

Particles or waves? Seeing through the lens of an Artist/Scientist to invigorate per-service teacher's sense of curiosity.

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Abstract

Facilitating children to develop skills in creativity and imagination with the anticipation that they will generate original artwork is a priority for Visual Art Educators. The context of this study stems from a belief system that places the role of art practice and enquiry central to an art experience for pre-service teachers. As an artist/art educator the development of critical thinking and improving ways in which these skills can be nurtured in learners is a continuous challenge.

The purpose of this paper is to describe an investigative an Art/Science interdisciplinary educational project implemented in the spring semester of 2014 with pre service education students, contemporary artists and primary school children. Particles or Waves?¹ is an educational research project which takes a scientific theory like 'how light travels' equips and supports pre service teachers to investigate complex concepts with primary school children through art practice. Using visual methods of inquiry and following a sequence of stages: perception, conception, and expression. The author will observe on how the emersion of art practice for students involved can change the participants' attitudes to teaching and develop skills in creativity and imagination that generates original artwork which in turn generates resourceful teaching.

Today's artists work in and respond to a global environment that is culturally diverse, technologically advancing, and multifaceted. Working in a wide range of mediums, contemporary artists often reflect and comment on modern-day society.¹ Within the study of contemporary art emphases is often placed on the process of engagement rather than the final product. The value placed on the process gives a dynamic insight into the nature of art and the methods of artistic practice. The manner in which artists participate with their practice connects with the underling principals of art education, which positions the role of enquiry as central to the learning experience. As artists continue to question the definitions and context of their art practice, essentially art educators should be continuously embracing the opportunities and challenges that teaching and learning in and through the arts have to offer.

As art education is an act of creation, student teacher's active engagement is fundamental to the delivery of unique art experiences. The potential benefits art has for a child is well documented (Chapman 1978; Arnheim 1989; Dyson 1989; Barnes 2002; O' Connor 2000)²

¹ Getty Center for Education in the Arts - <http://www.getty.edu/education/>

² Chapman, L. (1978) Approaches to Art in Education. New York: Harcourt Brace Jovanovich
Arnheim, R. (1989) Thoughts on Art Education. Los Angeles: Getty Center for Education in the Arts

Barnes, R. (2002) Teaching Art to Children 4–9. London: Routledge /Falmer

yet research suggests that there is a lull in the development of expression in children's drawings during the primary school years (Davis 1997; Jolley)³. As an art educator and school placement supervisor I regularly encounter the inadequate nature of how art is taught by the generalist teacher in primary schools. A combination of factors such as cultural restraints, lack of training and confidence as well as the homogenous nature of teaching can lead to template, standard art experiences with little or no educational value (Ledingham, 2014)⁴. As a consequence to the lack of understanding and confidence in teaching art the art on display is often a simple replicating of what teachers experience as pupils themselves. Children need to experience the unpredictable and the uncertain. A creative learner needs a creative teacher who provides both order and adventure, and who is willing to do the unexpected and take risks (Fisher, 2005)⁵.

Seeing through the artist's lens a student teacher wishing to engage with visual methods must be prepared to take a step into the unknown and explore new areas of practice. For some students this is an uncomfortable space to occupy as much of the education and experience to date will have led them to seek control and base their practice upon previous experience. For many the thought of exploring the unknown and fear of failure can be a major obstacle for practice based enquiry. As the artist John Baldessari once reflected 'art comes from failure you have to try things out. You can't sit around, terrified of being incorrect'. It is perceived failure that can prevent students from taking a step beyond what is tried and tested. (Thornton 2008).⁶

To bridge the field of art education and the world of contemporary art, opportunities for collaborative encounters need to be created and accommodated. Schon describes reflective practice as thoughtfully considering one's own experiences in applying knowledge to practice while being coached by professionals in the discipline.⁷ With the intention of finding a better way of instilling confidence in students to embrace the opportunities and challenges within art practice the Visual Art Elective module was designed to facilitate a mutual learning experience for artists, students and visual art education staff.

Particles or Waves? A participative urban intervention project is a model of how a meaningful art experience was achieved. The project became the springboard for an Art/Science learning experience for a group of Bachelor of Education students, taking an elective in visual art educationⁱⁱ. The learning outcomes focused on student's engagement with a reflective and reflexive self-directed project, which was supported by work in partnership with artists Denis Connolly and Anne Cleary and local primary schools. There was a clear pedagogical framework employed from the inception of the project where a sequence of stages was adapted: perception, conception, and expression. *To support the collaborative process* an active Facebook space was established for visual art lecturers, students and artists to interact, and exchange ideas.

