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**Art, Science and Organisational Interactions:
Exploring the Value of Artist Residencies on Campus**

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Art, Science and Organisational Interactions: Exploring the Value of Artist Residencies on Campus

Abstract:

This case study examines how an artist residency at an aquaculture institute within a university creates value on campus and beyond. We find that the residency, initially regarded as ‘risk-taking’ by both artist and institute, created unexpected opportunities stemming from the synergies between art and science. We find that ‘new ways of seeing’ aquaculture science resulted in the creation of aesthetic, emotional, environmental, educational and social values embracing the intrinsic, instrumental, and institutional, on both personal and organisational levels. The lack of available time from academic staff and financial support for the artist, however, need to be addressed in order to achieve the residency’s full potential. In addition to the arguments for art-based initiatives generally, we suggest that artist residencies, if planned thoughtfully, have the potential to create an innovative and creative culture on campus and beyond.

Keywords:

Art-based initiatives, artist residency, tertiary education, creative campus

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INTRODUCTION

The last two decades have seen a growth in the interactions between the art world and business (Berthoin Antal & Straub 2016). This reflects a need to identify new ways for organisations to conduct business in an uncertain and fragmented global environment. Consequently, the ‘art-based initiative’ is now seen as a legitimate means by which organisations can increase creativity and innovation, and thereby encourage a more productive workplace culture (Schiuma 2011; Sköldbberg, Woodilla & Berthoin Antal 2016). Artistic thinking and creative problem-solving can help organisations visualise alternative directions in strategy and product development through judgement, curiosity, opportunity recognition and risk-taking (Chia 1996; Carr & Hancock 2003). Insights from art can also stimulate enhanced organisational understanding (Taylor & Ladkin 2009). This interest in the potential value of art and business collaborations has led to increased research since Buren (2010), with considerable work on highlighting the benefits and value created (e.g. Austin & Devin 2003; Darsø 2004; Styhre & Eriksson 2008; Berthoin Antal 2012; Berthoin Antal, Woodilla & Sköldbberg 2016).

One form of artistic intervention is the artist residency which may be viewed as a critical lens on the organisation and its practices, in the same way that organisational aesthetics provide alternative platforms for understanding (Taylor & Hansen 2005; Carr & Hancock 2003). Much about how artist residencies add value, however, remains unknown. For example, the use of enabling agents such as mentors or facilitators in the host organisation, funding bodies and intermediary organisations, is not widely understood (Schiuma & Carlucci 2016). There are also several discourses to consider when thinking about putting art into an organisation, including the metaphor of art in organisational theory (Dobson 1999), using art to raise levels of innovation and creativity (Schiuma 2011; Biehl-Missal 2011), and using aesthetics in understanding art-based leadership practices (Guillet de Monthoux 2004; Barry & Meisiek 2010). Partnerships between artists and organisations can result in the co-creation of new

values. Berthoin Antal & Straub (2016) call the location of these opportunities interspaces, or “temporary social spaces within which participants experience new ways of seeing, thinking and doing things that add value for them personally” (p.9).

These interventions occur “when people, practices or products from the world of the arts enter organisations to make a difference” (Berthoin Antal 2009: 4). Given that artists are driven by their own motivations (Lehman & Wickham 2014), it may appear unlikely that relationships with non-artistic organisation may add value. Unpacking the potential benefits to both parties, however, makes fruitful relationships more likely. There is potential for a range of social and public, economic, instrumental and intrinsic values to be created as artists and organisations interact in mutually beneficial ways (Straub 2009). Consequently, there is a need for research on collaboration between artists and industry, in order to understand best practice, working methods and alternative models to guide practice (Shanken 2005).

This is particularly the case in the tertiary education sector, where art-based initiatives can be effective, given their impact on personal learning and development (Darsø 2016). It has been suggested that art/business engagements within an education framework foster a creative mind-set in staff and students in countering the impact of managerialism and consumerism (Nixon 2004). Similarly, Tepper (2004) notes that while creativity exists in universities this is often in the absence of specific policies to enhance it. There would be more likelihood of creative work being produced and sustained if university policy embedded creativity as a core value and practice, rather than only viewing it instrumentally. Consequently, several recent innovative art-based initiatives have been employed by universities with the intention of developing creativity and innovation (Scott 2006, 2010; Berthoin Antal, Woodilla & Sköldberg 2016).

