

## **Combating Silos in Education:**

Can structured problem based learning engaging several academic faculties, industry and community lead to better student engagement and achieve deeper learning outcomes?

*1916 remembered. A Collaborative Response.*

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## **Abstract**

Working across faculties: a case study. This project is a collaboration between several groups within the design and media faculties. BA Interiors, Fashion, Journalism, Photography and MA Interior Architecture collaborated on a problem based learning initiative that was embedded in the centennial commemorations of the 1916 Irish uprising.

The objective was to break down perceived silos in how the faculty and the students approach their project work, to broaden the collaboration between student groups, academic faculties, community and industry, to stimulate within the students a deeper engagement in their studies using the topical national celebration of the remembrances of the events of 1916.

A problem based learning project was created around the people, places and events of 1916 that engaged fashion, interior design and interior architecture students at undergraduate and post graduate level. Design, media and photography faculties collaborated on tutoring, mentoring, recording and cross checking the student work. Industry and community were invited to offer feedback as the process developed. This led to opportunities to display the combined project work to a wider public when completed that coincided with the national celebrations.

All stakeholders: students, tutors, industry and public offered responses to the initiative. Current relevant research literature was reviewed. A series of surveys was conducted with the students who engaged in the process. Those students who participated were very engaged and successful in their learning outcomes, but other student groups not participating felt overshadowed. The experience determined that clear and open communication throughout the process is a priority for all.

It was concluded that within problem based learning, a project that crafted to engage the attention of a variety of learners and tutors , that is attractive to invite participation by industry can create avenues of engagement and communication between faculties and beyond to Community. However careful planning that is sensitive to all, flexibility, co-operation and communication between all stakeholders are key aspects to a successful conclusion for all involved.

## **Keywords**

Silos in Education

Collaboration in Design Education

Engagement with Industry and Community.

Student Engagement.

# Combating Silos in Education: Working across faculties: A case study.

*'No Man is an Island'* John Donne.

## 1.0 Introduction

In 2015, the design faculty started work on a collaborative series of projects. This brief was determined by how we could respond to and use the approaching centennial celebrations for the events of the 1916 Irish rising and how this might engage, shape and inform our upcoming academic year. This was driven in part by the work previously done by several groups of Interior Architecture students regarding Dublin's North East Georgian Area and their project 'Just Imagine'. (McDonald, 2013) and the progression of this work as subsequent final year students researched and challenged existing thoughts and sentiments about O'Connell street in their final year projects 'The O'C 2015'.

The 1916 rising and the remembrance of these important and topical events in Irish history provided an excellent canvas for potential collaborations.

In the past we have seen significant increases in the level of engagement between students and staff when a goal is determined by both individual effort and a shared collaboration.

## 2. Literature Review.

### 2.1 Silos in Education

In current literature on collaborations in business, the term 'silo' is frequently used.

*'The silo mentality in business,*

*'is really an organizational way of thinking? It occurs when departments or management groups do not share information, goals, tools, priorities and processes with other departments. (Beal, 2016).*

In Education, it has a similar definition, many educators

*'...suffer from what has been called 'the silo effect'. This occurs when they become isolated in their own... academic neighbourhood and consequently experience minimal interaction with colleagues'. (Linton, 2009).*

Thus the challenges of working across faculties and reaching out to industry can be challenging. But the 'Silo mentality is everywhere,

*'No matter what type of organisation you work in- large or small, public or private, hierarchical or flat, district or other- there are silos'. (Cohen 2013).*

As educators it is counter-productive to our work, our responsibility to those in our tutorage and possibly even detrimental to our health if a level of isolation increases in our work lives.

