Title

Using the value creation framework to capture knowledge co-creation and pathways to impact in a transnational community of practice in autism education.

Abstract

Although theories around Communities of Practice (CoP) have gained significant ground in recent years and have become an important focus for organisational development, there is a gap in studies that investigate what members gain from participation in these communities. This paper explains how the value creation framework was implemented in a transnational research and development project in autism education by examining cycles of value creation and drawing on two types of data identified by Wenger, Trayner and de Laat (2011). The value creation framework is a theoretically driven framework to assess social learning in communities. Participants involved in the learning space were co-researchers engaged in a process of investigating, sharing and reflecting on their practice. The paper discusses the methodological challenges and strengths of using the value creation framework, with a particular focus on how insights and interactions led to subsequent changes in the practice of the participants. This work has the potential to make an important contribution to methods and analysis in assessing social learning and pathways to impact in participatory research and development projects more broadly.

Keywords

Communities of practice; value-creation framework; knowledge co-creation; autism education; participatory research; autistic participation.

Introduction

Academic discourse tends to perceive social impact as the effects and outcomes resulting from research, and the value and benefit associated with using knowledge produced by researchers (Beacham, Kalucy, and McIntyre, 2005). This knowledge transfer model is one that sees research as conducted by researchers, which is then transferred to practitioners to enable them to implement evidence-based interventions (Guldberg, 2017b). However, in educational research, 'expert-driven policies implemented in a top-down manner onto schools and communities have failed to deliver or sustain much-needed change' (Warren, Park and Tieken, 2016:

236). Participatory methodologies, on the other hand, can challenge the dominant academic paradigm in which researchers define and produce research without directly engaging practitioners and stakeholders (Guldberg et al., 2017; Peters, 2010). These methodologies can create bridges between types and areas of knowledge and move away from the silo mentality that tends to characterise different knowledge bases, and they have the potential to be integrated directly into the active development of educational practice (Hammersley, 2006). Such integration can lead to constructive engagement with the actors from the outset, can provide pathways to better practice and can positively capture the impact on the lived experience of community members (Seale, Nind and Parsons, 2014; Lather, 1986). This can, in turn, ensure more socially robust knowledge while being widely accepted in the context within which it is being applied (Bergold and Thomas, 2012; Milton, 2014; Gillespie-Lynch et al., 2017).

Participatory methodologies that draw on social learning theory and Communities of Practice (CoP) can encourage practitioners and researchers to work together towards enabling change (Macdonald, 2002). Such methodologies can lead to learning that allows for co-creation of knowledge, identity construction, and institutional development (McDonald and Cater-Steel, 2017), with knowledge co-creation in this context being defined as the process that brings together a plurality of knowledge sources and types to address a defined issue (Armitage et al., 2011). These methodologies can also increase the potential for research impact, for example, by establishing a shared purpose and community of practice between researchers and researched (Seale, Nind and Parsons, 2014).

Although there has been much work on communities of practice in the social sciences, organisations and professional disciplines (Oreszczyn, Lane and Carr, 2010; Tran, Pittock and Le, 2018), examination of what community members gain from their participation in these communities remains an under-researched issue (Dingyloudi and Strijbos, 2015). Planned interventions such as policies, programmes and projects need ways of capturing the social change processes arising from those interventions by analysing the social consequences of the interventions or projects (Argote, McEvily and Regans, 2003). This highlights the need to develop methodologies and methods that enable a focus on both what is meaningful and what is measurable (Booth and Kellogg, 2015).

This paper arises from the challenge of developing suitable methods for evaluating the learning that might arise from combining academic knowledge and

understanding with community knowledge and understanding from the outset (Roux et al., 2006). This includes finding methods for taking into account the unique knowledge bases of different actors in a field, such as policy-makers, practitioners, researchers and the stakeholders themselves, each of whom is the holder of a different type of knowledge (Armitage et al., 2011; Argote et al., 2003.). In such work, impact assessment is clearly complex (Bierly et al., 2000) and should tap into all niches of knowledge holders (Meessen and Bertone, 2011).

To that end, Wenger et al.'s (2011) value creation framework was developed as a way of demonstrating value created in communities and networks. In this framework, the concept of value relates to participation in social learning spaces and is defined as being what is important, worthy and useful to the individuals involved in a community (Wenger-Trayner et al., 2017). The value-creation framework is grounded in social learning theory (Wenger-Trayner et al., 2011), and based on viewing learning as a social process and embedded within activity, context and culture (Lave and Wenger, 1991). The value creation framework embodies both a theory of change regarding how social learning can make a difference in the world and a rigorous method for assessing learning in a community. The focus and emphasis is on the experience and identity of learners, on relationships and interactions, rather than knowledge, skills or curriculum (Wenger-Trayner, E. and Wenger-Trayner, B., in press).