Despite increasing interest from researchers and universities, there remains a dearth of empirical research on artist residencies in terms of their benefit and value to the artist, the

institution and the community (Lehman 2017; Stephens 2001; Shanken 2005). Scott (2006, 2010) argues for greater radical discourse concerning education, innovation, ethics and social engagement via university learning centres where knowledge can be shared with outsiders. This paper explores how an artist residency in a university aquaculture institute serves as a source of value creation. We explore the opportunities and challenges created for the stakeholders, and investigate how both artist and scientific activities influence each other.

In the following section, we review literatures on the value of art, creativity and artist residencies in universities highlighting synergies created by art and science interactions. In the next section, we discuss our case study approach to the artist residency, data collection and analysis. Our findings are then presented together with our propositions, and we conclude with further discussions.

LITERATURE REVIEW

Art, creativity and universities

Following the 2012 higher education reforms and further reductions in public funding, UK universities face financial uncertainty, finding it challenging to remain sustainable and internationally competitive (Universities UK 2016). As a response, developing a creative and innovative culture across universities is crucial (Bridgman 2007). Hunter, Baker & Nailon (2014) posit that ‘critical and creative thinking’ is the key concept underlying contemporary Australian educational discourse, with creative thinking involving “students in learning to generate and apply new ideas in specific contexts, seeing existing situations in a new way, identifying alternative explanations, and seeing or making new links that generate a positive outcome” (ACARA 2013). Tepper (2004) claims that the most effective way of fostering creative mind-sets and innovation in universities is by exposure to the arts. The relationships formed may serve as conduits for further creative activity (Tepper 2006). While his notion of

the ‘Creative Campus’ encourages interaction and collaboration between different disciplines, it is also predicated on the assumption that culture should feature not only ‘on’ campus but also ‘beyond’ campus.

This is an important point, not only because of the effects of the creative campus beyond academia in impacting economic growth (Andres & Chapain 2013), but also because of the perceived benefits to universities and to society (Comunian & Gilmore 2015). Shalley & Gilson (2004) argue that skills associated with creativity include an ability to think creatively, generate alternatives and suspend judgement. This is consistent with universities looking to the arts to encourage innovative thinking and to link artistic, scholarly, industrial and cultural paradigms (Bennett et al. 2009). Generally, the notion of ‘creative campus’ provides a framework within which art-based initiatives such as artist residencies can play a significant role in higher education.

The value of artist residencies

Fine art, and cognate disciplines, may have a particular value in stimulating innovation for entrepreneurship and facilitating productive knowledge exchange. Artist residencies are one way of actualising this and there is increasing emphasis contained in government policy. The Australia Council for the Arts (2015) reports that residencies provide artists with opportunities for creative investment, development of ideas and connections at minimal cost. Many art graduates choose self-employment (Menger 1999), commencing their careers by searching for residencies offering professional sustainability and inspired creativity (Styhre & Eriksson 2008). Residencies often provide artists with stipends, facilities, tools, professional feedback and opportunities, to develop networks with other artists and potential audiences. Residencies may offer access to new technologies, partnerships and funding opportunities leading to the development of new ‘products’ and ideas and organisational and managerial skills (European

Commission 2014). International residencies may widen cultural awareness, build international networks and expose artists to new developments (Styhre & Eriksson 2008).

Artist residencies are a powerful form of art-based initiative, embracing individual and organisational level value-drivers including passion, emotion, hope, morality, imagination, aspiration and creativity (Schiuma & Carlucci 2016). Residencies can impact on the processes, values, identity, image, brand and culture of organisations. They can contribute to staff development, and facilitate organisational learning and capacity building (Shanken 2005; European Commission 2014). Several organisational impacts have been identified including economic enhancement through improved performance and inspirational action, added product and service value through innovation, and leveraging participants' experiences to inform future practices (Darsø 2004, 2016; Berthoin Antal 2012, 2013, 2015).

Art/science interactions

Art often challenges conventional thinking. Its aesthetic dimension enables the experiencing, exploring and knowing the world differently (Tadajewski & Brownlie 2008). Prior to the Enlightenment; many individuals (e.g. Leonardo Da Vinci) worked as both artists and scientists (Gerber 2006). Potential contributions of art to science include uncovering the unexplainable, developing new angles of perception and creating innovative metaphors (Stettler 2006). While many industrial sectors now host residencies, e.g. in technology (Naiman 2011) and medicine (Rockwood 2004), the sector that appears to interact the most with artist residencies is science. Several organisations facilitate and support art/science collaborations, and also engage new audiences, such as the UK based non-profit ASCUS Art & Science body (ASCUS Art & Science, 2017). Benefits may flow each way, with residencies encouraging artists to get involved in scientific discovery, and scientists becoming interested in art. Scott (2010) argues that ignoring scientific knowledge situated in art and culture potentially limits scientific

progress. Gerber (2006) sees the artist as a catalyst and liberator of science and the mind, with collaboration creating new synergies and solutions impossible through individualised approaches.