*'It goes against human nature to be isolated from other people in this way' (Linton 2009).*

Maslow argues that we need to satisfy our lower level needs (safety, belonging and esteem) before we can address our higher needs of self-actualisation', when these

needs are not met, the person can feel anxious tense and depressed. The ‘silo effect’ in education can be emotionally, socially and spiritually draining. Based on the practise reviewed here and on current literature, a series of bench marks can be suggested as a template of sorts to combat the Silo mentality. Planning and working across departments with a number of modules can take us out of our comfort zones and often out of the familiarity of the physical classroom (e.g. liaising with community and industry). To successfully collaborate, planning is imperative. Bringing staff together to define shared goals and reach consensus is important. However it can be a potentially difficult area to negotiate. Cohen in her summary: ‘Breaking down Silos in a school District’ says:

*‘...deciding who should be included in each group was ‘politically complicated’.* (Cohen, 2013).

Clear and organised communication is critical in collaboration. This may be simplistic and obvious but it is something that can be undervalued or overlooked in the process. *‘Communication and collaboration is essential to breaking down the silo mentality’.* (Beal, 2016)

It’s important to establish the framework of the collaboration before it kicks off and that communication is an essential part of the endeavour until the end.

*‘Communicate early, often, and wisely- and listen well.’* (Cohen, 2013)

Making teamwork work is arguably the greatest challenge in breaking down silos. Assembling a successful and supportive team is the anecdote to the silo mentality.

*‘Interprofessional education, as defined by the world health organisation occurs, ‘When students from two or more professions learn about, from, and with each other to enable effective collaboration...’* (Kalb, O’Conner-Von, 2012).

Selecting, organising, managing, delegating responsibility within (and working towards goals when) the team is as varied as teaching staff, students, industry and community is not a small task.

*‘Being thoughtful and strategic about who’s involved in a cross functional effort can make a world of difference down the road. The goal is a group that reflects diverse views and roles. Remember that differences in opinion may make the work more challenging but can strengthen the end results’.* (Cohen, 2013).

When collaboration extends over an extended period of time and is ambitious in scale, it’s important to give careful thought to structure the delivery. To note and appreciate successes as they happen. As collaboration evolves, it may perhaps change form and the end goals may evolve and extend farther into the future than perhaps was originally intended. By acknowledging and appreciating interim benchmarks, we can stimulate the teams and this is a form of ‘touching base’ and communicating.

*‘Particularly when the end goals of your change effort are ambitious and long term, be sure to demonstrate incremental successes and create momentum for change by building in opportunities for short term wins’.* (Cohen, 2013)

## **2.2 Integrating Design Education within the classroom**

There have been a number of efforts in recent years to create collaborations: in the class room and beyond. To bring different cohorts of students together, through project work, through the inter-disciplinary or assimilated classrooms. Park and Benson look at how a,

*‘liberal arts ‘integrated’’ design education may enhance the design students systems thinking abilities....This mode of thinking would not render the designer a generalist*

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*but instead one that is always seeking to collaborate and explore outcomes outside of their typical artefacts*'. (Park, Benson, 2013).

In terms of design education, we may be at a crossroads. We must respond to the fast changing needs of industry in terms of giving our graduates the technical and digital skills they need to meet the jobs market however we cannot overlook the multidisciplinary, problem solving, ethical, critical thinking and embedded sense of inquiry that is required of a design education. By combining and overlapping design disciplines we can go a ways to achieving this. Some schools are already following this model. At the Interior Design Educators Council, Emory and Futrell spoke of *'...converging multi design methodologies*', where *'students were exposed to a variety of problem solving skills....an interdisciplinary studio was a ten week, three credit course consisting of interior design and graphic design students led by two professors, one from each discipline*'. (Emory, Futrell, 2016)

Carnegie Mellon University in Pittsburgh are experimenting with a BA Humanities and Arts degree that allows students to combine humanities with design and use the relevant credits towards their overall finals. Design in Industry is increasingly becoming more and more multifaceted and collaborations and overlap in disciplines much more common.

*'The designer is no longer just a professional who knows how to build representations for artefacts, more than before s/he must also understand to perform as a mediator of interdisciplinary teams in adjacent discipline's.*' (Beucker, 2004).