The framework accounts for the complex ways in which a community creates value by enabling examination of the 'interrelationship between learning insights, practice and results that happen as a result of participation in social practices' (Wenger-Trayner et al., 2017:3). It depicts social learning in terms of loops across value-creation cycles. Wenger-Trayner et al., (2017: 3) describe four of these value-creation cycles in the following way:

> 'a) engaging in social learning can create *immediate value* such as the company of like-minded people or doing something exciting; b) this engagement can create *potential value* such as insights, connections or resources; c) drawing on these insights, connections or resources to change one's practice requires much creativity and learning, and thus is viewed as generating *applied value*; d) to the extent that changes in practice make a difference to what really matters, social learning produces *realised value.*'

The framework is designed to support the integration of a variety of sources and types of data (Wenger-Trayner et al., 2011) as 'the evaluation of social interventions is challenging because effects are indirect and often attributable to multiple factors' (Wenger-Trayner et al., 2017: 4). There is a need to capture the effects on things that matter to stakeholders whilst being able to claim that the intervention contributed to this effect (Wenger-Trayner et al., 2017).

This paper investigates value-creation in a participatory transnational project in the domain of autism education. We give a short background to the transnational project, before outlining how the value creation framework was implemented in the project. We report on the methods, analysis and the findings that emerged, and discuss the challenges and potential of implementing this methodology.

The project

The project was an inter-disciplinary, multi-professional and transnational EU funded project involving the UK, Greece and Italy, with seven partner organisations overall, including Universities, charities, a school district, a local authority team and a creative agency. The partnership used Communities of Practice (CoP) theory (Lave and Wenger, 1991; Wenger, 1998) to inform the participatory methodology of the project and to advance learning in the domain of autism education by bringing together a community of researchers, practitioners and autistic individuals over a period of three years. The core project team consisted of a mixture of academics, key policymakers, autistic individuals and practitioners from each country (n=24) and this core team engaged with a range of stakeholders, with different types and levels of engagement, over the duration of the project (n=2796). The overall objectives of the project were to research good autism practice in education; create professional development programmes in Greece and Italy, enhance the knowledge and practice of school staff in those countries, and to involve autistic participants in this process. Partners drew on a national training programme in the UK, translating and adapting it for Greece and Italy and they worked collaboratively in this process.

Starting in 2014, and running over three years, the project had several phases. Phase One reviewed current educational practices and policies in each country by drawing on a mixed methods approach of surveys across all three countries (n=695), interviews (n=24) and focus groups (n=9). Phase Two consisted of the adaptation and translation of a UK-based professional development programme to Greek and Italian.

This was followed by the delivery and assessment of the training in those countries, the development of a project website, as well as translation and adaptation of quality indicators and a competency framework for primary schools and staff. Project materials were developed in partnership with autistic individuals, expert reference groups, regional authority staff, teachers and parents of autistic individuals in the schools the team engaged with. Outputs consisted of a research report on the training needs of education staff in the UK, Greece and Italy, four tiers of training materials in Greece, three tiers of training materials in Italy, school guidelines for staff in primary schools in Italy, quality indicators for primary schools and therapeutic settings in Greece, a competency framework for practitioners in Greece and a website with resources for staff in all three countries. All materials had a focus on autism education. Activities included six transnational meetings twice every year, lasting a week each, with two in each country. These transnational meetings consisted of workshops, seminars and conferences in which the team engaged with one another and a broader group of stakeholders, and participated in school visits to primary schools in each country. In between transnational meetings, team members met regularly in their national teams, and communicated transnationally through teleconferences in between face-to-face meetings.

Aims of the study, methodology and ethics

One of the key objectives of the project was to develop the competence of team members so that they could be in a position to offer professional development to educationalists in their local communities. Involvement of autistic participants was a crucial part of this so that team members could enhance their understanding of the experiences of autistic individuals and so that autistic people were part of shaping the professional development materials. This study sought to understand the social learning processes of project members by using the value-creation framework to investigate joint learning and knowledge co-construction, and to capture how learning travelled from project activities to the wider domain in which participants were trying to effect change[1].

