MAKE YOUR MOVE: EXPLORING A PEDAGOGIC TOOLKIT FOR CREATIVE DEVELOPMENT AND GLOBAL LEARNING IN PRIMARY EDUCATION

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Abstract

The purpose of **Theatre of the Imagination®** is to develop a methodology which helps creative development through design and making in primary education. Objectives supporting this aim include: the development of personal agency through metacognition; the development of creative skills and ideas through practical workshops; and engagement with global learning goals through discussion and storytelling. A series of Constructivist Learning Design workshops have generated tentative findings that suggest design and making can help students to achieve these objectives. An analysis of qualitative data arising from the process of **Participatory Action Research** indicates that the global citizenship agenda, in tandem with design and making, helps to nurture empathy.

Key words:
Constructivist Learning Design, Metacognition, Transition Design, Global Goals

Introduction

Make Your Move is one of a series of pilot workshops situated within **Theatre of the Imagination®**, the author's PhD research project, now in its fourth year of part-time study. The research project posits the view that design and making skills can help nurture personal agency, engage with the primary curriculum approach to global citizenship, and engender cognitive acceleration. **Make Your Move** supports the idea that young people's learning, thinking and actions, both now and in their adult lives, are fundamental to the achievement of a more just and secure global future. The researcher sets out to develop and test a methodology which demonstrates how creative teamwork can be used as a vehicle for enhancing agency and social responsibility.

An education for global citizenship includes opportunities for young people to develop their skills as **agents of change** and to reflect critically on this role. **Transition Design** (Figure 1) encourages a long-term vision for society and offers a methodology that can act as a driving force for changing attitudes and behaviour. **Make Your Move** is conceived to be scaled nationally and globally and to enable the exchange of ideas and experiences between primary children through creative practice. **Metacognitive learning strategies** are constructed and tested through 'learning circles' and 'pilot workshops', prior to whole-class lessons to encourage creative thinking and making skills and to drive cognitive acceleration. The approach is constructivist in nature and invites participants to depict lived experiences and to generate imaginative ideas by articulating tacit knowledge through drawing and making. A portfolio of creative learning tools is under development, designed to enable children and teachers to apply strategic thinking to problem exploration.

Burkitt's (2015) research highlights how mainstream primary education finds it difficult to match specialist schools in teaching creative arts practice due to the relatively low number of hours dedicated to developing creative skills in teacher education and to developing teacher confidence in their own training. In addition, Burkitt's analysis of paintings and drawings made by children suggests creative practice helps to develop cognitive skills, self-efficacy and haptic skills at the primary level, and concludes that these skills are transferable across disciplines.

In his thesis on **Translocated Making,** Hall (2015) explains *"it is about the production of artefacts and experiences as a mechanism through which we can create changes in the world that influence our sense of*

who, where and what we are" and his contemplative approach, related to the impact of global design, is a key reason for setting out to develop personal agency in primary education through making. **Make your Move** demonstrates that when design thinking and making is applied to problem-based learning it supports the aims of transition design and translocated practice. Children are encouraged to reflect upon Schaar's (1970) suggestion: *"The future is not some place we are going, but one we are creating. The paths are not to be found, but made. And the activity of making them changes both the maker and the destination."*

Figure 1: *Transition Design Framework* (Tonkinwise, Irwin, Scupelli and Kossoff, 2015). Design for social innovation challenges existing paradigms, envisions new ones, and leads to positive social and environmental change.

Background

The literature reviewed explores key concepts identified in the research, including constructivism, metacognition and global citizenship, to develop, implement and report on a series of educational workshops in primary education. **Make Your Move** tests a creative practice toolkit, designed to step out of existing institutional and curriculum boundaries of mainstream primary education based upon learning through making. Current political and social factors, in tandem with a technology-fuelled global learning agenda, have created an unstable and dynamic primary education system which has the potential to benefit from **Theatre of the Imagination®.**

Ole Dreier (2006, pp.21-38) explains that we are all participants in social practices who can either reproduce or change these practices. New practices and structures are co-created by participants when the status quo is challenged and **ways of being** shift. Nurturing responsible citizens who understand their own and others' cultures and have a developing sense of their place in the world is at the heart of this investigation. Participants are encouraged to reflect upon cultural diversity, cultural connections and a sense of what constitutes a more responsible way of living. Eguren (2011) believes that strategic planning, using an adaptive and iterative model, is core to bringing about change and the *Winterhouse Symposium Matrix for Education and Social Change* (2015) was designed to help create a pattern of connections between initiatives aimed at addressing the impact of scale and levels of collaboration (Figure 2).