The project work at Carnegie Mellon concludes that a transdisciplinary mind-set is critical to a shift in how teachers approach their pedagogy. A transdisciplinary mind-set is one that engages input from a variety of disciplines towards one end. E.G. the liberal arts and the natural sciences working together toward on goal, all their research influencing their combined goal: in effect creating a transdisciplinary environment of class room. By responding to this with the

*'transdisciplinary classroom'...*, *this would begin to break through the silos of academic which don't exist in the professional environment, and cultivate designers who are always seeking to explore outcomes outside of their typical artefacts from holistic systematic perspectives.*' (Park, Benson, 2013).

This raises the issue of assessment and achieving credits in this new combination environment. How can we complete the learning outcomes and allow students to achieve the necessary credits to graduate? Some guidance may be found in the work undertaken at the Carnegie Foundation.

*'Over the last decade the Preparation for Professional Program undertaken by the Carnegie Foundation for the advancement of Teaching investigated the education of professional clergy, engineers, lawyers, nurses and physicians. This comprehensive programme of research emphasised themes addressing the scholarship of teaching and the formation of professionals.'* (Kalb, O'Conner-Von, 2012).

These themes that they deciphered and centred on were three essential strands of Knowledge. These three are:

- Cognitive: Knowledge of relevant science, technology, literature and theory
- Practical: skilled know how and judgement in professional; and clinical practise.
- Normative: ethical component and formation.

Let's consider each individually.

Cognitive. It may be time to consider how the element of research is structured and delivered in design education. Does more emphasis need to be given to the use to which research is put to? Beucker argues that there is no '*...original design methodology (in design education) and probably there never will be.*' (Breucker, 2004).

But he also offers the idea of an approach to research from a science based education that might,

*'Broaden the intellectual horizon of designers. Training in scientific work gives the opportunity to summarise their reflections so that it can all be archived and made accessible for future needs.* (Breucker, 2004).

That this may be a requirement to allow pause and time for reflection but also for drawing summaries and perhaps conclusions, that this then should be built into the curriculum.

Practical. This is the opportunity then to fulfil the goals of collaboration with industry. It can be seen as a step or a bridge between an academic education at third level and the more vocational aspects of the traditional apprenticeship? In the area of health care education,

*'Research shows that effective inter professional education results in effective collaborative practise and effective collaborative practise results in better healthcare outcomes'.* (Kalb, O'Conner-Von 2012)

The same could be argued to apply to a design education.

Normative. It is increasingly important that ethical considerations are at the forefront of a design education as technology evolves at such a fast pace and the idea of disposable environments and products becomes more common place to name but a few reasons. Embedding these within programme writing and assessments could be structured into the above. A collaborative, transdisciplinary or assimilated classroom would offer opportunities for this.

*'As our society faces daunting issues of resource depletion, global warming and poverty, the razing of the silo model is even more necessary. Working and learning collaboratively in a transdisciplinary classroom is vital to creating a knowledge-sharing educational environment where students from many integrated disciplines solve large-scale wicked problems'.* (Park, Benson, 2013).

### **2.3 Collaborating outside of the faculty**

The possibilities of progressing design education through a revised approach to how research is structured, engaged with and reflected upon is an important consideration as detailed in the last paragraph. This offers a clear direction for how collaborations with industry might happen. The ability of the design student to awaken and explore their creativity must remain at the heart of a design education but it must also be progressed as to how these talents can best be put into the service of society.

*'...research collaboration with industry is the key factor for methodological exercise in design studies. For an industrial partner design output has to be generated through a transparent approach. Intuitive action on tactic knowledge hardly convinces the clients'.* (Breucker, 2004).