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[1] We followed the British Educational Research Association ethical guidelines (2014) and the robust ethical procedures available at the lead institution to gain ethical permission for the work reported in this paper (reference ETN-14-1128B).

The value creation framework is a mixed methods framework drawing on both effect and contribution data (Wenger-Trayner et al., 2017). Effect data captures effects on things that matter to stakeholders whilst contribution data provides plausible claims that these effects are linked to the intervention. Effect data consisted of data that captured the overall effects of the project on team members and other stakeholders. These data sources assessed the extent to which the project met its objectives across different cycles of value-creation. This included qualitative and quantitative ways of measuring change, with the desired change being increased awareness and acceptance of autism, and enhanced understanding, knowledge and skills of professionals. The effect data was gathered throughout the project, and was largely associated with the specific activities and outputs of the project.

In the cycles of value-creation, immediate value captures the levels of engagement and participation of team members, as well as their experiences. Effect data to measure immediate value was therefore gathered from team members (n=24) in the form of feedback forms after each transnational meeting. These feedback forms focused on the key learning points of project members during transnational meetings, their thoughts on the learning activities themselves and their application into practice, and also on what could be improved for the next transnational meeting. During each transnational meeting, the team also held a seminar or conference for wider stakeholders. After these events, evaluation feedback was gathered from all participants, focusing on the relevance of the new knowledge gained. Furthermore, data was kept on the number of people involved in expert reference groups (n=24), the number of stakeholders who attended seminars and conferences (n= 972) and the number of school staff who participated in training (n=1600 in Greece and n=200 in Italy). Broader engagement was illustrated by social media and website statistics. By October 2017, for example, the dissemination website had 4,917 unique page views; the resource website views had 26,217 unique page views, there were 3,500 blog views from 40 countries; and 68,000 twitter impressions from tweets related to the project. These figures illustrated the broader scope of the project.

Indicators of *potential value* (tools and documents, skills acquired and new ways of learning) related to what the community produced that had the potential to make a difference. In this project, potential value included the underpinning research report from Phase One, the training materials, quality indicators and competency frameworks, the website and the final report. For example, the training materials were

adapted and translated from UK materials to Greek and Italian. These materials were developed as power-point presentations in close consultation with expert reference groups in each country and by consulting with an autistic person. They represented new insights and knowledge developed by project members and other stakeholders and therefore held potential value. A report on the translation and adaptation of the materials and quality assurance processes drew on minutes and notes on discussions and engagement within the team and with stakeholders. This made it possible for others who wish to implement a similar model to do so.

Indicators of *applied value* related to the delivery of the training materials in Greece and Italy and how the delivery of the professional development changed the knowledge, skills and understanding of the participants in the training. The project partners in Greece and Italy delivered the professional development programme they had produced to over 1600 participants in 100 schools in Greece whilst project partners in Italy delivered the training to a network of 200 participants in six schools. Participant satisfaction surveys gathered information about the trainee, the school, the effectiveness of the training methodology, the resources that were given to the participants and the experiences of the participants. *Realised value* captured how team members and other stakeholders who undertook the training changed their practice through participant satisfaction surveys that collected data on whether the training made a difference to their *practice* (see figure one for the data related to the value creation cycles).

<Insert figure one about here>

Whilst effect data captured the overall effects of the projects in terms of its impact on team members and other stakeholders, contribution data provided plausible claims that the effects were linked to the intervention (Wenger-Trayner et al., 2017). In the value creation framework, this takes the form of value creation stories. Value creation stories are a relatively new area of conceptual and empirical development (Wenger-Trayner et al., 2017; Davis et al., 2017) that represent a unique genre that gives a structured approach to storytelling, and a disciplined way of collecting data about outcomes from actions (Booth and Kellogg, 2015). This approach is grounded in theories of situated learning. These foreground the voice of practice as a source of data and are constructed through stories of lived experiences and the meanings

created. Participants choose the stories they tell and the stories focus on how someone was influenced by something that was developed by the community and as a result of their engagement in it (Wenger-Trayner et al., 2011).