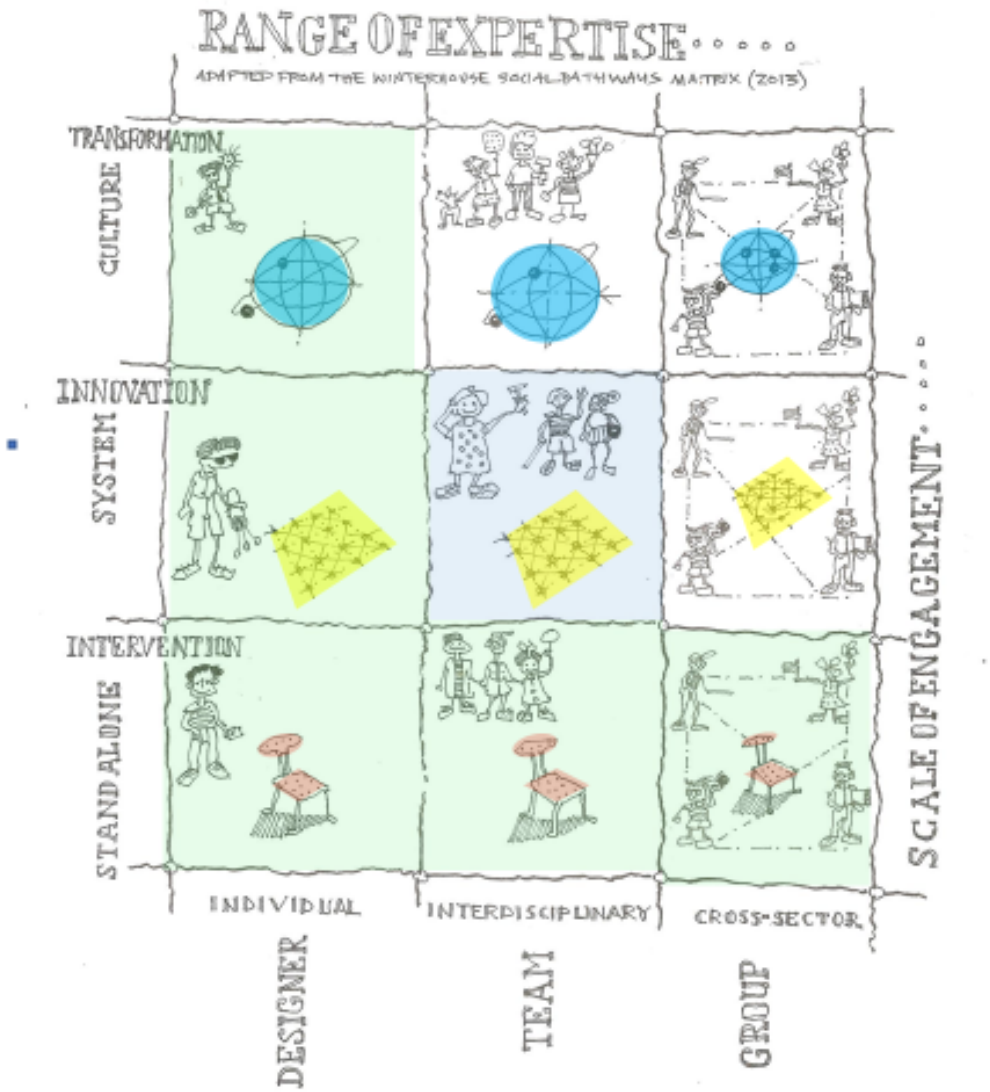

Figure 2: An adaptation of the *Winterhouse Symposium Matrix for Education and Social Change* (2015)

Problem-Based Learning (PBL) is a pedagogic method designed to nurture learning about a subject through the experience of exploring an open-ended problem (Armstrong 2008). The process does not focus on problem-solving, instead it allows for the development of skills and attributes which enhance learning. These include knowledge acquisition, enhanced group collaboration, communication and, in the case of **Make Your Move**, designing and making. Learning through creative practice is commonly found in independent primary schools, such as Steiner Waldorf, and specialist free schools which focus upon the creative arts. Less emphasis is placed on creative practice in many mainstream primary schools.