This is worth noting as it touches on two strands in a design education: the intuitive abilities of the student who is drawing to work in the design industry and the learned aspects, the intellectual skills they need to acquire in order to defend and justify their opinions and insight. Industry can collaborate with academia if the correct structures,

goals and expectations are in place. If a partnership is to succeed communication and teamwork must be in place. Karjalainen and Repoken noted the challenges in this type of cross university and industry collaboration that

*'Teams generally spend lots of time clarifying the brief and applying it to the views and interests of different design disciplines. Some students also lacked the experience in working with companies which resulted in some mis-interpretations ineffective execution of the project. (Karjalainen, Repoken, 2007).*

The emphasis on research is often factored into post graduate studies however *'...even undergraduate students need a certain amount of research training, if they will be able to support projects within industrial collaboration.'* (Bruecker, 2004).

In terms of preparing the student for these type of collaborations: Exposing the student to as wide a variety of feedback at undergraduate level coupled with a structured approach to research would appear to be a double strand that may set the foundations for successful collaborations both within and beyond the classroom as the students' academic life progresses. The geography of the academic campus can often play a part in this. Art and Design faculties are not necessarily located adjacent to or connected with other faculties, where there might be beneficial, mutual, cross faculty advantages and where there might be an overlap in how one could affect the other. Research practises in applied sciences might offer different models to those in humanities etc.). Also the nature of the academic year with its emphasis on structure deadlines and assessment determine that collaborations need to be planned and factored in early.

*'The rat race of the academic year can cause a professor to get into a routine or a 'Zone' where every minute is scheduled and accounted for'.* (Linton, 2009).

Ultimately the ability to collaborate successfully must rest with the nature of those who will participate. The enthusiasm and engagement must come from within those who are participating, who are aware of the Silo mentality and wish to break through this.

*'Personal motivations, aims and enthusiasm played a big role in the execution of projects'* (Karjalainen, Repoken, 2007).

Students, tutors and industry, all stakeholders must all understand what's required of them and be willing to work together. That there should be,

*' a great level of emotional investment- on behalf of the students individually and as a group- that allowed for the students to gain a greater insight in their projects'.* Also *'A number of academic staff expressed that this emotional investment was a benefit to their own teaching also and of how it farther engaged the students in areas outside of their individual projects'.* (McDonald, 2013).

### **3.Methodology.**

Breucker raises the question of the challenges to design education requiring a more structured methodological knowledge approach. He offers the following challenges:

- *Generate transparent design methodology in education.*
- *Conduct projects with industrial collaboration*
- *Provide a science (reflective) based design education.* (Breucker, 2004).

In fact these almost dovetail with what Kalb and O'Conner (2012) offer in the previous paragraphs. What all seem to agree on is that,

*'by converging multiple design methodologies, students were exposed to a variety of new problem solving skills'* (Emory, Futrell, 2016).

And that an

*'Integrated design education may enhance the design students' systems thinking abilities'*. (Park, Benson, 2013).

### 3.1 The development of the ideas around collaboration.

Initially the idea for a collaboration across several faculties and with industry structured around the real life events of 1916 was ambitious. Some tentative ideas were discussed casually for possible collaboration between faculties at programme director level. All discussions informed the eventual goals, and eventually the tutors from various modules took the ideas and working together agreed to use the lives of the people (both famous and those who are lesser known) as well as the places involved in the events of 1916 as a scaffold for demonstrating the learning outcomes of their particular modules. Engagement with the learning outcomes was focused on very early in the process as the best and most appropriate way to embed the collaboration into the students work and assessments during the year.

### 3.2 Participants and Engagement.

Consideration was given to the students and the curriculum: The ideas around collaboration targeted strategic modules within several cohorts of students' academic work. Thus it was embedded into the curriculum and engaged these students in various modules and their specific learning outcomes.

Modules were specifically selected, based on relevant problem based learning and solutions that would complement the overall theme:

- 2<sup>nd</sup> year Interiors students and tutors worked on a series of furniture and model making projects structured around the events of 1916: *Sit Still 20 lives, 20 chairs*, the student's upcycled a period chair to reflect the personality of a participant in the 'rising'. They also researched and created a scaled model of O'Connell Street. Each student, an individual Building that became a group collaboration to complete the length of the GPO side of the street were most of the activity took place.
- 2<sup>nd</sup> year fashion design students and tutors worked on a women's clothing ensemble influenced by the women involved in the events of 1916. *Uniformity 'The Women of 1916'*.
- The MA (Design IA) students focused their project work on *Conflict in the City* to include the events of 1916. Selma Harrington was invited to participate at the 'Conflict in the City' conference in April. (Harrington, 2016).

