Wearables of the past and the future: an immersive and cross-cultural learning experience of undergraduate students in an international design collaboration

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ABSTRACT
Short term, collaborative, immersive and situated learning experiences through cross cultural design projects are key to elevating design students' global perspectives and ability to perform in international contexts. In this article we examine students' experiences during an international study tour that took Australian university undergraduates to collaborate with peer students in a design project at a university in Colombia. Our examination identifies three key dimensions contributing to the enhancement of students' global perspectives: 1) intercultural engagement through peer-to-peer exchange, 2) cross cultural collaboration during remote and immersive design work, and 3) immersing in place-based experiences that enable cultural sensitivity. An analysis of students’ essays and design work demonstrates how these three dimensions were fundamental to broaden their worldviews and ability to perform globally. In the context of increasing participation of graduates from the Creative Industries in the global economy, this article contributes to the discourse about the value of short-term mobility programs in Design in Higher Education.

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The role of immersive learning and short-term mobility in the creative industries higher education

The 21st century society is considered to be changing at an increasing pace and is multicultural, transdisciplinary and globally connected, prompting nations and governments to develop new policies and methods to strengthen their roles and increase their participation on the world stage (De Wit et al. 2017). In this context, the role of the Higher Education sector is seen as critical in developing human skills and innovative responses and strategies that include international experiences (Gacel-Ávila
and Marmolejo, 2016; Stafford and Taylor 2016). Outbound short-term mobility is one of such strategies, one that benefits students’ development of graduate capabilities across all disciplines. Extant literature highlights the critical importance of globalisation to Higher Education in order to produce graduates with cultural competencies and equipped with immersive experiences of intercultural engagement (Oddou et. al. 2000; Gacel-Ávila and Marmolejo 2016; Stafford and Taylor 2016). However, the extensive literature on outbound and short-term mobility programs provides a limited discussion about the processes of acquiring global competencies through those experiences in the Creative Industries disciplines specifically. Yet, it is in the creative disciplines where acquiring global competencies can greatly benefit graduates to develop perspectives that help them reach out to the world through their designs and creations. Literature relevant to the creative disciplines presents the discussion of these topics around three themes: global graduate competencies required in the creative fields (Bridgstock 2011), the need for cross cultural collaborations (Ersoy and Günel 2011), and the process of learning through lived experiences (Dall’Alba and Sidhu 2015). To explore how would a design-led short-term mobility experience contribute to elevate students’ global perspectives and enhance their ability to perform in an international context, in 2017 we developed a program that took Australian design students to work with Colombian undergraduate peers. Contextualising this study, in this section, we discuss the role of outbound mobility in Australian and Latin American Creative Industries in Higher Education and in the global economy.

In the creative disciplines, the acquisition of global graduate competencies is foundational for graduates to develop perspectives that help them design and create for the world. Intercultural engagement through extracurricular activities, as well as peer to peer exchange of ideas in a design project can provide the opportunity to view the world from the perspectives of others. More so, cross cultural collaborations in design during remote and immersive design work are of critical importance to prepare future graduates to work in the global creative economy. Beyond graduate competencies, it is the process of learning through immersive experiences that connect students to a place that enhances students’ cultural sensitivity. The transition from a space to a place requires a lived experience where people apply or attach meaning to the space (Carmona et al. 2010; Tuan 1974, 1977) informing practices of design, urban design and architecture (Jackson 1996; Trancik 1986; Arefi 2004). Extant theories of learning establish that it is the experiential learning, through simulations, field trips and role playing, that enhance an individual’s ability to perform in diverse cultural contexts.

