.

Finally, across all resilience dimensions, economic community resilience received the lowest scores with comparably higher scores of economic individual resilience. This could suggest that despite limited local economic resources, individuals from communities draw on available external resources (e.g. job opportunities, services and products) in order to increase personal economic resilience. This could indicate that an ability to access a 'more resilient' neighbourhood can enhance the individual resilience of those from 'less resilient' locations and, as such, when exploring resilience it is essential to look at accessibility to and inter-linkages between neighbourhood locations (for further discussion of empirical findings see Skerratt and Steiner, 2013; Steiner and Markantoni, 2014). This highlights the importance of developing and accessing diverse networks, and taking into account levels outwith the immediate community in question.

Discussion and Conclusions

Building on the evidence from international research and empirical data from the evidence produced in the C4C 3-year research project covering six communities in Scotland, this paper contributes to knowledge regarding the measurement of community resilience in multiple place-based communities over time. We have described the development of a mixed-method, hybrid model of community resilience which has been translated into a robust qualitative and quantitative research tool to explore the changing self-reported levels of resilience and its different components. This responds to Plano-Clark *et al's* 2012 call to provide examples of practical efforts to link both quantitative indicators that are "extremely valuable tools for measuring where a community 'is at' in relation to some or other given concepts" with qualitative indicators that help to understand 'softer' matters interweaving the

objective and subjective perceptions of human understandings (Scerri and James, 2010:41-43).

The research also shows, through use of a hybrid and quantitative-qualitative approach, the views and perceptions of all stakeholder groups. Although the foundation of the model is based on international academic evidence (enhancing the generalisability of the proposed approach), significant input to shaping and re-shaping it was provided by other stakeholders including practitioners and community members themselves. The hybrid approach increases the applicability of the model (and findings generated through its application) to researchers, practitioners and wider communities. Moreover, it helps to bring these three groups together in the co-construction of the research process.

Whilst for some the concept of community resilience is highly problematic, it continues to be central in policy and practice thinking, and continues to be the focus of extensive research. The study further develops and contributes to knowledge in the field bringing a number of implications. For instance, policymakers – if choosing to direct support for work with communities that do not engage - care is necessary because only completion of a community programme appears to lead to an increased level of community resilience. Uncompleted community projects decrease the level of community resilience – hence the way that they are designed and implemented is crucial in order to prevent weakening a community which may already be facing diverse specific challenges. For academics the study proposes a model of measuring resilience which is both more holistic in its approach and may be further developed, tested and transferred in future studies. Additionally, it refers to Darwinian development - the concept that could be further explored and applied in relevant studies of social capital, empowerment and community development. Finally, for practitioners the proposed model of measuring resilience can help to illustrate levels of resilience and create a tool which enables the comparison of resilience across different locations to help prioritise interventions. This can also help to identify the impact of community interventions and the way in which support may be targeted to address particular

challenges within communities, at the economic or social and/or at the individual or community levels. This may present ways in which investments in communities might most effectively be made, whilst recognising that support can influence more than one element of community resilience and have spill-over effects.

It is important to highlight the critical importance of a hybrid approach, not only in terms of the findings generated but, significantly, in relation to the greatly-increased usefulness of the evaluation process and its findings to the LEADER officers working to enhance community resilience. To these ends, our next steps are to further develop our model to allow for the measurement of self-reported community resilience over time. As High and Nemes (2007) state: *"... evaluation forms an important part of creating understandings about situations because it is an opportunity for different stakeholders to draw out and then negotiate judgements of fact and value*" (p.106). Development and mobilisation of shared knowledges, particularly in the arena of increasingly-devolved rural development programmes, can contribute to enhanced rural community resilience, and should therefore be integrated into future evaluation approaches.

References

Adger,N. 2003. Social capital, collective action and adaptation to climate change. *Economic Geography,* 79:387-404.

Aked,J.N. Marks,C., Thompson,S. 2010. *Five ways to wellbeing.* The New Economics Foundation. Retrieved from:http://neweconomics.org/projects/five-ways-well-being.

Alberti,M., Marzluff,J. 2004. Ecological resilience in urban ecosystems: Linking urban patterns to human and ecological functions. *Urban Ecosystems, 7:*241-265.

Berkes,F., Colding,F., Folke, C. 2003. *Navigating Social-Ecological Systems:Building Resilience for Complexity and Change*. Cambridge: Cambridge University Press.

Brannen,J. 2005. Mixing Methods:The Entry of Qualitative and Quantitative Approaches into the Research Process. *International Journal of Social Research Methodology,* 8(3):173-184.

Brown,K. 2013. Global environmental change I: A social turn for resilience? *Progress in Human Geography,* 38 (1):107-117.

Bryman,A., Becker,S. and Sempik,J. 2008. Quality Criteria for Quantitative, Qualitative and Mixed Methods Research: A View from Social Policy. *International Journal of Social Research Methodology,* 11(4):261-276.

Bryman,A., Bell,E. 2007. *Business Research Methods,* Oxford University Press, Oxford.

Cabinet Office. 2011. *Strategic National Framework on Community Resilience,* Cabinet Office. Retrieved from:http://www.cabinetoffice.gov.uk/sites/default/files/resources/Strategic-National-Framework-on-Community-Resilience_0.pdf.

Cooke, B., Kothari, U. 2002. *Participation: The new tyranny?* London: Zed Books.

Edwards,Ch. 2009. *Resilient nation-"Next generation resilience relies on citizens and communities, not the institutions of state...".* Demos. London.