### 3.3 Collaboration across faculties.

The design faculty collaborated with the journalism faculty in checking and documenting their research including a series of promotional pieces written elements into large and small posters and other media for display purposes. Tutors examined and collaborated on the referencing and communication of the written pieces that supported the design work. Both faculties worked with the media faculty documenting

and photographing the pieces for communication and promotional purposes. These varying forms of collaboration were very important and as --- explains are necessary to get the message successfully completed.

*'In the context of the design education, collaboration comes in different shapes. Co-operation is putting together design solutions or part of design solutions that have been done individually often asynchronously; Co Design is when all participants are actively involved in furthering the design simultaneously which best suits the needs of tactic knowledge transfer'.* (Dorto, Lesage, Bartolo, 2012).

The marketing department also collaborated on promoting the ideas as they came into realisation.

### 3.4 Collaboration beyond the Institution, with Industry and Demonstration.

Finally, and significantly we worked with industry in developing the work while in studio and then presenting the work to the public. The advantages of this for the student are huge. Standards increase, goals are better realised. Engagement with learning sharpens when the students know that their work is going to be seen by a wider audience and the student benefits from having a wider interface with stakeholders while learning and then from the wider public. This is seconded by current thinking in opening up the learning process in studio to a *'mode of curricula ...that would begin to break through the silos of academia which don't exist in the professional environment and cultivate designers who are always seeking to explore'.* (Park, Benson 2013).

### 3.5 Feedback from participants

Student Feedback from those students who participated on the course was very positive. A survey was conducted between the fashion and interiors students. A series of ten questions was offered. The questions addressed the following mutual points of interest for all groups. The emphasis was on collaboration, engagement with the topic, with their fellow students and the learning and also broadening their experiences.

#### Figure 3.1 – Sample of questions asked of Students

The feedback from students was almost all positive from those who participated.

##### Survey Questions: Fashion/Interiors Students.

1. Did you feel that having project work structured around the events of 1916 helped you engage with your furniture module?
2. Did you enjoy the research part of the Fashion/furniture project and being able to apply your research to create a design?
3. Did you enjoy Do you feel more confident in being able to do the same thing in terms of research and design work in the future?
4. Do you feel that the public display of your work was enjoyable?
5. Did the public display of your work give you a greater focus and engagement in doing your best?
6. Would you have liked more engagement with the Interiors/fashion faculty as you worked through your ideas?

Here is some of the feedback offered by the students:

*'It was one of the best assignments, the fact that we engaged with public, made me want to produce better work, and gave a sense of achievement being part of 1916'*

9/12/2016 7:31 PM [View respondent's answers](#)

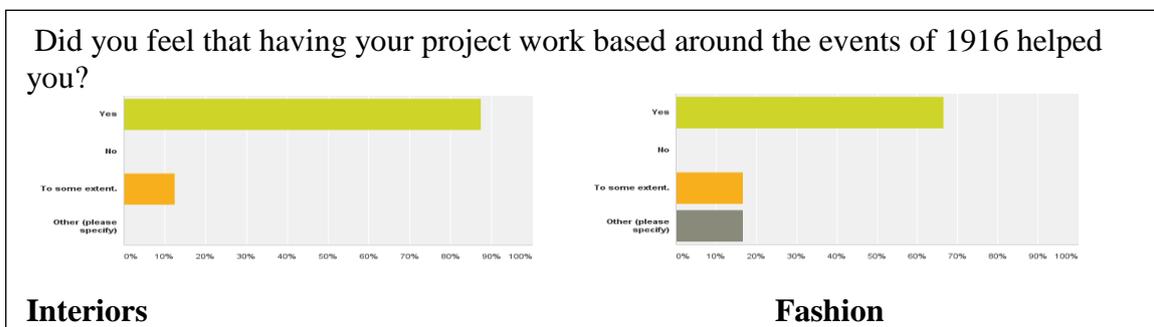
*'I have absolutely no interest in history so I found this project particularly difficult to engage with'*