Despite considerable interest in interactions between art and science, there is little empirical research on the value of artist residencies in terms of benefits to the artist, the host organisation, or the wider public. There is a need to investigate how artists and organisations can influence each other and create mutual value. Consequently, this paper seeks to address the following research question: *In what ways do artists' residencies add value to the artist, the audience, the host organisation and its stakeholders?*

RESEARCH METHOD

Case study approach

We adopted a case study approach in that it provides considerable insight into organisational behaviours and provides opportunities to analyse how these behaviours and processes influence context, and how context might influence behaviours and processes (Hartley 2004). Yin (2009) notes that a case study approach should be adopted when embarking on empirical inquiries investigating contemporary phenomena in-depth and within real-life contexts. It is particularly relevant when the boundaries between phenomenon and context are not evident and in new and under-developed areas (Eisenhardt 1989). We base our research on a single unit study as it is a distinctive and potentially highly informative case (Siggelkow 2007). As Yin (2009) notes, single cases are chosen because they either serve as unusually revealing examples or because an opportunity has arisen for unusual research access. Our case study fits both circumstances. The artist residency and follow-up exhibition constituted an unusual initiative for the university and inspired us to pursue research into the value of the residency and the exhibition for stakeholders on and beyond campus. In responding to criticisms of a single case approach,

Eisenhardt & Graebner (2007) note how critics are missing the point; the ultimate purpose is to generate theory, not to test it. Thus, individual cases are chosen because of their ability to illuminate.

Artist and residency overview - Research context

Our case study focuses on an artist residency in the aquaculture institute of a UK university. The residency was initiated by a female artist originally from Hong Kong who was interested in interdisciplinary art practice bridging art and science. In order to facilitate the year-long residency she enrolled on a master's programme commencing in September 2014 and attended lectures, seminars, laboratory classes and field-study trips, and delivered group presentations with other students. She was allowed free access to institute facilities and library resources. Following guidance from academic staff, the residency explored the health care of farmed fish and new biological solutions to controlling sea lice affecting Atlantic salmon.

The high-point of the residency was an exhibition called 'Aquacultural Encounters', which ran from 20 September to 23 December 2015. It took place in a building used by both the aquaculture institute and other disciplines including history, literature and languages, and philosophy. The artist presented a range of artworks in response to her experiences in the institute; for example, 42 glass sculptures were produced which highlighted the unique properties of parasites viewed under the microscope. Atlantic salmon gills were rendered in bronze, set in a pigmented wax base. Other semi-abstract work was also created, merging two very different sculptural materials, bogwood and bronze, in order to represent the success of a cleaner co-habit fish strategy. The exhibition included a successful opening event featuring a curator's overview and an artist's talk, as well as school visits.

Data collection and analysis

Several methods were used to collect data. Firstly, we developed a series of semi-structured interview questions for the major stakeholders. Secondly, we utilised a survey instrument to collect data from the various exhibition audiences. Both methods were based on the conceptual framework (see Figure 1) we developed from the literature and what we have termed the ‘essential dimensions of the residency’; namely, artist’s practice, curatorial vision, audience perceptions, and institutional imperatives. We then identified dynamic value-flows between stakeholders and residency; intrinsic, instrumental and institutional (O’Brien 2010; Holden 2004, 2006). All authors made at least two site visits to the exhibition, viewed publically available materials, and discussed the residency with the various audiences where possible.

FIGURE 1 HERE

For the interview phase, we conducted five face-to-face interviews with the major stakeholders in the residency; the artist, the curator, and the three academics (director, professor and researcher) who worked closely with the artist. Details of interviews and interviewees are given in Table 1, including interviewee roles, interview duration, and examples of standardised questions asked. An indicative interview schedule was provided to interviewees in advance.

TABLE 1 HERE

To collect data from those viewing the exhibition we used a survey instrument available both on-site and online, as the nature of the site resulted in sporadic and diverse audiences. The instrument included a greeting and brief introduction and included several open-ended questions: “*What was your first impression when you saw the exhibition? Do you think the artist residency created value for the institution? Please share any thoughts you have about the exhibition*”. The instrument also included a series of questions on the respondents’ background. The survey attracted a total of 50 responses from undergraduate and postgraduate students, members of academic and non-academic staff, and visitors. Both online and onsite

survey results were exported to SPSS. The background information of the survey respondents is presented in Table 2. Of 50 respondents, 37 were from the aquaculture institute. The majority were undergraduate students (25); the remainder were academics (11), postgraduate students (10), non-academic staff (2) and visitors (2). 20 females and 30 males responded to the survey, and 38 respondents were aged below 35.