Mainstream schools do not always have the expertise or confidence to teach an experimental and ambitious curriculum through the creative arts as, according to Burkitt and Lowry (2015), primary and secondary mainstream teachers have often reported a desire for further art educational training to build upon the paucity of time dedicated to developing creative skills during their Postgraduate Certificate in Education. There still exists a strong bias towards representational work and accurate depictions of reality in the primary school art curriculum (Burkitt, et al., 2010). In contrast, outcomes from a creative workshop carried out at a free school in Plymouth in 2016 illustrate how primary and further education students are able to work collaboratively while embracing uncertainty (Figure 3).

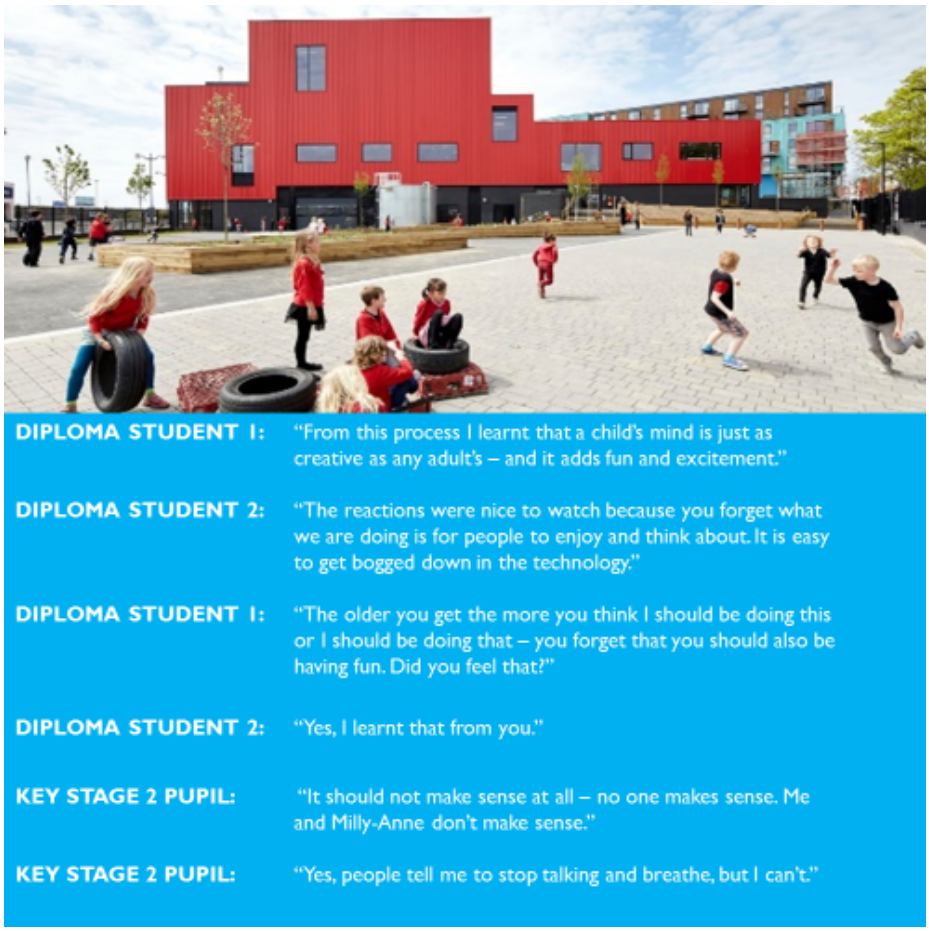

Figure 3: A discussion between diploma students and primary school students in Plymouth (CB©, 2016)

Global learning

In September 2015, the United Nations adopted seventeen Global Goals for Sustainable Development to achieve three things by 2030: an end to poverty; to combat climate change; and to fight injustice and inequality (2015). These goals helped set the values for learning and discussion in **Make Your Move** (Figure: 4).