In the Australian Higher Education context, international education is a top priority. In Australia, new policies have amplified the opportunity for international students from all over the world to study in Australia, and in recent years, outbound mobility has become a critical goal for Australian universities. As part of this strategy students receive incentives and support from both Government and universities to participate in at least one overseas short-term experience during their studies. The Australian Higher Education sector views these experiences as necessary to assist students in building international networks, increase cross-cultural competency, foster independent thought and learning (Universities Australia 2013; Dall’Alba and Sidhu 2015).
Across Latin America, the Higher Education sector is challenged with increasing demands from a knowledge based and globally connected society. Latin American universities are faced with insufficient resources, equity and access, receiving much less support from the Government in comparison with the world’s average (Gacel-Ávila 2012; De Wit et al. 2017). Outbound mobility in Latin America is driven mostly by industry demand for employing graduates with international experiences; consequently, international learning experiences are supported by the students’ personal resources. In Colombia, outbound mobility in Higher Education is a key strategy supporting Colombian international profiles (Berry and Taylor 2014). The literature shows that the strategic objectives of short-term mobility programs in Australian and Colombian Higher Education include: acquisition of global perspectives, development of cultural sensitivity, and equipping the future workforce with experiences overseas (Gacel-Ávila 2012; Dall’Alba and Sidhu 2015).

Comprising a variety of disciplines generating intellectual property that can be commercialised, the creative industries and design disciplines in the Higher Education sector have grown worldwide, and in Australia it is very well established (Walters 2012; Creative Industries Innovation Centre 2013; Flew 2019). In Australia, the government considers the creative industries as a critical feature of industry development to procure progress and innovation (Swanson 1997), and as a sector that provides significant contribution to the country’s economy, culture, and prosperity for the 21st century (Walters 2012). In Latin America, creative and design disciplines have traditionally been part of architecture or art faculties, and it is only in recent years that these disciplines have differentiated and established their own faculties. Extending the creative industries to include cultural industries and creative economy, countries such as Colombia have begun to recognise its impact (Flew 2019). However, such changes have brought challenges about the need of non-traditional and formal structures to support the development of the creative disciplines in those countries (Berry and Taylor 2014). In this context, where the establishment of creative industries disciplines is still unfolding in Colombian universities, short-term mobility programs in design disciplines are still new and emerging.

This article offers an examination of an Australian short-term mobility program visiting a Colombian university in November of 2017. It involved Australian and Colombian undergraduate students collaborating on a design project that occurred remotely as well as during a short stay at the University in Colombia. Our program was framed around the embedding of intercultural collaboration through a design project, and the building of peer-to-peer students’ interactions involving informal activities. To understand in what ways our program enhanced students’ global perspectives, we employed an adapted Semantics Differential method with place theory to compare students’ design work and their individual reflective essays. Using this method, we unpack the relationship between Australian students’ immersive experiences in place and their development of cultural sensitivity for that place. Our examination identified three dimensions of expanding students’ world views. These are: 1) intercultural engagement, 2) cross cultural collaboration in a design project, and 3) immersing in place. We argue that in this short-term immersive experience, these dimensions were the key elements contributing to elevate students’ global perspectives.
While the extant literature presents multiple examples and arguments about global graduate competencies and outbound mobility programs in higher education, fewer examples are offered of how these programs occur in the creative industries disciplines. The opportunity to learn how to prepare the future creative industries workforce that is technologically innovative (Abbasi, Vassilopoulou, and Stergioulas 2017) connected, distributed and contributing to the expanding creative economy is significant for everyone involved. To explore how a culturally rich design project influenced students’ worldviews, we embarked in this design led study tour with a project in the context of ‘wearables design for tourism’. The following section describes the research method and the design project.

Research methodology

The research underpinning this paper adopted a research through design approach that aims to explore the notion of digital fabrication and culture in Design. Our aim was also to compare differences and similarities manifested in the collaborative design work of students from two different countries. With this purpose, our research through design addressed the following research question: How would a collaborative international design project and a study tour influence young designers’ global perspective?

Our research methods included: (i) a design project, (ii) international peer to peer collaboration (academic staff and students), (iii) an international study tour (immersive experience), (iv) self-documentation of travelling students’ design and immersive learning experiences (reflective journals). The following sections describe all aspects of the project and its stages in detail.