TABLE 2 HERE

All interviews were digitally recorded, transcribed, converted into MS Word® format, and codified and thematically analysed using the NVivo database. Using our conceptual framework (Figure 1), coding was first structured around the identified stakeholder groups, and then by identified values based on the research data. We followed the cultural value classification of Throsby (2001) including aesthetic, spiritual, social, symbolic, emotional and educational (Guest 2002; O'Brien 2010), as well as values identified by previous research on art and science collaborations (Stettler 2006; Gerber 2006; Scott 2006). Table 3 reports how often each identified value was reflected in survey comments. Each comment often reflected more than one value, and as examples we report a 'full' comment. Percentages are calculated based on the total of 50 comments.

TABLE 3 HERE

Coding was initially undertaken individually by the researchers; differences in opinion were reconciled by team meetings. Our coding aims to explore the value creation within each domain, and the phenomena and interactions between the actors as outlined in Figure 1. The themes emanating from this coding process form the basis for our findings.

FINDINGS

Art residencies as a source of value creation

The residency constituted critical capacity-building for the artist to innovate her practice (Castañer & Campos 2002) in facilitating a new approach, and enabling her to take risks. She embarked on the project without knowing the outcome, which she regarded as ‘scary.’ She felt under pressure, given the curator’s confidence in her, and the expectations of staff and students. She appreciated, however, that the curator had given her a ‘free-hand’, and that no boundaries or preconceived ideas had been set by the institute. She enjoyed free access, creating whatever she wished, unlike ‘commissioned’ projects which may require specific outcomes. The uncertainty stimulated her creativity and energised her to develop her practice. Inspired by scientific experiments, she was able to combine different materials in novel ways:

Artist: I enjoy being stimulated by the idea of scientific experiment. Scientists, same way, go for the unknown trying to get a solution without knowing the outcome. You just keep bashing, working with it and you accept to see, it could be a failure... but that if you keep on, it might lead you to something else.

The value created for the artist from the residency appears comparable to that created for organisations by the art-based initiatives highlighted by Schiuma (2009). She worked with new groups of people, creating contacts and networks within the institute, focusing on its commercial aspects and international links. She ventured into new experimental work, developing unconventional processes and materials for sculptures such as glass. She also challenged herself by conducting experiments, influenced by the scientific approach, as part of the new process of combining glass with bronze:

Artist: It wasn't successful to begin with and I ask, "Can I do this?" The workshop said, "It's not going to work the way you want to do it, you try," so I tried. A lot of experimenting, trying to see what happens and in the same way as scientists do and that is quite fun. It might not be the right outcome, but that is a good impact on me.

She was able to enhance site-specific and public art practice, and in particular, how to extract, interpret and develop ideas from research and dialogue to form meaningful and creative

outcomes. The exhibition was a major development in her career as an emerging artist in opening up new possibilities for market engagement (Fillis, Lee & Fraser 2015; Lee, Fraser & Fillis, 2017). She stated that the residency acted as ‘*a way of bridging from graduation*’ and as a help towards becoming a practising artist.

The residency was ‘risk-taking’ not only for the artist but also for the curator, and the institute, as the end result was unknown. The curator found installing the exhibition challenging, recognising herself thriving while managing an intense situation. She defined the residency as ‘*the evolution of the practices, to get the maximum out of the artist as well as the university practices*’.

The residency arguably enhanced both the university’s public relations and its localisation and internationalisation agenda. From a public relations perspective, the exhibition was an identifiable visitor attraction, being displayed in one building and several adjacent external courtyards. The researchers and the staff interviewed noticed that the exhibition opening was well-attended by the public, having a discernible ‘buzz’. The curator organised exhibition-related outreach programmes, including workshops, an artist talk aimed at engaging the local community and schools visits. The director highlighted the involvement of a diverse stakeholder constituency:

Director: The people that I’ve discussed the residency and art with are not necessarily just my colleagues here... a wide range of stakeholders... we showed some potential students around last week and I was explaining about the residency and showed them the glass sculptures in the cage and they were really enthusiastic and loved them. We had a whole range of different positive outcomes from the whole experience.