Featherstone, D., Ince, A., Mackinnon, D., Strauss, K., Cumbers, A. 2012. Progressive localism and the construction of political alternatives. *Transactions of the Institute of British Geographers,* 37 (2):177-182.

Forgette,R., Boening,V.M. 2011. *Measuring and Modelling Community Resilience: SERP and DyME.* Retrieved from:http://ebookbrowse.com/measuring-and-modeling-community-resilience-global-horizons-submission-pdf-d205829608.

Hegney,D., Ross,H., Baker,P., Rogers-Clark,C., King,C., Buikstra,E., Watson-Luke,A., McLachlan,K., Stallard.L. 2008. *Building Resilience in Rural Communities.* The University of Queensland and University of Southern Queensland.

Herbert-Cheshire,L. 2000. Contemporary strategies for rural community development in Australia: a governmentality perspective. *Journal of Rural Studies,* 16, 203-215.

High,C., Nemes,G. 2007. Social learning in LEADER: exogenous, endogenous and hybrid evaluation in rural development. *Sociologia Ruralis,* 47(2):104-119.

Holden,M. 2006. Urban indicators and the integrative ideals of cities. *Cities,* 23(3):170-183.

Leach,K. 2013. Community economic development: Localisation, the key to a resilient and inclusive local economy? *Local Economy,* 28(7-8):927-931.

Mackinnon,D., Driskoll-Derickson,K. 2012. From resilience to resourcefulness: A critique of resilience policy and activism. *Progress in Human Geography,* 37(2):253-270.

Magis,K. 2010. Community resilience: an indicator of social sustainability. *Society and Natural Resources,* 33:401-416.

McManus,P., Walmsley,J., Argent,N., Baum,S,. Bourke,L., Martin,J, Pritchard,B., Sorensen,T. 2012. Rural Community and Rural Resilience: What is important to farmers in keeping their country towns alive? *Journal of Rural Studies,* 28:20-29.

Munoz, S-A., Steiner, A., Farmer, J. 2015. Processes of Community-Led Social Enterprise Development: Learning from the Rural Context. *Community Development Journal,* 50(3):478-493.

Norris,F., Stevens,S., Pfefferbaum,B., Wyche,K., Pfefferbaum,R. 2008. Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness. *American Journal of Community Psychology,* 41:127-150.

Noy,Ch. 2008. Sampling Knowledge: The Hermeneutics of Snowball Sampling in Qualitative Research. *International Journal of Social Research Methodology,* 11(4):327-344.

Philips,R., Pittman, R.H. 2009. *An introduction to community development*, New York, Taylor and Francis.

Plano-Clark,V.L., Garrett,A.L., Leslie-Pelecky,D.L. 2012. Applying Three Strategies for Integrating Quantitative and Qualitative Databases in a Mixed Methods Study of a Nontraditional Graduate Education Program. *Field Methods,* 22(2):154-174.

Pugh, J. 2002. Local Agenda 21 and the third world in Desai, V., Potter, R.B. (2002) *The Companion to Development Studies.* London: Arnold, 289-294.

Pugh,J. 2014. Resilience, complexity and post-liberalism. Area, 46(3):213-319.

Putnam,R.D. 1995. Bowling alone: America's declining social capital. *Journal of Democracy,* 6(1):64-78.

Scerri,A.,James,P. 2010. Accounting for sustainability: combining qualitative and quantitative research in developing 'indicators' of sustainability. *International Journal of Social Research Methodology,* 13(1):41-53.

Scottish Government. 2015. *Community Empowerment Act,* Scottish Government: Edinburgh. Retrieved from:http://www.scotland.gov.uk/Topics/People/engage

Shortall,S. 2008. Are rural development programmes socially inclusive? Social inclusion, civic engagement, participation, and social capital: Exploring the differences. Journal of Rural Studies, 24(4):450-457.

Shucksmith,M. 2010. Disintegrated rural development? Neo-endogenous rural development, planning and place-shaping in diffused power contexts. Sociologia Ruralis, 50(1):1-14.

Skerratt,S. 2013. Enhancing the analysis of rural community resilience: Evidence from community land ownership*. Journal of Rural Studies,* 31:36-46.

Skerratt,S., Steiner,A. 2013. Working with communities-of-place: complexities of empowerment. *Local Economy,* 28(3):320–338.

Smit,B., Wandel,J. 2006. Adaptation, adaptive capacity and vulnerability. *Global Environmental Change,* 16(3):282-292.

Steiner,A., Atterton,J. 2014. The contribution of rural businesses to community resilience. *Local Economy,* 29(3):219-235.

Steiner,A., Atterton,J. 2015. Exploring the contribution of rural enterprises to local development and resilience. *Journal of Rural Studies,* 40(2015):30-45.

Steiner,A., Markantoni,M. 2014. UnpackingCommunity Resilience in Scotland through Capacity for Change. *Community Development Journal,* 49(3): 407-425.

Valentine,G. 2005. Tell me about…: using interviews as a research methodology. In: R. Flowerdew and D. Martin (eds.) *Methods in Human Geography: A Guide for Students Doing a Research Project,* 2nd ed., Prentice Hall, Harlow, 110-126.

Wilding,N. 2011. *Exploring community resilience in times of rapid change*, Carnegie UK Trust:Dunfermline.

Wilson,G.A. 2012. *Community Resilience and Environmental Transitions*, Routlege, London.