An international design project: wearables of the past and future

The study tour ‘Wearables of the Past and Future’ was developed as a collaboration between design educators from two universities at opposite sides of the Pacific Ocean: Universidad El Bosque in Bogota (UEB, Colombia) and Queensland University of Technology in Brisbane (QUT, Australia). It took place in November 2017 with a duration of 14 days. The design project was developed to provide a common platform to collaborate and investigate the learning experiences of design students during the study tour. This collaboration required careful administration and organisation of the parallel work of the two students’ cohorts with consideration to the international time difference, as well as the universities’ semester times that did not run in exact parallel. While only QUT students traveled overseas, both cohorts fully participated in the study tour program. We approached this project from the experience of a previous study tour to South America for which collaboration across academics and students’ cohorts were paramount. From that experience we knew that developing students’ global perspectives is not only the result of a travel experience, but of the interactions in the place being visited, with the people and peers from that place (Chamorro-Koc and Caldwell, 2018). With this in mind, the international design project at each university was programed around two key moments of the work: remote and in-country collaboration.

The international design project and study tour were advertised at both universities and students were able to elect to enroll in it. Information sessions were delivered
informing of the purpose of the project, study tour program of activities, expected learning outcomes, and options for cultural activities. Our approach aligned with Oddou, Mendenhall, and Ritchie (2000) arguments stating that successful short term mobility programs needed to encompass a clear pre-trip delivery of purpose, declaration of the competencies expected to be developed, and time for free exploration with locals, experiencing the local culture, and the journaling of experiences. Sixteen QUT students were accepted for enrollment in this study tour, and fourteen UEB students enrolled in the subject for this project. The set-up of the project required working with different students’ skills as we combined four different design disciplines across both groups including: Industrial design, Fashion Design, Architecture, and Interior Design. Five lecturers from Industrial Design and Architecture disciplines led the project and worked via Skype and over email towards the development of the design project brief. The undertaking of the design project followed a design studio method, and the academic assessment at each university was independent as it needed to align with the specific learning requirements of each individual course.

The design project brief

The design project was titled *Wearables of the Past and the Future: from El Dorado Legend to enhancing tourism experiences in Colombia*. It challenged students to design a wearable object for tourists to use during their visits to the El Dorado site at the Guatavita Lake – the site of El Dorado Legend – to help them save memories, track their journey, or bookmark favorite places. The fabrication requirement of the project challenged students to understand local materials, techniques, knowledge and culture around this pre-Columbian period. The project also required students to widen their perspectives by looking at the cultural antecedents in the design of jewelry and consider transferring some of this rich knowledge into the design of future wearables. In this way, the project provided an authentic learning environment, where Australian students aimed to understand the local culture from the Colombian students’ perspectives, and Colombian students engaged with their Australian peers to understand their perspectives as tourists and from their fresh views about their local culture. The significance of this type of project in design education resides in the authentic environment of the project that prompted students’ appreciation about the importance of working with others, from different disciplines, cultures and worldviews.

Project milestones

The program and the design project were organised around two moments of collaboration:

i. remote work: students working on the design project from their own perspectives and through remote collaboration;

ii. immersive experience work: QUT and UEB students working together and collaborating in the same project in Bogota.
UEB and QUT students worked together in all stages of the design projects: remotely and in country. While UEB students did not experience an overseas travel, their cross-cultural collaborative experience took place across the different design tasks. UEB students’ immersive learning experience and engagement was one that was shared with QUT students during the study tour activities, formal and informal. Table 1 summarises students’ activities at the different moments of the project.

In country activities were programmed around the design project, and students spontaneously organised additional informal experiences that they shared. One key common ground experience was a day trip to Guatavita Lake, outside Bogota, as it was the ‘place’ of the El Dorado Legend. At that locality, UEB students presented their design work to the QUT students which we refer to as, design in-context. Extracurricular activities supported the building of peer relationships between students from both universities, developing connections and friendships through group spontaneous visits to museums, design studios, as well as dining, pub-crawling, Latin dancing and shopping activities (Figure 1).