³ Davis, J. (1997) Drawings demise: U-shaped development in graphic symbolization, *Studies in Art Education*, Vol. 38, No. 3, pp. 132–57

Jolley, R.P., Fenn, K. & Jones, L. (2004) The development of children's expressive drawing, *British Journal of Developmental Psychology*, Vol. 22, No. 4, pp. 545–67

⁴ Iedingham, D.J. *Professional Enquiry: A Personal Perspective*. Education Today, Vol 64. 2014

⁵ Fisher, R. Williams, M. (2005) *Unlocking Creativity: A Teacher's Guide to Creativity Across the Curriculum (Unlocking Series)*

⁶ Thornton, S. (2008) *Seven Days from the Art World* (London: Granta Books) Le Feuve 2010, 36

⁷ Schon, D. (1987) *Educating the Reflective Practitioner*. San Francisco: Jossey-Bass



Fig 1- Particles or Waves Installation Augustinian lane, with detail of children's drawings

The perception stage of the project was developed by the direct engagement with artists Connolly/Cleary. The inspiration for artists Connolly and Cleary work lies in the social and collaborative aspects of art making. They have developed a practice, which investigates discourse in relation to audience engagement, spectatorship and the connection between art and contemporary society. Students were introduced to the artist work, which has dynamic synergy with the Science as they probe cultural, philosophical and social questions connected with scientific and technological research.

The project was located in the studio where art practice became the focus of learning. Working with the theme of Particles or Waves students explored and acknowledged the inter-relationship between Art and Science, and how the areas cross over and inform one another. Students were required to produce visual notebooks that had evidence of their explorations and responses to the theme, which in turn enabled them to develop innovative ways to teach and learn through or about art and science.

The conception stage was considered through the development of skills and process. In the expression of visual art, visual elements such as the use of lines, shapes, form, texture, and colour are all reliant on the control of materials and media. How students perceive art forms will vary due to their capabilities and cultural experiences with the art forms. Consequentially exposures to the characteristics and qualities of artistic forms in expression as well as developing confidence in their usage were catered for. Sessions included socially engaged practices such as collaborative drawing, design work, video and audio work as well as developing understanding of varied disciplines and the interconnected relationships between them. Through continuous engagement with the artists and professional development session's students began to develop a particular aesthetic quality to their practice that became event as the project evolved. The direct contact with the artist developed awareness and appreciation of the art practice explored and from the student's perspective exposed them to a kind of sensibility of what it's like to be an artist.

Students were paired together and placed in six primary schools around Limerick city where they facilitated art experiences that teasing out the ideas and concepts around the nature of light. The premise of the school placement was for students to construct learning goals that came from their own art making experience nurturing their critical thinking as well as that of their pupils. The planning and delivery of the sessions were informed by their own learning rather than some preconceived collection of materials and ideas. The workshops the students conducted with the schools were multidisciplinary in nature. Learning methodologies employed promoted, dialogue and critically thinking skills. Sessions included examining the behavior and interactions of changing light on pigments, the additive or subtractive nature of colour, drawing exercise that experimented with scale, layering, and transparencies as well as making animations and slides. The open-ended approach responded to the intentions, decisions, needs and ideas of the class ensuing individual schools response were unique and original.



Fig 2 – Children experiments with colour perception 3rd class Presentation Primary School

Fig 3 – Students and pupils exploring shadow and materials, 3rd class Presentation Primary School

The central theme *Particles or Waves?* was a difficult concept for the student teachers to comprehend, as it is a concept that is not tangible or concrete. The research findings showed that the concepts the students struggled with were received with enthusiasm by the primary children. For the most part children engaged cognitively making links across the science, history and geography and connecting with every day lived experiences. It was the children's constructive response to the theme that activated the conception stage of the project; the open-minded approach of the children reassured the students and motivated them to develop their own original approach to the theme. One pairing of student describes how *'we thoroughly enjoyed this experience both working in the studio and developing our ideas in the school. We looked forward to working with the children each week, experimenting and interpreting the various aspects of the 'Particles or Waves' project in collaboration with our own art experimentations. This has been an invaluable learning experience for us, one which we cherish and can bring into play in the classroom in our future teaching professions.'* (POW, 2014)