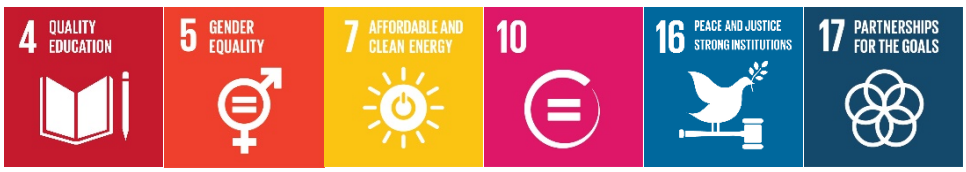

Figure 4: The **Global Goals for Sustainable Development** (2015) touched on by participants during **Make Your Move**.

The framework has provided a foundation for disseminating knowledge and a platform for debate. Key aspects of the global citizenship agenda in primary schools include empathy, creative and critical thinking, self-awareness and reflection as participants work across different media and communication modes. Students

learn that some beliefs can be wrong as young as four. Primary students also learn, within an absolutist construct, that people's beliefs can differ but only because one person is right and the other is wrong. Most people begin to recognise that experts can disagree on certain topics as they progress towards adulthood and adopt a relativistic view. People then learn to tolerate some uncertainty while maintaining there can be better or worse opinions supported with reason and evidence (Kuhn and Dean, 2004). Drawing and making used as cultural tools in collaborative workshops exist at an interpersonal level and can assist the task of distribution or sharing. The distributed form of higher mental function, according to Vygotsky (1978), requires a concept to exist in an external frame so that learners can discuss ideas and opinions with others including peers, teachers and those who appreciate their developmental level and potential (Mercer and Littleton, 2007). Vygotsky suggests that when children acquire a certain competency with cultural tools they begin to develop ideas and beliefs independently.

The purpose of analysing the global goals through learning circles (Collay et al. 1998) and pilot workshops, in preparation for their introduction through whole-class lessons, is as a starting point for stimulating the imagination, encouraging open discussion and generating ideas. Findings emerging from the first major research study on global learning in primary schools, undertaken by Frances Hunt et al. (2012) at the Institute of Education at University College London (UCL) suggest that global learning is linked to higher awareness of diversity and to developing socially-aware, responsible global citizens. Teachers involved in the research suggested that thinking globally also has a positive impact upon subject knowledge, skills, and values.

Constructivist Learning Design

Constructivism helps progression from interpersonal dialogue to an intrapersonal dialogue and this is considered part of the development of higher mental functions *(*Vygotsky, 1978; Brooks, 2005). A **Constructivist Learning Design** methodology (Gagnon and Collay, 2006) was adopted by the researcher to integrate the teaching and sharing of facts with the teaching and sharing of skills by constructing situations based on the *Primary Education for Global Learning and Sustainability* report (Bourn, Hunt, Blum and Lawson, 2016). Vygotsky's (1978, pg.86) concept of the Zone of Proximal Development (ZPD) is the distance between a child's actual development level and their potential development level as seen when problems are explored collaboratively. Piaget (1932) proposed that working with peers provides experience of different points of view and leads children to think about moral rules governing co-operation and fairness in social relations.

In an episode of BBC Radio 4's *The Educators* (Montague, 2016), Ken Robinson reminds us that education is not politically neutral, by which he means whoever creates the schema has the power to decide what facts are included in the curriculum. Facts are clearly important in helping learners to understand a subject and to make decisions in the world - mental arithmetic helps an individual to work out the cost of things or to score a game of darts - but a narrow selection of the facts does not teach what, where and who we are and it does not teach us how to learn independently or collaboratively.