The curator stressed how the exhibition had been used by the university as a marketing or PR tool in order to engage with other universities and enterprises. The director recognised the value of the exhibition as a social bridge, since it focused on both aquaculture and the Chinese relationship. The aquaculture institute applied for funding from the British Council to ship the exhibition for inaugural events of conferences, teaching collaborations and other meetings with

Chinese partners, in order to develop networks based on shared experiences and social connections. The institute recognises the capacity of art to visualise knowledge, and believes that it speaks a powerful language in terms of both expanding practice and attracting favourable international publicity. The internationalisation potential was an ‘unexpected’ outcome for both the artist, the institute and the university. All staff viewed possibilities for future residencies favourably, and were motivated to enhance their educational provision ‘creatively’, e.g. by student art competitions.

The value of art and science interactions

The curator defined her role as exercising an aesthetic influence on campus and enabling exchanges between art, research and teaching. She believed that the residency enabled the conjunction of ‘art and science’, an omission from the university’s previous agenda, defining the arts-science relationship similarly to Adorno (1970/1997) and Gadamer (1975):

Curator: Art and science are seeking the same. Art and science both seek to provide the truth... And they both provide vision and that’s what we were looking for...

She remarked on the benefits and growth of interdisciplinary practice; the synergy generated enabled artists in developing innovative ideas. Similarly, the artist highlighted the growing popularity of interdisciplinary initiatives. When asked about the residency’s benefits, she highlighted a ‘new way of seeing’.

Artist: Art and science allows a new context, a new way of thinking, a new way of seeing, a new process, and a new challenge for me.

She suggested that her experience had generated intellectual stimulation, captivation, personal development and emotional resonance. She argued that connecting art and science was about engagement, for example, making science accessible by interpreting it through an outsider lens in order to communicate effectively with diverse communities:

Artist: If you put art and science together, you get the synergy. Art benefits from the ideas and the context of science to carry out new processes...and the science will get more exposure from the art... maybe get more public awareness of the

science... art makes them...register...how they've seen something... there's a lead on effect from art, because art is more visible... people remember them...

She described the process of creating her work; a product of both her artistic imagination and the scientific knowledge and intellectual capital generated by her residency. The artist explained how she developed her sculptures conceptually from the ideas or 'essence' of aquaculture and transformed them into artistic constructions.

The professor found that the association of the artworks with his research was thought-provoking:

Professor: Her glass work on the parasites was fun and beautiful actually...I think it adds a very different angle to people who are used to looking down microscopes.

Eleven survey respondents were familiar with the scientific underpinnings but the exhibition provided them with a 'new way of seeing' (Table 3), as illustrated by their comments: 'a beautiful way to display some of the work that we have been researching and to show how beautiful parasites are'; '[we] see biological specimens in a new light'; and, 'These artworks inspire me in some ways and offer different points of view'.

The director expressed admiration that the artist's interpretation of the 'hard facts' of science produced unexpected benefits (Chia 1996; Carr & Hancock 2003):

Director: She brought something that I hadn't really known I didn't have. She looked at her information in a very interpretive way. She took what we do, which is very evidence based, hard facts, clearly defined images and... everything very rigid. ...seeing how she viewed her information and how the ideas sparked... It was just an interesting process to see an artist at work.

The staff interviewed and five survey respondents were enthusiastic about the video of the sculpture-making process termed 'visualisation in information processing.' They were impressed by the artistic processes and the underlying craft skills (Darsø 2004). It is clear that a synergy between artistic and scientific 'thinking' was experienced by all stakeholders, in appreciating the beauty of both worlds.

The value of artist residencies on campus

The residency and exhibition created a series of cultural values as expressed by the survey respondents and presented in Table 3. The ‘aesthetic impact’ of the exhibition was recognised: fourteen respondents mentioned the artworks’ aesthetic qualities and eleven their inherent craftsmanship. Twelve were stimulated by their creativity. Eleven respondents commented on experiencing emotional connections with the artworks. They were excited, refreshed, happy, amused or fulfilled, while viewing the exhibition. The curator mentioned how students made ‘emotional’ connections with the artworks:

Curator: The art lifts you to another level from our ordinary, everyday lives rather than being in a building of mundane walls and doors... because I hear students talking, I know that students stand in front of the artworks and speak about them and feel things, good or bad.

The curator believed that the artistic environment encouraged the creative thinking which she believed should underpin the university as a place of learning. Eleven survey respondents stated that the exhibition enhanced the work and study environment. One undergraduate suggested that the artworks brought a beautiful atmosphere to the exhibition hall, with their vibrancy, while another commented that ‘*I think that the exhibition provides students such a good way to have daily dose of culture.*’ Both the director and professor stated that ‘beautiful things’ enrich the environment, and that the artworks made their work-place more pleasurable and productive. Nine respondents indicated, e.g. ‘*I felt intrigued, and certainly proud to be studying in an environment which supports such endeavours*’, that the residency had either created value for the institution or made them proud of their work or study place, as an environment of well-connected and recognised artistic endeavour (Brown & Novak-Leonard 2013).