9/13/2016 7:57 AM [View respondent's answers](#)

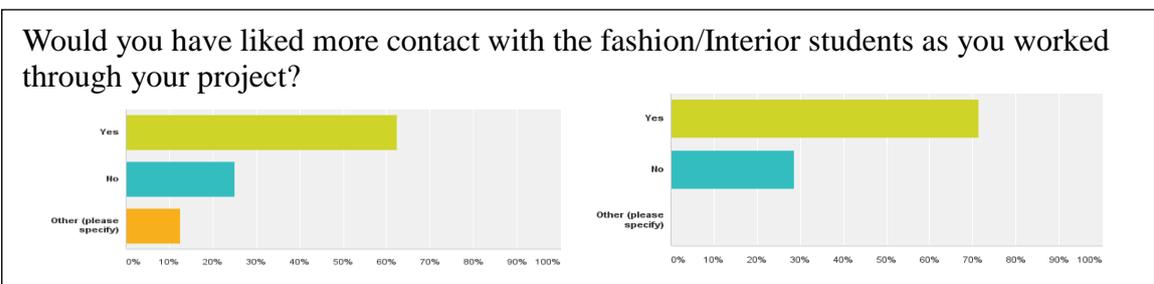
### Figure 3.2 – Sample of questions asked of Fashion Students

The following tables are a sample of the responses that we received, in terms of how they felt about their engagement with the process, focus on their work, their feelings about the exposure to their work and collaborating with their fellow faculties.

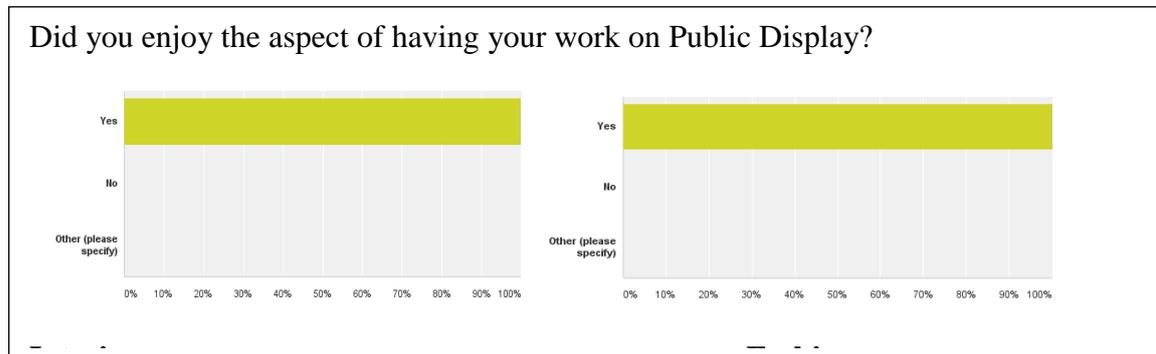
### Figure 3.3 – Engagement



### Figure 3.4 – Collaboration with fellow students



**Figure 3.5 exposure of work**



**Figure 3.6 – deeper sense of engagement**



## 4.0 Reflection and Aftermath.

The learnings that came out of this collaboration are common to some of those that are highlighted in the literature review with several new observations and recommendations.

**4.1** Planning in advance in critical. Setting up an agenda for the course of the collaborations is necessary. There needs to be structure around collaboration.

Another factor that is worth considering is the hierarchy within the project and ownership of the various components within the collaboration. Cohen speaks of *'synthesizing the work...to draft a definition of the problem, a framework, a phased implementation strategy, and a plan'*. (Cohen, 2013).