Make your Move methodology

A **pilot workshop** was held on 23rd and 24th May 2016 at Greenwich Primary School. During the process of **Constructivist Learning Design** the researcher acts as choreographer, teaches basic steps and shares cultural traditions in order to organise the production of a learning event (Gagnon and Collay, 2006, pp.195-198). The workshop (Figure 5) was delivered using a set of new learning tools and involved the following six stages:

(i) Situation

The primary concern of this element was to discuss the vision and purpose of **Make Your Move** with participants. The overarching aims of the project were to develop a personal perspective on aspects of global citizenship by exploring the concept of empathy and by encouraging cognitive acceleration through design and making in collaboration with peers.

(ii) Groups

The pilot workshop included a year 6 teacher, a student-teacher, four KS2 children, the design researcher and teachers who stopped by over the two-day period. The team worked as a design studio and individually as designers in advance of the project's introduction to the whole class.

(iii) Bridge

Participants were introduced to methods of drawing, designing and making wire models to help translate memories of an event in their everyday life into **automata** which, in this context, refers to moving mechanical devices which tell a story using simple cam mechanisms.

(iv) Task

Models were developed from drawings and storyboards resulting from the *'to and fro'* of transforming drawings on paper into wire sculptures in the manner of Alexander Calder to tell a story through animation.

(v) Evaluation

Participants including children, teachers, students and artisans completed questionnaires before and after the pilot workshop. The group took part in a question-driven exchange of ideas and thoughts immediately after **Make Your Move** and again six months later. Evaluation of participant drawings and models was moderated by teachers.

(vi) Exhibition

The drawings, automata, videos and stories from the pilot workshop and the whole-class lesson featured in Greenwich Primary School's Arts Week exhibition in July 2016. Parents, teachers and students from across the school visited the exhibition and external feedback was gathered as a fourth strand of data.

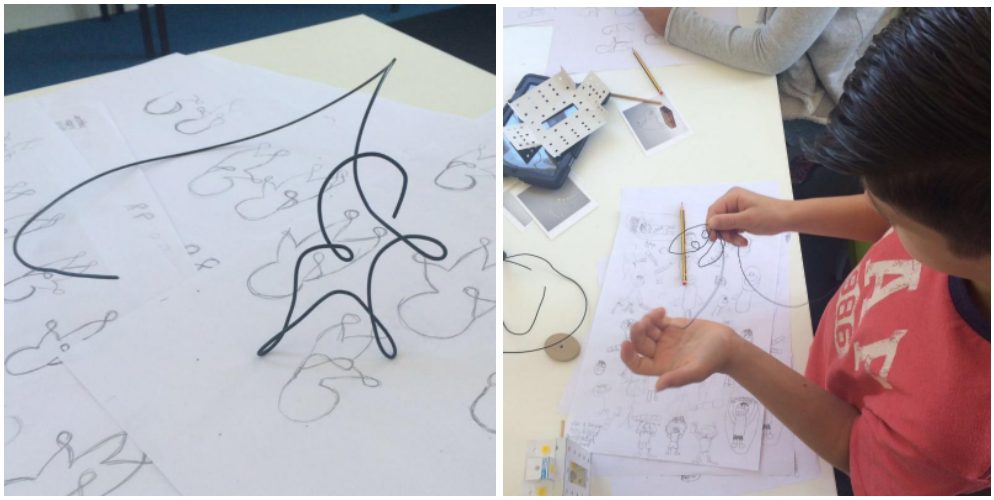

Figure 5: Participants designing and making wire drawings that depict a personal story. *Photograph courtesy of Charlotte Stirling ©*

Analysis and evaluation

A triangulated approach to evaluation of the workshop outcomes included: a self-assessment questionnaire; content analysis of recorded discussion and debate; an evaluation of drawings, models and videos. The process of analysis was moderated by teachers and other professional practitioners involved in the project.

At the end of each hour of the workshop a plenary session enabled participants to explain their position, search out questions, and offer help to others. This approach became more fluent and more inclusive as time passed, which provided an opportunity for the whole group to reflect and move forward. Being in a small group meant there was sufficient time 'to think again'. The policy of 'no hands up' discussion was new to some children but successfully managed by the group – *"It's no hands-up Matthew."* Student-teacher Charlie described Emma and Matthew, participants in the pilot workshop who helped support peers during the whole class lesson, as *"brilliant"* when they shared their skills and knowledge.