The residency exposed all stakeholders to new contexts and knowledge. The artist selected areas of research with potential for creative transformation, and expressed the learning process as:

Artist: I gained a lot of knowledge about things that I didn't know about... having to distil that, come away, focus and decide from then... I put on my artist hat and start making work. I'm putting puzzle together... and bring back a thousand pieces of puzzle I have to put together, and that is quite fun.

The curator indicated that her involvement represented a significant personal learning curve. As an intermediary, she was the first point of contact for both artist and institution and her management skills were crucial in fulfilling the needs and expectations of both parties. The curator also opined that the university made an ideal setting for the residency given its rich resources of knowledge and the university's intention to make knowledge visible through artistic collaborations. Eight respondents highlighted the exhibition's 'educational' value of in linking their own familiar scientific discipline with the more unfamiliar fine arts. Comments included, 'This was great as I have never been greatly enthusiastic about art but this exhibition in particular, certainly cultivated my interest', and 'I think art is a really good way of thinking about things differently and showcasing things in an unusual way, which helps people to understand and visualise the concepts better'.

The artist highlighted the 'social value' generated as a result of her interactions with staff and students and her sense of the excitement within the institution, and the enhanced internal communication which her residency produced. The director suggested that the residency and exhibition stimulated communication and interactions with staff and students, and created 'good' energy in working and studying spaces.

Director: Aesthetics are important in the place of work. I think that it's been a point of discussion, like I have discussed with several colleagues, her role as artist and what she did, and what she produced, I'm not sure before that I'd ever discussed art with any of my colleagues, so it kind of brought another dimension to what we do.

One undergraduate noted that the impressive visual appearance of the university encouraged discussion. We therefore support the idea that shared experiences and intellectual connectedness create bonds between individuals (Bakhshi & Throsby 2010).

Challenges for artist residencies on campus

Though there were significant benefits to the artist residency there were also challenges. It was the first artist residency for both artist and institution. Although the curator had presented many exhibitions, hosting an artist for a year was a new experience for her, with consequent challenges for all stakeholders involved. The curator was aware of the difficulties faced by the artist in terms of the lack of time from academics and financial support. The curator suggested that time was a key issue for academics:

Curator: It's quite difficult to get into or infiltrate academia... so we're thrilled to have had this exhibition with the residency with aquaculture... so that they're exposed and people understand what they are doing. Some staff were more supportive than others, only because of time, they have got time problems.

The artist felt that if she had been 'paired-up' with a scientist she would have enjoyed more interactions and in-depth insights. It was challenging to make appointments with busy academics. She acknowledged that this might be due to the lack of residency experience for both herself and the institute. Such 'pairing up' has featured in other art/science collaborations (Scott 2010).

Secondly, a funding issue arose from the university's lack of a programme or budget for residencies. The artist only received financial support of £2,000 from Creative Scotland, towards her exhibition and no other fee was paid. The curator suggested that internal university funding for artist residencies might have enabled artists to explore all areas of the academic disciplines and enhance community outreach programmes. As Watson (2010) notes, most campuses lack both the staff and financial support necessary to develop Creative Campus programmes, which could facilitate artist residencies.

Value framework and propositions

Our findings are based on the themes emanating from our data; namely, art residencies as a source of value creation, the value of art-science interactions, and the value of artist residencies.

Following Eisenhardt & Graebner (2007), we develop the following propositions based on the empirical evidence emerging from the case study.

- P1: Artist residencies can create a range of values not previously experienced in the organisation.
- P2. Artist residencies can have the potential to create emotional experience in the organisational environment.
- P3. Interested stakeholders can be introduced to new contexts and new knowledge.
- P4. A residency could be particularly beneficial for emerging artists.
- P5. An artist residency has the potential to create opportunities for the organisation beyond the original focus of the intervention.

We identify an overarching value framework that allows us to conceptualise the benefits to all actors involved. The framework is presented in Table 4. We find that the residency, based on interdisciplinary collaboration, created values embracing the intrinsic, the instrumental, and the institutional. These values are recognised as fluid and dynamic, and as impacting upon individuals as well as the institution. The values identified reinforce the importance of fostering a stimulating aesthetic atmosphere, and exploiting the creativity of craftsmanship through its ability to enhance learning, thereby generating cultural benefits for staff, students and the community.