In this project, the writing of the stories took place in the last six months of the project. The process of curating and collating stories was a collective one. Therefore, as with all other aspects of the participatory research design of the project, the research was not something that happened to participants but it happened with participants. Etienne and Bev Wenger-Trayner were involved in several phases of the project. They delivered workshops, supported analysis of the stories, and also commented on the methodology and drafts of the paper at various stages. Their involvement started with the delivery of a one-day workshop in Athens in February 2017. This engaged the team in the practicalities of generating value-creation stories through guided storytelling. They first asked participants to collectively create a landscape map and timeline. This resulted in a graphical representation of learning activities where team members identified that value had been created. Participants were then asked to work individually and to choose a learning activity that had been valuable to them as an individual, be very specific about identifying the immediate value of that activity and what they experienced as part of the learning activity, outline the potential value of that learning, highlight how they applied this learning to their practice and finally to capture what happened as a result. At the next transnational meeting six months later in Milan, team members worked in groups of three. Each group consisted of the narrator, a scribe and an interviewer. Their task was to reflect on the stories that had already been created by discussing the detail of each story and critically examining the plausibility of the story by probing causal links between the cycles. These were then shared and discussed collectively.

A cross section of team members and other stakeholders created 26 value-creation stories from Greece (n=9), Italy (n=10) and the UK (n=7). The stories are available online at https://bit.ly/304r7h3. The real names of narrators are used when participants wished to use their real names. Stories were between 185 and 567 words long and reflected different learning experiences that participants encountered during their involvement in the project. Hence, some stories focused on learning from the school visits, others commented on how learning in a transnational meeting contributed to change in how they worked with teachers in schools, and many

participants illustrated how different activities had enabled them to learn from autistic perspectives, for example.

For the purposes of this paper, we focus on how the value creation framework enabled the perspective of participants to come to the fore through the value creation stories, whilst cross-referencing selected stories these with key indicators at each cycle, in order to illustrate how the learning processes and knowledge co-construction within the team had an effect on stakeholders. Space precludes an in-depth discussion of all the data. We therefore explain the implementation of the methodology and how we analysed the data by focusing on illustrating one of the key themes that emerged from the data. This is then followed by a discussion regarding the extent to which the value creation framework as a methodology advanced understanding of the value created and the changes in understanding and practice for those participating in the project.

Analysis

Firstly, we undertook a thematic analysis of the value-creation stories that were written by team members in order to identify common thematic elements across participants' experiences. The focus was to understand what was emerging as important to the community in terms of the learning of participants and how participation in the project had impacted on them. The thematic analysis followed Braun and Clarke's (2006) six-step process and involved going back and forth in the analysis of the data to 'identify, analyse and report patterns (themes) within the data' (Braun and Clarke, 2006: 6). For step one, the data were transcribed from text to digital and then two researchers immersed themselves in the data by repeatedly reading and familiarising themselves with the stories. In step two each story was given a code, which indicated the key value of social participation that had been generated for the participant. Once all the stories were initially coded, step three involved collating the stories according to overarching themes that emerged. This theoretical thematic analysis captured what was interesting in relation to the research questions. Themes were generally descriptive in that they described patterns in the data. In step four, the researchers reviewed the themes through discussion and identified the issues that emerged as most important to the participants. At this stage, the stories and the themes were also discussed with the project team as a whole at a

transnational meeting, and this led to the entire team being involved in reflecting on the final themes that emerged in step five.

The overarching themes that emerged from the 26 stories were 'developing relational expertise between autistic and non-autistic participants,' 'how thinking differently led to new practice' and 'boundaries and boundary objects as powerful contexts.' After having identified these themes, each theme was coded for sub-themes. Finally, in step six, the team created a thematic map of the key themes and sub themes according to each overarching theme. Due to space constraint, and the fact that this paper focuses primarily on the methodology, we discuss the theme of 'developing relational expertise between autistic and non-autistic participants' to illustrate how effect and contribution data were drawn upon to understand the social learning processes related to this theme (see figure two for the sub themes and titles of the stories).

<Insert figure two about here>

Given that the emphasis in social learning theory is on the flow of value across cycles and Wenger-Trayner et al. (2017) argue that 'it is these loops between learning interactions, insights, practice, results and back that we call social learning' (Wenger-Trayner, 2017: 3), we then moved on to developing a conceptual map that cross-referenced each value creation story with key effect data to investigate how the learning travelled into the community in which participants were engaged (see figure four for one example of this).

Findings

Several stories (n=9) illustrated that the engagement of autistic people in the project helped non-autistic participants to develop a greater ability to understand, listen to, and work with autistic people as a result of their work in the project. This, in turn, made a difference to their day-to-day practices and how they worked with teachers and therapeutic staff when they delivered professional development. Some of these stories focused on the emotional side of 'feeling proud', or 'becoming full of hope' in relation to the inclusion of autistic people, with direct reference to the autistic advisor, Damian, giving groundbreaking presentations and offering unique perspectives. The stories focused on the insights, emotions and changed practices

non-autistic participants gained from this, as well as some articulation of the barriers, fears and difficulties involved in doing so.