Finally, all QUT and UEB students presented their design work and co-produced a public exhibition for UEB’s community and visitors as seen in Figure 2. These activities addressed QUT’s objectives of equipping students with an outbound experience that help them: (a) attain an understanding of an international creative precinct, (b) identify methods of developing, producing and distributing culture and creativity in an international context, and (c) enhance their professional capacities for employment in the creative economy.

Results: a comparative analysis of students’ immersive learning experiences through design

To understand the influence of the short-term mobility experience for both Australian and Colombian students, we conducted a comparative analysis of students’ design work. The aim of this comparative analysis was to gain insights of how remote-intercultural and embedded experience differ in the building of students’ global perspectives expressed in their designs. As the design project challenged students to design objects that would create future touristic experiences, our analysis

| Study tour stages                        | Student’s activities                                                                 |
|-----------------------------------------|--------------------------------------------------------------------------------------|
| Pre-departure                           | Research phase understanding end-users, focus on El Dorado legend and Tourism in Bogota. |
|                                         | Workshop phase: making low-tech wearables (jewelry task in class with purpose-made toolkits). |
| Departure and study tour                | Design phase: group project, design a wearable that addresses the project brief.      |
|                                         | Workshop Design refinement at UEB: QUT and UEB students working together, iteration their group designs and elaborating into a new one from both perspectives and experiences. |
|                                         | Visits to El Dorado site at Guatavita Lake and extracurricular activities. UEB Assessment on site. |
| Return home                             | Workshop Design Presentation: mixed group presentation at UEB Public Exhibition to the community. |
|                                         | In-country tasks: personal reflections in blogs. |
|                                         | QUT Assessment: Written report with individual reflections. |
needed to consider that speculating about the future is based on our current system of beliefs, problems and values, and therefore, the design solution would carry the students’ own personal beliefs, values and world views. Design thought leader Buchanan (2001, 67–73) argues that a relationship exists between the present and the future in terms of how we design new solutions. The present informs the future; however our present understanding and beliefs are the result of past influences. Buchanan's arguments (2001) provided the foundation to elaborate a time and context framework to analyse and compare our students’ design outcomes:

i. time: retrospective outlook (looking at past culture) and prospective outlook (looking at future as a goal)
ii. **Context**: of the personal experience in-context (experience), and of the activity in-context itself (place).

We represent this framework as an x-y axis diagram (**Figure 3**):

To compare time and context of our students’ work, we looked at their design outcomes during the two phases of the study tour (remote work and in country). To interpret students’ design work, we employed their narratives as presented in their social media posts, reports and tasks built around the design project. Altogether, these provided the evidence from the students’ perspectives about their designs and learning experiences (**Figure 4**).

In addition, we considered the Semantic Differential Method pioneered by Osgood in 1957, a frequently used method in product semantics to understand perceptions of product attributes (e.g., color and form). To compare our students’ design and in order to gain insights on how their global perspectives were influenced as a result of the study tour experiences, we overlaid our time-context framework (**Figure 3**) to a semantics differential metric that facilitated the mapping of the qualities of the students’ designs in terms of: aesthetics, narrative, experience, materials, technology, and performance. In sum, the analysis approach included two steps: (i) mapping the semantic differential of students’ designs at remote and face-to-face design tasks, and (ii) transferring the resulting metric onto the axes of context (global and local) and time (future and past) as shown in **Figure 5**. The two axes diagram provides the visual data employed for the comparative analysis of the design work across the two students’ groups.