Emma demonstrated that making can help self-assessment to become more insightful: *"I have an automaton at home but realised I had not looked at it very closely. When you make something you really know how it works and ideas fly out of your head."* Amy's drawings, design skills and making skills were fluent and it was clear that she thought carefully before filling in the questionnaire. She did not over-state her capability and her response demonstrated that there were different levels of self-assessment being applied to the task. There is a question mark over why both boys rated themselves relatively highly and both girls rated themselves at a lower level and this may be

On personal agency and metacognitive skills

Personal agency comprises two key aspects of learning; self-efficacy and self-regulation. Self-efficacy demands good communication skills and good social skills. Self-regulation promotes thinking about how your behaviour and approach impacts upon your learning opportunities and those of others in the group. Developing participatory skills through reflection on the different perspectives of participants was key to problem exploration. Areas of difference are important when considering the role of the social world in cognitive development according to Garton (2004).

Metacognition is often defined as **thinking about thinking**. Throughout the workshop children were asked to reflect upon: *"Why are we doing things this way?"* Participants were encouraged to think about how effectively they were working with others, what they could do to make change happen, and why their engagement with the global goals might inform global citizenship. Reflection, for Boud et al. (1985), is an activity in which people recapture their experience, think about it, mull it over and evaluate it. Participants were asked to repeat drawings, re-make models and re-draft personal stories and all those involved in the

pilot workshop illustrated effective methods of reflection in action. Class teacher Imogen explained: "*Over the duration of the workshop, the children developed their 'voice' and began leading the conversation with less prompts as time went on – they questioned each other, listened to each other and responded to each other in a way that the pace of the classroom doesn't always allow."*

Critical reflection encouraged participants to change and develop the *'thing'* being made – a sign of self-regulation and resilience on the part of those involved. Edith shared her feelings, supported by other children with nods and smiles. She said: *"I couldn't believe we could make such amazing things from rubbish – stuff you could find just lying around in a corner or in a rubbish bin…"* Amy added: *"The thing about using rubbish is you don't mind messing about - if it doesn't work then you can just change it."* Through their actions and discussions, students provided compelling evidence of how they were thinking and rethinking their ideas, drawings and models throughout the workshop.

Hamed explained: *"When I finished making the cam box, you said I could help others, so I did – and found it easy and good".* Learning when to help and when to let go takes empathy and sensitivity and while Hamed clearly enjoyed helping, the moment Amy expressed a wish to be left to get on, he handed the structure back and gave her space and time. Hamed's response to helping and then backing-off was an example of self-regulation through social interaction. These key features of metacognition and personal agency, self-efficacy and self-regulation, continued to build over the course of two days as participants became more in tune with the idea of working together in a 'studio' environment.

Student-teacher Charlie picked up on the metacognitive strategy of 'wait time' and second wait time. This translated into sketching, prototyping, and model making aimed at continuously improving work in hand. One of the participants, Amy, moved from expressive drawings of her mother to constructing drawings as 'blueprints' for wire model making. This required a sophisticated level of skill to produce drawings 'fit for purpose'. Charlie also applied her drawing and literacy skills to helping pupils look closely, think deeply and experiment with confidence (Figure 6).

Figure 6: Work in progress by Charlie, the student-teacher. *Photograph CS©*

Six months after the pilot workshop Matthew explained his thoughts when looking back on the experience: *"I felt excited because I knew this story was going to become something more than just my story – a story that*

everyone could see in 3D and a story that would never be forgotten. Sometimes, if you just say something people don't listen but this was like 'holdable proof'. I felt like - if someone saw this, it could affect how they chose to behave and also make them want to create something out of their own personal stories."

On cognitive acceleration

According to Burkitt, creative practice helps to develop cognitive skills, self-efficacy and haptic skills. To encourage cognitive acceleration, the aim was to embed three key features into the classroom: cognitive conflict as the mind develops in response to stimulation; social construction where dialogue with others is essential; and metacognition by reflecting on how the problem was tackled.