Autistic participants also wrote stories about the conditions for learning that were generated by the work of the transnational project. Damian, autistic advisor for the project, illustrated the importance of interest and motivation. Other autistic participants reported in various ways about the underlying conditions that facilitated their involvement. Giannes wrote about the revelation of engaging in group-work and learning from others, valuing that and finding it transformative. Kalika's narrative focused on the importance of respect and a non-judgmental attitude from others, and that without this, she finds it difficult to be sociable. Another autistic participant wrote about the importance of being listened to, being in a safe place where he feels good about himself.

Feedback from transnational meetings indicated the benefits of autistic participation, that Damian's contribution to the project was highly valued by the community and that his input was crucial to overcoming barriers to involving autistic people in Greece and Italy. In those countries, the project team found it more difficult than initially anticipated to find autistic people who were willing to be involved. Stigma is strong in both countries and people were, therefore, reluctant to come forward as autistic. Finding ways of engaging with this community was enhanced when Damian spoke to a group of autistic people at World Autism Awareness Day (WAAD) in 2017, by speaking at conferences and multiplier events, and being a confident contributor to the transnational meetings, as this enabled another three autistic participants to come forward and become involved in the project.

We now give an example of a story that illustrates the theme of 'developing relational expertise between autistic and non-autistic participants.' We take the reader through how this story was cross-referenced with effect data to fully illustrate the impact of a particular learning interaction. The story is shortened in this paper, but the full version is available online. Rebecca reflected on learning outside the scheduled project meetings, and the impact of having a discussion with Damian, who is autistic, at the airport after the fourth transnational meeting. This prompted her to think more deeply about the marginalisation of autistic people, and this was a contributory factor in her bringing autistic perspectives more into the centre of the project at the next transnational meeting. She gave the story the title 'Learning at the margins' (see figure three).

<Insert figure three about here>

The story captures how a learning interaction Rebecca engaged with during the project, contributed to a particular insight that in turn led to a change in her practice. Wenger-Trayner et al. (2017: 14) highlights that 'the emphasis in social learning is the flow of value across cycles and looping the learning back.' It is therefore valuable to identify 'reframing loops' (Wenger-Trayner et al., 2017) in which participants indicate the insights they developed in a project, how this learning was applied, followed by bringing it back into the community in terms of articulating what they did as a result of the learning and what they learnt from that process. The effect data below provided an illustration of a reframing loop that emerged from Rebecca's learning, and how changes to practice resulted from the learning interaction she outlined in her story (see figure four).

At the fourth transnational meeting seminar event, attended by 85 people, Rebecca organised this so that 12 out of 18 speakers were autistic. One participant commented on the sense of the 'real possibility to work with people with autism (for instance, through the autistic panel).' The value of this approach was emphasised in feedback from the fourth seminar event, with 34 out of 39 of the participant responses rating the event as being excellent or very good, and with participants commenting on the variety of autistic speakers. Feedback particularly focused on the value of accessing autistic perspectives on stress, anxiety and exclusion, and that a presentation on girls on the autism spectrum was illuminating. Key learning points were also reported in a 'twitter storify' (a way of gathering all the tweets from the event to 'tell a story' of the event) after the event. A strong theme that emerged from this was the powerful insights by autistic participants. Examples included comments on 'the importance of being aware of gender stereotypes'; 'that the most difficult thing in schools was not being listened to' and that 'autistic kids are not helped to learn the social norms of non-autistic kids and vice versa.'

The above feedback led the project team to organise a workshop at the next transnational meeting in which autistic participation was explored in further depth. Autistic advisors for the Greek team attended this workshop, and this work enabled the whole team to reflect on how to better facilitate autistic participation. This, in turn, led to new ways of including autistic people in other events. The Italian team included

two autistic people in presenting at the project's international conference in June 2017, for example. The interrelationship between Rebecca's value creation story and the effect data is illustrated in figure four.

<Insert figure four about here>

Whilst Rebecca's story captures re-framing loops related to how the learning impacted on her work within the project team, and with the stakeholders that the project team engaged with through seminars, other value creation stories also traced learning interactions (Wenger-Trayner et al., 2017) that contributed to changes in the way they worked with school staff through the delivery of the professional development programme. The development and negotiation of shared values, reflection and cooperation through the creation of the training materials enabled some participants to re-frame (Kaufman and Smith, 1999) the way they had initially thought about autistic people. Elena G, a participant in Greece, illustrated how she started thinking differently about autism as a result of an early transnational meeting. This, in turn, changed the way she worked with schools and teachers.