**Findings: interpreting students’ experiences through their design work**

The following shows the application of our analysis approach to some exemplars from QUT and UEB students’ design projects. The next sub-section examines design projects produced during the remote design work. In this phase of the work the different

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**Figure 3.** Analysis framework (Photograph © 2017 Authors).
groups were developing their designs in parallel to each other and the students from both universities were able to communicate through a Facebook group to share and to explore each other’s perspectives. The sub-section titled Immersive Design Collaborations shows students’ designs created while working together during immersed learning and in collaborative mixed groups. The purpose of this comparison is to gain insights of how a short-term mobility experience influenced students’ designs from the remote collaboration moment to the immersive experience in-country.
Remote design work

QUT students designed the Experience Pendant shown in Figure 6. QUT students researched the El Dorado legend and the aesthetics of cultural objects of that time, which informed the design of a box that tourists can use as a pendant to keep and collect colorful pieces from Lake Guatavita. The design intention was to create a memorable experience of the visit for the tourist.

Figure 7 shows the analysis of this design based on the designed piece itself and the written explanation provided in the students' reports. The analysis showed that QUT students designed with little or no influence from the cultural background of the El Dorado legend, and with a future vision that is detached from any particular culture. The materials and technology employed in the design was 3D printed plastic, which places this design into the future and toward the global points of the axes. The aesthetics, narrative, experience and performance of the design was closer to the past and not clearly aligned to the local culture as seen in Figure 7.

While the experience pendant was created with a technology mindset, another QUT student group designed with the local weather in mind. The Cantuta Flower is an earring that combines a silver structure in the form of the flower with a smart fabric cover as seen in Figure 8. The purpose for the smart fabric is that it contracts and releases in response to local and current weather conditions. As the smart fabric reacts to the weather it causes the earring to opening and close like the petals of a flower. QUT students were inspired by the Cantuta flower from the highlands in South America, a local flower in the Lake Guatavita area. The concept behind this design is that when the tourist returns home, the flower shape will change with the weather, and in turn, it would bring memories of the visit and the flower shape at the site of the El Dorado legend.

The analysis of the Cantuta Flower revealed that the design of the tourist experience is contextualised in the weather conditions of El Dorado region, but the
interactive aspect of this responsive design through the use of a smart fabric did not consider the materials of the local culture (Figure 9).

In Bogota, UEB students designed an Interactive Jacket (Figure 10) that responded to the combination of location and the person’s emotions. Different parts of the jacket included embedded LEDs and interactive sensors that would light up with different colours depending on the combination of location and emotion that is registered by the jacket. For example: if the tourist felt happy at the top of Lake Guatavita area, the jacket would record it and associate this emotion with happy colours. In this way, the sensors within the jacket record the journey of the tourist. The jacket was designed to elicit memories of the tourist’s experience by capturing and replaying different light combinations after the tourist returns home and wears the jacket in a different location; in a similar manner as the Cantuta Flower design.

The analysis reveals that only the design of the experience is contextualised in the local culture, while all the other elements of the design including the aesthetics, materials, interface and technology are not related to the Colombian culture or local knowledge. The focus of this design was to capture a local experience using a highly technical wearable device (Figure 11).

Differently, another UEB team of students designed the Necklace presented in Figure 12. This design integrates the narrative of the El Dorado legend through symbols from the local indigenous group: the Muiscas. The necklace incorporates a corn seed encapsulated in resin, which is a native seed symbolizing the sun and gold in the Muisca culture. An artisan technique of weaving beads is used to create a colorful pattern surrounded by an interactive LED light with the words SUN and SUE, the word for sun in the Muisca language. The interactive LED light responds to the geo-location where the tourist is visiting. The concept behind the design is that tourists would wear this necklace and the LED light would react and light up at the different locations of the El Dorado Legend.