Tom Gray, the head teacher of Greenwich Primary School, described the approach to learning in **Make Your Move** as *"original"*, by which he meant there were creative ideas, methods and interpretations, performed by students and teachers, facilitated by the design researcher. These aspects of the workshop were the result of introducing design and making skills, such as iterating 'back and forth', sketching and drawing, making models and prototypes, and creating personal stories and making automata to feature in video animations.

The pilot group worked constructively together as a team and it became clear that participants enjoyed the idea of working as part of the 'design studio', supporting each other with enthusiasm most of the time. Methods related to the process of design and making were introduced and explored as thinking strategies. Prototypes, photographs and videos provided a record of how the drawings and modelmaking evolved over time. Charlie, the student-teacher, noted:

> Every child could see their drawings, and the drawings of their peers, develop as they moved from basic stick people to Calder-like figure drawings. Moving from developing expression and feeling on paper to producing wire-drawings illustrating animated poses flourished. We could see, in real time, confidence, visual thinking and imaginative interpretations of personal stories emerging over the course of the sessions.

A moment of conflict arose when one participant suggested the automaton of their partner was "*headbutting, not kissing*, *your mum"* but dismay soon turned to laughter. Garton suggests that a theoretical explanation of empathy comes from demonstrating the ability of children to understand that others know things too, have beliefs and can think. Empathetic action coexisted with debate concerning ethics when Mathew asked a question related to giving a homeless person money in the street, the subject of his automaton. This increased cognitive dissonance (Festinger 1957) as different opinions emerged through question-driven explanatory reasoning which, according to Graesser (1996), develops independent thinking. Participants were able to discuss the responsibility of the individual, society and government in a lucid and engaged manner.

When class teacher Isabel asked Matthew how **Make Your Move** was different to the way he would normally learn in school his response was compelling:

> It's kind of like bringing together DT, art and literacy. In school we don't normally bring those subjects together – in literacy you normally have an aim decided by the teacher, but this was more free and more for us to decide. We had to decide on the story and on what our characters looked like. It made me feel kind of like a master. I dunno… in charge.

It was surprising to learn that a participant assessed as "*performing below the average level for his age in some core areas"* illustrated a remarkable level of engagement and competence in designing and making. Numeracy and literacy are instrumental in the pursuit of an effective education but that is, according to Herbert Read (1949), the sum of what they are. Developing self-efficacy, and self-regulation in pursuit of what it means to live a worthwhile life is, according to Dewey (2011), the true purpose of education.

Global Citizenship

Make Your Move generated a rich discussion on the topics of empathy and compassion. The dialogue flowed from an abstract, global scale to the everyday life of individual participants. All participants designed and constructed at least one an automaton illustrating their experience of compassionate behaviour. The kinetic sculptures were used in the production of 'one-minute video clips' for exhibition and to be shared with colleagues and students in India, Mexico and Spain. The medium-term aim of **Theatre of the Imagination** is to encourage reciprocity across continents.

Compassion underpins the global citizenship curriculum in primary education which explores equality, poverty and global warming. **Make your Move** set out to provoke discussion around these issues by asking questions with no simple or singular answer and by embracing cognitive dissonance as a critical position. Graesser et al. (1996) recommend educational interventions that foster dissonance by increasing student awareness of conflicts between prior beliefs and new information. Isable explained:

> During the 'Make your Move' workshop, children began by discussing their understanding of sustainability… it was great to take a step back and hear them apply prior knowledge to an organic conversation. They began by discussing solar panels and wind power - ideas and knowledge they had explored before. But as the conversation progressed, their thoughts seemed to become more philosophical and abstract when they began to question their own ideas, for example: 'I was thinking… is a bird flying sustainable? I suppose it is but then maybe it runs out of energy, maybe its wings get tired.'

Isabel believed **Make Your Move** had a beneficial impact upon the whole school. She said:

> **Make Your Move** generated enthusiasm among teachers and children. As a result, the global goals have informed much of our learning this year already, and will, in fact, be the theme for this year's Arts Festival. The Global Goals can come across as too 'big' for children – and for us - to comprehend. **Make Your Move** focussed on personal experiences which meant that children could see how the ethos and values really do apply to their daily lives, decisions and actions" (Figure 7).