<Insert figure five about here>

In the full version of Elena G's story, she highlighted that a video clip of Dean Beadle, an autistic adult, made a strong impression on her. When delivering professional development, Elena G used the video clips as a starting point for engaging Greek teachers in a new way of working with autistic pupils. This sense of the value of the video clips and the way they represented the voice of autistic people is further illustrated by Elena A's story. Her story traced how her commitment to understanding the world from the perspective of autistic people led her to create video clips with autistic people so that their voice could be captured and be a key part of the Greek training materials she was part of designing. She drew on these video clips when providing professional development to schools and this helped her encourage participants to consider the perspective of autistic people.

When linking this value-creation story with effect data, feedback from participant satisfaction surveys of the first 340 participants in Greece indicated that they found the training worthwhile, 88% agreed it was appropriate to their level, 84%

reported there was a good balance between theoretical information, explanatory example and practice analysis. Participants particularly valued hearing the perspectives of autistic people, and stated that by reflecting more on how autistic pupils might experience the world, they became more understanding of the pupils. The majority felt positive about enhancing their ability to support autistic pupils as a result, and that the training would change their everyday practice. Participants indicated that they were able to build their competence throughout the training, and raised their knowledge and awareness of inclusion.

Finally, another story indicated how the development of relational expertise between autistic and non-autistic participants in the project led to these insights and learning being taken outside of the project entirely and into the local authority team two of the participants worked with. The work informed the development of further resources that were subsequently used with all schools in which the storytellers were based. Pam and Lesley, from a local authority team in Birmingham (UK), gave an account of the broader impact of developing relational expertise between autistic and non-autistic people by writing a story about how a presentation by Damian inspired them to go back to their team and have discussions about autistic participation. This in turn led the local authority team to change how they worked with autistic participants. Their role is to advise schools, so they developed new ways of supporting schools to become more able to consider the perspectives of autistic pupils. This included the development of the 'All about me' tool, which is now used in the 420 local schools the local authority team works with. 'All about me' is a computer-based tool to obtain information directly from the pupil on their strengths and interests. It supports the development of goals and progression and it complements information given by parents and teachers.

<Insert Figure six about here>

In summary, value creation cycles allowed qualitative and quantitative data to refer to each other in ways that enhanced the robustness of the picture they built. Overall, the method of value creation stories supported shared reflection on the dimensions of value creation in the project; captured cycles of reflection and action for individual participants; highlighted preconditions for successful autistic

participation and identified how learning branched out into other communities when examined in conjunction with effect data.

Discussion

Edwards (2005) called for the participation metaphor to move 'beyond behaviour to examine within person changes which modify the way in which we interpret and may act on our worlds' (Edwards, 2005: 50), giving weight to understanding, ideas and concepts and how we might transform our world through our increasingly informed actions on it. We argue that value creation stories were a promising method for capturing such processes as they evoked snapshots of the learning and value creation (Booth and Kellogg, 2015). They gave an indication of how project members co-constructed 'new forms of meaning and understanding in ways that were individually and collectively valuable, and applied that knowledge in their professional practice' (Booth and Kellogg, 2015: 1). The value creation stories allowed the perspective of individual participants to come to the fore through collecting structured information about their learning.

However, the genre of value creation stories requires experience, expertise, and continued practice to do well. Many participants found it difficult to clearly and plausibly show the value creation process. The most powerful stories gave specific examples of their learning and were often detailed with a clear narrative, showing plausible and causal connections between the cycles of value. Other stories were brief with little detail and would reflect on learning and practice in a general way, without necessarily outlining whether specific learning interactions led to potential, applied or realised value, for example.

That said, the methodology enabled the discovery of themes that were important to the participants and how dimensions of value originated in the project, as well as capture people's ability to act on what was important to them. It focused evaluation efforts on why people were there in the first place, namely to improve the education of autistic pupils through the training and professional development of teachers. Team members invested their time in this project in order to make progress in certain aspects of their practice, they aligned themselves with the aims of the project and they wanted to make a difference to how autistic pupils were taught in classrooms. As a result, there was significant overlap between the project's aims, the effect data and the themes emerging from analysis. Given that the aim of the value

creation framework is to understand social learning and the interrelationship between learning interactions, insights and actions by focusing on cycles of value, there will inevitably be a cyclical nature to the findings when investigating social learning in communities. This circularity may have become more striking in this project because the value creation stories were written in the last six months of the project when possible ambiguities and tensions within the project team might have been resolved.