The analysis of the necklace shows that while materials and technology are inspired by culture, the experience of the tourist is enhanced by wearing an object with local aesthetics, however the design of the touristic experience and its relationship with the interactive aspect of the necklace is not explored (Figure 13).
This section presented four wearable designs from the two groups of students that were developed during the remote collaborative work. The analysis of these designs shows that students’ design work was diverse in terms of the application of technologies and materials, they considered users and the making of the designs, as in any standard design process. However, beyond the use of certain materials from the Guatavita locality,
these designs did not seem to fully consider the material culture of the touristic site they designed for. We found support for this observation in a student’s diary, in her account about the study tour and design project, the student stated,

Details about their [pre-colonial Colombians] beliefs became more apparent, and symbolism and mythology was greatly emphasised. These were all details that we, as a group, had skimmed over in our pre-departure assignment. Reflecting on our first product, given what I know now, it feels as if it is almost cheap, and missed the point… QUT student

**Immersive design collaborations**

In this section we discuss projects that were designed and created in Bogota. After a week of design workshops and site visits, the students were allocated into groups
that mixed both QUT and UEB students. During the workshops, students shared the works they had created prior to their coming together and evaluated how to combine and progress their design concepts. A day trip was organised for the students to visit Lake Guatavita which was the main tourist destination for the wearables they had designed. In this stage, working together the UEB and QUT students documented their immersive and collaborative design projects which included the fabrication of prototypes. The program in Bogota concluded with a public exhibition of their remote and immersive projects at the Universidad El Bosque. The following is an analysis of two of the QUT and UEB student immersive works employing the Semantic Differential and Context-Time framework.

Figure 14 shows The Bracelet, which was designed to allow for unique beads to be collected at specific tourist sites. The tourist would add them to their bracelet as they go, in the same sequence of their visits. Each touristic experience would be represented differently by the individual design of each bead in terms of form, colour and material.
The analysis shows that the Bracelet design is contextualised within the local culture. Most of the context-time dimensions of the analysis framework co-locate the design of the Bracelet in the locality of the El Dorado legend at Guatavita Lake. The aesthetics, narrative, and materials where the tourist experience is acquired, and the manufacturing of the design considers local materials and technologies (Figure 15).

Figure 16 shows the design of the Three World Rings, designed to represent the three worlds of the Muisca's mythology: the sky world depicted by the figure of birds, the earth world depicted by the human eye, and the water world depicted by a snake. When worn together the rings fit within each other to become one ring.

In this case, the students involved local aesthetics, local narrative elements, local experiential uses and local materials in the design work. The manufacture of the ring employs the laser cutting of leather which is not a typical method of production in the location and is seen as a newer technological approach to the making of the ring.
Students’ reflections of the in-country collaborative project align with our analysis. In her project diary, one student stated,

The product we made in collaboration was a lot more sensitive to traditions, symbology and mythology. The materials were more carefully selected, and all the symbols had cultural relevance, however at that point we had still not visited Lake Guatavita; the site of which we had focused our design. Personally, I found the site to be very inspiring. The walk, the significance of the all the flora and fauna, the path and the lake itself all had elements which could have influenced the look and feel of the product… QUT student

Discussion

QUT and UEB lecturers collaborated in the program design around the Wearables of the Past and Present project and were driven by a common purpose: to learn about the value of the cultural exchange between our design students’ cohorts. We worked together motivated by the prospect of creating a learning experience that elevates our students’ global perspectives and influence their design capabilities. Through an analysis process of looking closely at the design outcomes created by our students we were able to gain a deeper understanding of the key aspects influencing the
students’ intercultural engagement experiences. Our findings reinforce the intuition that we had in the planning that it was not merely the overseas travel that inform students’ global perspectives, but the interaction with peers and in being place, during formal and structured part of the program as well as during the informal and shared leisure time. This is confirmed by Colombian students’ reflections of this project:

The best about this experience was the exchange of ideas and knowledge of design methods, working with different students, and learning that we all have different worldviews and the importance of valuing them. This experience has triggered my curiosity of getting to know other cultures and to keep studying and finding opportunities to expand my horizons in Design and Culture. UEB student