Fig 4 – Pupils from 3rd class Mhathair Dè Limerick working collaboratively exploring the theme and the site-specific location of Post office Lane. Fig 5. Detail from collaborative drawing

The expression stage, while inherent throughout the project, was mostly evident in the visual notebooks, which were created by the students as part of their assessment piece. The notebooks were a cumulative documentation of the student's art practice, research and school placement. Within the notebooks each student was required to capture their research, thoughts, insights, reflections and challenges. Largely the process of sketch booking was the student's first attempt of researching in a visual manner and was for the most part a gradual endeavor. Generally there was a preconception about what their notebook pages should look like. As student's proficiency with materials and skills developed their level of satisfaction from a certain aesthetic was evident. Consequentially, the desire to resolve aesthetic achievement at times restricted the flow of concept development. On the whole, the students were motivated and enjoyed a sense of control through freedom in decision making, and revelation, and the realisation that through working through sketch booking, their work took on a very

real and tangible personality. A student described how *'making the notebooks was very enjoyable providing a chance to relax from usual college work and to engage with the children's work. It became a place to capture thoughts, insights, reflections and challenges..... I explored how things change over time; the ageless protons in light, the changes in the uses of the alley, how easy history can be forgotten, and how nothing appears as it seems; some things, all we have to do is open our eyes and take a closer look at our surroundings.'* (POW, 2014)

The process of note booking demonstrated the multifaceted nature of engagement as all three stages perception, conception, and expression became less linear and more extensive as all three partners (artists, student, children) connected progressing together via artist methods, workshops and school placement students where immersed in a process that informed pedagogical experience.

All the artworks produced by the children culminated in an evolving series of luminous interactive wall/ceiling drawings, bringing light into the city center in a manner that is challenging both creatively and cognitively. The project uses new developments in lighting technology in a highly innovative manner to create artwork that was engaging and stimulating for both the creators and the audience (as the instillation were located public spaces in Limerick city the general public were the audience). Through Connolly and Cleary's researchers from the Vision Lab at University Descartes in Paris, they (re) discovered a simple scientific principle: that changing colored light will pick up drawings in complementary coloured inks, bringing some colours forward, while making others disappear. This technique can be used effectively to animate a perfectly still image. In the case of *Particles or Waves?* the process facilitated bringing drawings to new audience through scientific discovery.



Fig 6 – Image of Instillation from Todds Bow, Limerick Artists –The Project School, Students- Caroline NEE Marguerite Murphy. Fig 7 – Image of Woolworth Lane, (Caherdavin School 3rd class and Students- Cian Mullally, Rebecca Meagher, Katie Costello

Working collaboratively with contemporary artists, has afforded opportunities to step into unknown territory and supported risk taking. The focus of education must be about opening up possibilities for learners to engage with new ways of thinking and doing and as not simply repeating what past generations have done (Fisher, 1990)⁸. Situating students in learning environments that reignite their own sense of curiosity should transfer into a more creative teaching and learning experience for all involved.

When teaching art in primary school the focus should be about facilitating opportunities and space that enables children to express themselves and making sense of their world. The way in which children can illuminate and express themselves is intuitive and uniquely theirs, as educators we can learn from children's natural to imagine and discover. In the quest to developing a culture of creative enquiry education programs should be concerned with providing more opportunities for students to (re) discover their own sense of curiosity and participate in experiences that belongs to them, an experience that allows space to experiment and play to sequentially facilitate this space for the children that they teach.

⁸ Fisher R. (1990, 1995) Teaching Children to Think, Stanley Thornes

ⁱ Particles or Waves ? (POW) Was a National city of culture funded project which took place in Limerick in 2014. The collaborative partners included - Mary Immaculate College (MIC) in association with the Master of Arts in Art & Design Education, Limerick School of Art and Design (LSAD) and Paris based artist Cleary and Connolly, working with six primary and six secondary schools in Limerick City. (Over 250 participants engaged in the project)

ⁱⁱ 17 Bachelor of Education students were involved in (POW 2014)- Visual Art Education Elective within in the Bachelor Degree (Bed) in Primary Education at MIC. In the third year of the Bed program students are given the opportunity to elect a specialised educational practice.