It is important to note that the stories represented reconstructions of experiences, remembered and told at a particular point, towards the end of the project when people were looking back at their learning. Context and timing is likely to have bearing on how they were told, what was told and how they were interpreted. According to Riessman (2007), storytellers do not just reproduce a past experience but they re-think their experience based on their current interpretation, experiences and interests. They generate strategies of making sense of their world to themselves and others, while drawing parallels among past, present and future. Analysis of the stories also needs to consider the degree to which the outcome of such an analysis, and the reading of the story, adequately represents participants' experiences. We addressed this issue by discussing the stories with one another in small groups at a transnational meeting, co-creating the interpretation of the stories. We were also mindful of whether those who were confident and vocal overshadowed those who were more tentative about voicing their experiences. Some participants were less confident about writing in English, for example, so they wrote their stories in Greek or Italian. Two participants did not feel confident enough to write their own stories, so worked in partnership with another team member to articulate what they wanted to say.

Gaining sufficient insight into the purposes and practices of others (Edwards, 2005) emerged as important for the joint knowledge-co-creation process in the transnational project. In particular, the value creation stories highlighted the role of autistic participants as epistemic agents and influencers in gathering information, creating knowledge, and sharing that knowledge with others. New elements were introduced into practices (such as the involvement of more autistic people in transnational meetings) and the practices were in turn, expanded and transformed by the team then reflecting on experiences (e.g. a workshop with autistic participants). The stories, when cross-referenced with key effect data, also illustrated how that

learning in the space might be represented and realised elsewhere in daily practices (Davis et al., 2017).

The issue of autistic participation was an example of attitudes, thinking and practice changing over time. A clear value emerging from this research was that of autistic people finding a voice or gaining a sense of agency. Milton and Bracher (2013: 63) highlight that autistic inclusion and contribution to the research process can enrich it by 'increasing the epistemological integrity of studies that seek to explore important questions relating to the wellbeing of autistic people.' It can also lead to new insights on developing relational agency between autistic and non-autistic participants. Milton's paper on the 'ontological status of autism: the double empathy problem' argued that many discourses in autism studies ignore the importance of 'relationality and interaction in the formation of a contested and constantly reconstructed social reality, produced through the agency of its actors' (Milton, 2012: 884). He coined the term 'the double empathy problem' to mean 'the disjuncture in reciprocity between two differently disposed social actors' (Milton, 2012: 884), thus highlighting the difficulties that autistic and non-autistic people have in understanding each other's worlds.

We would argue that the value-creation stories that emerged from this project captured, in an embryonic way, what it means to build interactional expertise between these two different ways of processing and experiencing the world (Milton 2014). This was in part achieved through the participation of autistic people in the design of the professional development materials themselves, but also in terms of how they were represented in the training, through quotes, vignettes, case studies and video clips. As highlighted by Wood and Milton (2018), progress entails the need to break down some of the power imbalances to move towards research 'with' rather than 'on' autistic individuals.

Understanding and acknowledging the importance of input from autistic people in autism research is a concept that has developed significantly within the UK context over the last decade in particular (Pellicano, Dinsmore and Charman, 2013; Fletcher-Watson et al., 2018), and the project reflected this trend. The core teacher training materials that formed the basis for those that were developed by the Greek and Italian teams for use in their own countries were themselves produced with significant involvement from autistic experts (Guldberg, in press). In the early stages of the project, an autistic consultant was recruited initially to the UK team who then

provided advice to the Greek and Italian teams on how they could recruit their own autistic consultants. Subsequently, more autistic people became involved in the project as conference speakers, participants and trainers in seminars or interviewees for the project blog. Thus, over the course of the project, the concept of autistic participation shifted from a relatively external positioning of information-giving and the production of advice, to one of a more central notion of agenda and priority-setting (Nind, 2011; Fletcher-Watson et al., 2018) and both effect and contribution data captured this.