TABLE 4 HERE

This value construct helps us to develop the notion of the residency as a catalyst for nurturing creative activities and instilling an institution-wide philosophy of creativity. By instilling such a philosophy, members of the university can be encouraged to think in a cross-disciplinary, collaborative way, drawing on ideas and concepts from outside their conventional domains (Shalley & Gilson 2004).

DISCUSSION AND CONCLUSIONS

The paper explores how an artist residency in an aquaculture institute within a university serves as a multiple source of value. We improve our understanding of the value of art-based initiatives for the stakeholders, and investigate mutual influences. The residency inspires the artist to experiment, and by taking the ‘risk’ of initiating the residency, both artist and institution created unexpected opportunities, e.g. potential joint efforts on internationalisation enabling them to develop, exploit and leverage international networks and resources. For educational institutions, internationalisation strategies have become a *sine qua non* with a strategic focus on market development. Given that art speaks a global ‘language,’ the residency assists the university in developing its international marketing activities, supporting claims that the arts play a strategic role in affecting organisational value creation capacity (Schiuma 2011). In order to make the benefits of the artist residency sustainable, the issues of available time from mentoring staff and financial support from the institution need to be addressed. Supporting one artist residency can, potentially, lead to others throughout the university, perhaps by strategic use of in-house brokers such as the curator who can enable new relationships to be established.

We make a contribution to the literature in terms of a response to the demand for empirical research on art-based initiatives in order to benefit policy-makers, decision-takers and industrial and intermediary organisations (Berthoin Antal & Straub 2014). While it is challenging to provide robust evidence as to the effects of university-based artistic initiatives on external organisations, our study provides an additional perspective on what remains as an essentially unexplored area. Berthoin Antal (2012) argues that the most urgent and challenging task in this area of research is to devise a variety of different instruments which might be used to measure the ‘value-added’ created at different points of time by artistic interventions in organisations and we respond to that imperative.

Although our findings are based on only one case study, we argue for the positive spill-over effects of creativity. Study replications in other university settings, where each case can be viewed as a distinct experiment, would be advantageous (Eisenhardt 1989). Comparative case study analysis might also be carried out across different industries and disciplines (Berthoin Antal 2012). Although our research provides insights into the processes and outcomes of artistic interventions in a university science institution there are lessons for other art-based initiatives. Artistic collaborations should be well planned, discussed and agreed beforehand (Berthoin Antal 2014). Care should be taken to discourage policy-makers from holding unrealistic expectations of what might result from such interventions. For the artist, benefits relate to skills improvement, creative inspiration and career development. For the organisation, benefits can include encouraging staff creativity and a more productive environment. Further research would facilitate clearer insights into defining and measuring impacts.

Tepper (2006) argues that creativity should lie at the heart of universities, stressing their significant role in arts ecology. Universities have important roles in commissioning, employing and training artists in addition to merely celebrating the arts. The determination of universities to embrace artist residencies is crucial, especially in allowing students to experience art in early life (Comunian & Faggian 2014). Tepper (2004) argues that universities should promote creativity in order to prepare graduates to be flexible, imaginative, empathetic, and entrepreneurial. Darsø (2016) claims that those who have experienced and connected with art during their education will also welcome artistic interventions in their organisations and there is much scope to incorporate aesthetics within education (Robinson 1982). Introducing creativity to the university curriculum can alleviate the problems associated with instrumentalism and the contemporary focus on assessment. In searching for creativity and innovation in teaching and research, universities might consider art-based initiatives as a

‘catalyst’ with potential to transform institutions and educational and cultural policies and practices (Schiuma 2009). Our findings, consequently, contribute to the further identification of synergies between art and science, and to pedagogic innovation.

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Figure 1: Conceptual framework