There should be an understanding of who is responsible for what and when and if a person needs assistance. Of course ideas must start somewhere but as they are shared and as the initial thoughts and ideas progress, as other people participate and give their extra energies in the collaboration, everyone owns a part of the end product.

**4.2** Teamwork and participation needs distinct clarity. There is great benefit in engaging with industry through some of the project sponsors who were involved with the project from outside the college from the beginning. They were able to offer tutorials, advice, feedback and workshops as the project progressed and were instrumental in exhibiting the work as it concluded. In this were we able to engage with, what Park and Benson refer to as

*'a liberal arts 'integrated' design education' that 'may enhance the students systems thinking abilities' (Park, Benson, 2013).*

Organising teams in a natural extension of the planning process and should not be considered in a cavalier fashion.

*... 'deciding who should be included in each group was 'politically' complicated'.*  
(Cohen 2013)

**4.3** Understand how to motivate your student participants. A vital observation in terms of seeing these student collaborations through to a successful conclusion is that embedding the module learning outcomes and the assessment criteria into the project from the outset and explaining this clearly to the student is crucial for a successful outcome. Students are increasingly strategic and they guard their time closely. For all those who enjoyed and learn so much from the collaboration, few would feel the same way had they not achieved a mark for their work that went towards their final qualification.

**4.4** Flexibility cannot be overstated for all stakeholders. A collaborative effort may take 'wings' and for the project leaders it is necessary to have a flexibility in realising the final goals. If a project extends over a period of time, it's important to have interim communication and updates, even to acknowledge and applaud work as it gets completed. Cohen says to be sure to

*'demonstrate incremental successes and create momentum for change'*  
(Cohen, 2013).

Retaining 100% control is not possible in a collaboration and flexibility and mutual respect is key for all participants and shareholders alike.

**4.5** Avoid tunnel vision and remember those around the project. Attention also needs to be given to those 'orbiting' around a collaboration and in particular those students who are not participating, who may be in different groups, classes, modules or stages. Too much attention to one group can be counterproductive to another. Casual feedback within the faculty highlighted this after everything was completed.

**4.6** Give Praise and promote self-esteem for all stakeholder. A group dynamic of any kind will have advantages as the literature points out however it's important to acknowledge the aforementioned flexibility and extra effort/energies required to monitor, guide and deliver successful conclusions.

**4.7** Remember ethical and personal considerations in any form of public event. Ethical considerations in any research process especially where there is a public aspect to the findings need attention. While there was positive feedback to this collaboration, the attention to deceased persons and their estates could have warranted farther attention. Park and Benson speak about *'the designer being in a better position to create a more suitable and useful artefact, if s/he processes experience and research about the various stakeholders in the project...'* (Park, Benson 2006).

## 5.0 Conclusions and future work

Structuring these collaborations against the background of a national celebration has been a valuable and worthwhile learning endeavour for all involved. It has been a productive and valuable learning tool academically for the students but also as a way of creating a good dynamic amongst the staff and finally also, as a potent marketing tool. There was much interest in the work that was done under the collaborations. However It's worth noting among the literature review that a balance in perspective is also necessary. Not all best learning practice needs to be by collaboration. Consider the following:

*'Results showed how students taught by a single instructor provided a more positive overall opinion of course quality... However, findings also indicated how team teaching significantly increased the students' experience of a balanced contribution from different disciplinary perspectives (Self, Beck, Technol, 2016).*

It must then be asked: can structured projects, across faculties and engagement with industry and community lead to better student engagement and achieve deeper learning outcomes? We believe it can, but with certain parameters: with correct articulated goals, with sensitivity towards all participants and to those who do not choose to participate also, with proper planning and a committed, flexible team of participants and stakeholders and with assessment firmly embedded in learning outcomes. With these in place and a good strand of enthusiasm a collaboration across faculties can offer much rewards for all concerned.

Future research should look at deeper ethical considerations in problem and place based learning where the research findings intersect and input current best practise.

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