Importantly, feedback in the form of a questionnaire including open and closed questions from project members following research and training events consistently highlighted the involvement of autistic people as being the most valuable and instructive aspects for them. In addition, a seminar was run in Greece in 2017 by the UK autistic consultant and the project manager on the theme of 'autistic participation', during which team members were asked to reflect, through written narratives informed by the Wenger, Trayner and de Laat (2011) model, on what this meant for them in research and practice. These stories showed that while the participation of autistic people was valued highly by team members, complexities nevertheless existed, and that sometimes the rapport between autistic and non-autistic community members can be typified by difficulties and struggle, as well as a lack of awareness of potential power differentials (Wood and Milton, 2018). In other words, if non-autistic people continue to hold the decision-making power in autism research, then the participation of autistic people will always be partial and conditional upon the willingness of non-autistic people to accept and accommodate them (Wood and Milton, 2018). The work of the project showed that autistic participation is not necessarily a simple and straightforward intention, nor is it free of ambivalence, tensions or contradictions. In order to enable and sustain involvement, for example, much thought went into ensuring that autistic project members were appropriately supported in all the events that were organised, but there were times when attendance at events became overwhelming, and participants needed to spend time out from meetings.

Although there was strong alignment between effect and contribution data about what constituted value in the stories that were generated from this particular community, this does not mean that we can assume that what is considered value will be the same for all participants and stakeholders in different communities.

Methodological and ethical challenges of such research include the need to be aware of power dynamics, building rapport, communication and having meaningful processes and outputs (Scott-Barrett, Cebula and Florian, 2018). Potential power imbalances could be illustrated by the fact that the teacher training materials created in the UK formed the basis for those that were developed in Greece and Italy. This was not only a question of the physical and online training manuals and associated documentation, for example, but of the fact that key members who devised, developed, piloted and implemented the training formed part of the project team itself. Furthermore, certain central concepts that underpinned the training materials – such as ensuring that all staff members who work with autistic children including catering staff, teaching assistants etc. receive the training – were considered to be essential components of the new materials. Thus, the initial core training which was to be developed in Greece and Italy was derived from a combination of physical and digital manuals, advice from expert individuals and the promotion of fundamental concepts which were felt to be indispensable, all from the perspective of the UK.

However, equally – if not more - important was the drive to understand the specific pedagogical needs and cultural particularities, as well as the autism education landscape of Greece and Italy: these differed both from each other and from those of the UK. For example, an early stage of the project was devoted to a scoping review of the current form and provision of autism education and the specific training needs that educators in Greece and Italy identified for themselves. Subsequently, the creation and piloting of the training materials in both countries took place within distinct national teams, at different rates, with differing emphases, internal structures and approaches. Furthermore, these distinct approaches had a reciprocal, instructive impact on the UK team, as ideas were shared about different cultural training methods and styles (Wood, 2017). Therefore, even though the UK team had an initial, instructor role, this shifted over time towards a much greater emphasis on mutual learning and knowledge co-creation. Concerns over power dynamics were also prepared for and addressed by holding transnational meetings in the three different countries, paying careful attention to communication processes and enabling discursive opportunities in small groups. Processes of reflexive thinking were openly and critically articulated during the project, whilst ensuring that certain voices were not privileged over others (see Guldberg, 2017a).

Nevertheless, there are significant challenges in understanding social learning as it is by its nature dynamic and in constant flux (Wenger-Trayner, E. and Wenger-Trayner, B., in press), making it difficult to systematically create, capture and share knowledge in a way that includes the voice of actors (Medema et al., 2017). Although it was complex to capture the contribution the project made to changes in team members and their work with schoolteachers, the value-creation framework enabled the community to give a plausible account of this contribution. A key strength of the value-creation framework is that it supports collaboration between researchers and practitioners, and treats all participants in the learning space as co-researchers engaged in a process of investigating, sharing and reflecting on what does or does not work in their practice, as well as on how learning together contributes to making a difference. Having a framework that reflects participants' experience also increases the likelihood that feeding the results of evaluating back to them will be welcome and make a difference.

We draw the conclusion that the value-creation framework, despite a number of inherent challenges, is a useful framework for enabling understanding about how communities communicate, collaborate and share knowledge (Gerkhe and Kezar, 2017; Roux et al., 2006). It can also enrich understandings of how participatory research can lead to knowledge co-creation and in turn impact on practice. The Economic and Social Research Council (ESRC) in the UK describes impact as conceptual (e.g. changed understandings of a subject area), capacity building (e.g. increase in skills, knowledge and understanding) or instrumental (e.g. improved policy or practice). Rather than approach these as separate dimensions, the use of the value creation framework in this project showed that is has the potential to capture the interrelationship between enhancing knowledge and understanding of autism education (conceptual), improving the skills of teachers (capacity building) and impacting on practice (instrumental). We would therefore argue that the framework is a promising framework to understand pathways to impact and impact in participatory research more generally.

Acknowledgements

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