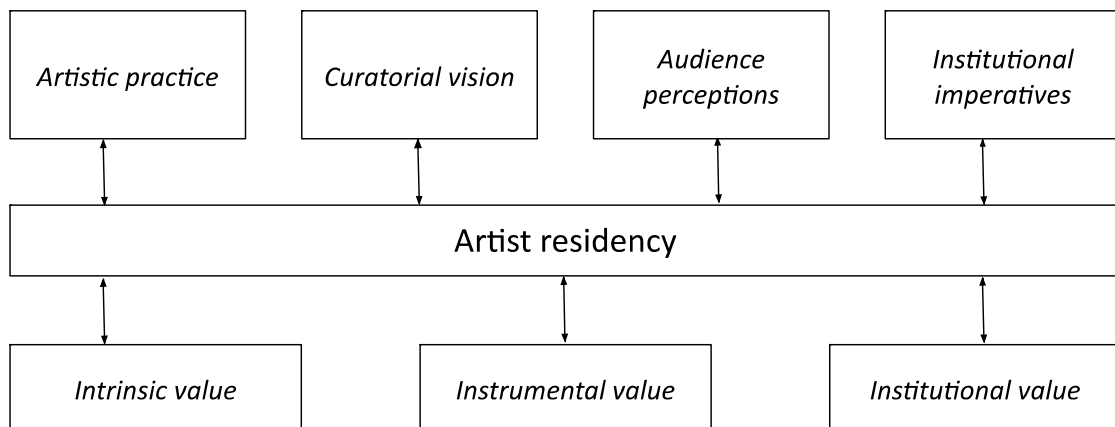


Table 1: Interviewee details and example questions

Interviewee	Position	Duration	Example questions
Artist	Professionally trained sculptor	43:58 mins	How was your time at the institution? What did you expect to gain from the residency? Did you interact with people from the institution? What benefits or added value did you gain for your career? Do you think that such residencies have value for artists, organisation, and public? What were opportunities and challenges that you faced? (27)
Curator	University curator; professionally trained artist	33:87 mins	What benefits has there been for different parties involved? What was the ‘purpose’ of the exhibition from a curatorial perspective? Was there any tension between you as curator, artist and the science-based staff regarding the work? (18)
Director	Deputy Director	09:13 mins	How did you find the artist residency in your institution? How did other staff find her residency? What did you hope to gain from her residency? Were there any particular aims of the institution for her residency? Do you think that her residency has value for the institution, i.e. to staff and students? Did you enjoy the exhibition? Was it interesting? How about her use of material? Was it effective? (12)
Professor	Professor	06:12 mins	
Researcher	Senior researcher	16:55 mins	

Table 2: Survey respondent details

From the Aquaculture Institute		Gender	
Yes	37 (74%)	Female	20 (40%)
No	13 (26%)	Male	30 (60%)
Total	50 (100%)	Total	50 (100%)
Occupation		Age group	
Undergraduate student	25 (50%)	18-24	21 (42%)
Postgraduate student	10 (20%)	25-34	17 (34%)
Academic staff	11 (22%)	35-44	5 (10%)
Other staff	2 (4%)	45-54	3 (6%)
Visitor	2 (4%)	55-64	4 (8%)
Total	50 (100%)	Total	50 (100%)

Table 3: Values identified in the survey comments

Identified Value	Example comment	N	%
Aesthetic value	<i>I thought it was a beautiful way to display some of the work that we have been researching and to show how beautiful parasites are!</i>	14	28%
Stimulated creativity	<i>These artworks inspire me in some ways and offer different points of view. Yes, I think her residency made it possible to create these representatives and well connected to our institution.</i>	12	24%
Emotional value	<i>The exhibition was fantastic and the Institution should definitely keep it. It was very realistic and fulfilling.</i>	12	24%
New way of seeing	<i>The glass artwork was absolutely amazing (and I genuinely wanted some pieces on my shelf at home!). I think art is a really good way of thinking about things differently and showcasing things in an unusual way which helps people to understand and visualise the concepts better.</i>	11	22%
Admiration of craftsmanship	<i>Amazing use of glass that looks very intricate and difficult to create. The art work has great value towards the institution.</i>	11	22%
Environmental value	<i>I like very much being surrounded by the artwork. I think it brings life to the room.</i>	11	22%
Value for the institution	<i>I felt intrigued, and certainly proud to be studying in an environment which supports such endeavours.</i>	9	18%
Educational value	<i>It is some beautiful work which I took great interest in as I was able to relate to it. This was great as I have never been greatly enthusiastic about art but this exhibition is particular, certainly cultivate my interest.</i>	8	16%
Art-making process	<i>I have friends who make glass art. It was very interesting to be able to see the process of making the art next to the final product. It is nice to see the arts and sciences work together for once.</i>	5	10%
Synergy between art and science	<i>Combining art and science brings out the beauty of both worlds.</i>	3	6%
Social value	<i>Impressive visual appearance of the university encourages discussion.</i>	2	4%

Table 4: Values created by the artist residency

Intrinsic value	Instrumental value	Institutional value
Aesthetics	Informative	Culture
Spiritually uplifting	Educational	Pride in the place
Captivating	Intellectually connecting	Social connectedness
Feel-good	Environment	Sense of belonging
Emotionally connected	Social value	Outreach
Stimulating creativity	Linking art and science	Community service
Energising	Research and development	Risk-taking
Motivating	Visualising knowledge	Innovation
Atmosphere	Increased productivity	Internationalisation
New way of seeing	marketing	Developing partnerships
Synergy	Networking	
	Public relations	