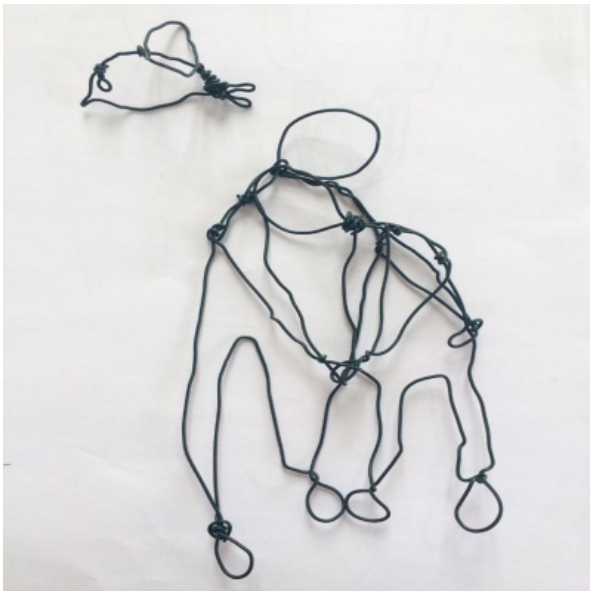

Figure 7: *'Mother and Child'* by Erin, aged 10, Halstow Primary School**.** *Photograph CS©*

Conclusion

The intention was to develop a practical methodology which helps engender cognitive acceleration; foster personal agency; and nurture global citizenship through design and making in primary education and many

positive signs emerged alongside issues for reflection and review. **Make Your Move** helped to cultivate empathy and compassion. It is not possible to claim validity with such a small sample but it is possible to highlight potentially insightful findings, worthy of further investigation. These insights apply to **Greenwich Primary School** for whom the outcomes and observations proved to be valuable. Working with an outstanding school, an able class teacher and a highly motivated student teacher also demonstrated the potential of continuing professional development through practice. The importance of a reciprocal exchange between the host school and the researcher cannot be overestimated in an environment where the burden of work and scarcity of resources is increasing.

Setting clear goals for the **Make Your Move** workshop encouraged participants to collaborate effectively. Skills developed while co-designing, such as drawing and making, provoked a reflective interpersonal dialogue to take place (Knight and Littleton, 2015). Open discussion enabled a broad assessment of the studio activity provoked by varied participant perceptions and observations and felt similar to a 'design critique' in higher education. A moderated review of the work produced contributed to tentative findings that suggest children, and their teachers, gain in confidence and apply newly acquired creative practice skills while working collaboratively as a 'design studio'.

Drawings and automata served as **ekphratic artefacts** (Pulley 2014), supporting Vygotsky's distributed form of higher mental function by illustrating 'a concept in an external frame' and by allowing learners to discuss ideas and opinions with teachers and those committed to cognitive development. Developing creative tools, related to exploring global goals through drawing and writing, helped primary children to understand that their interventions can make a difference. Feedback from experienced teacher-participants helped to improve the pedagogic tools used in creative development and global learning workshops.

Some of the insights and findings gained from **Make Your Move** have been transferred to other primary schools in the fledgling **Theatre of the Imagination** network. The potential for cultural transfer across continents is a 'next step' at a time of political fragmentation and division. Researchers who choose to work in primary schools may find this work informative. **Make Your Move** brought together aspects of citizenship, literacy, numeracy, design and science within the primary curriculum and demonstrated how selected global learning goals may be addressed through design and making. Feedback from participants, teachers, artists, and designers has helped the researcher to improve the creative practice toolkit which will continue to be tested and refined through primary school workshops.

Ethical position

It is the researcher's responsibility to make sure that consent, confidentiality and anonymity are preserved, as far as possible, on behalf of all participants. Prior to **Make Your Move**, parental consent forms were sent out, signed and returned concerning the use of photographs of participants and their work. The names of participants and the school have been changed to help preserve anonymity. All documents related to the ethical stance taken in Theatre of the Imagination® workshops have been submitted to the Royal College of Art's Research Committee and agreed by those designated with responsibility for assuring research ethics.

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