The analysis of the students’ design works revealed that both groups were not overly inspired by the local culture when designing remotely. Designs created remotely tended to rely on technology and futuristic elements such as sensors, interactive LED lights, and geo-location responses. This is in contrast to the immersive design works created with peers and in place, which focused more on reflecting the local culture through material and aesthetic elements. Only when they designed collaboratively, together, in place, and during immersive learning activities, students had an opportunity to consider various other aspects around the culture, materials and experiences. A student’s reflections in the project’s diary states: ‘As soon as we started work on the new project with students from El Bosque U. I realised that simply being in the place that you’re designing for can influence the direction of your creativity…’ QUT Student

The results indicate that the mixed QUT and UEB collaborative groups produced designs that were infused by the local culture and were more closely aligned with the local context. We believe that this result pertains to a number of factors including the sharing of local knowledge with foreigners, the importance of experiencing place when designing, and the understanding of the value of historical knowledge. These aspects are further explained next.

**Cross-cultural collaboration and sharing local knowledge**

The cross-cultural collaboration during remote and immersive design work fostered curiosity between the student groups and their different cultural backgrounds. Once QUT students arrived in Bogota and were able to communicate face to face with their UEB peers, the exchange between them reached a higher level of engagement. This became evident as they quickly became familiar with each other. The UEB students were very welcoming and helpful in accommodating the visiting students. They were proud to share their university life, their culture and knowledge with the QUT students. Peer-to-peer exchange occurred within the classroom and formal learning activities planned by the teaching team. This extended beyond as the UEB students actively planned informal activities with the QUT students which involved sharing meals, visits to local neighborhoods, shopping excursions, and dancing at local clubs.

The intercultural engagement through extracurricular activities and peer-to-peer exchange, led to the students deepening their understanding of each other, appreciation of their different backgrounds, and the development of trust between them. These aspects are valuable in developing collaborative relationships when applying them to design and
working together. We believe that the process of sharing their local knowledge with the visiting students caused the UEB students to reflect on the meaning of their culture. Through the questions that were asked by the visiting students (QUT), the local students (UEB) were able to see their city and history through the perception of the tourist.

From this experience I appreciated: the exchange of ideas in order to develop a product, the collaborative work, the opportunity to practice English, and the opportunity to share my culture and worldviews with the visiting students. This experience contributed to expand my view of how to tackle design projects with people from different experiences and views. UEB student

This aspect of the cross-cultural exchange deepened their understanding of the design intention and problem being addressed by the proposition to design a wearable object for a tourist. Ultimately this exchange informed the development of the immersive design concepts that demonstrated a stronger connection to the local culture than the designs produced during remote collaboration. This is reflected in the following students' account of their design experience:

My team of six constructed a product, named 'Live El Dorado,' which was a pendant that when worn, would allow the wearer to wear the story and share the story of the El Dorado legend. The idea came to life when one of the Colombian student's asked me what the legend meant to me. My simple answer was that as the story was not part of my culture, I didn't have as much appreciation for the story as did the Colombian's. We wanted tourists who do not have an intimate bond to the legend to wear the product and share the history of Colombia... Inside the pendant includes water from Lake Guatavita which the tourist can take home to remember the experience and share the story with the people in their own land. In the end, our team created a product that we were very proud to share with the rest of the class... QUT student

We also observed that not all the mixed groups came together in harmonious ways, and although all the students approached the experience with interest, there were some instances when personalities or different purposes around the task at hand did not mix well. This case provided useful information about the limitations of our approach to peer-to-peer design work and intercultural exchange: cross-cultural collaboration and immersive experiences does not necessarily lead to successful intercultural engagement. In the context of a design project, this is a combination that requires communication and trust built within the mixed design group. A student explains this type of situation in her project diary:

However, the challenge of navigating around language barriers, short time frames and uninvited technical difficulties made the design process stressful at times, yet incredibly rewarding once completed. The most difficult aspect was working with team members who had strong differing opinions... This experience tested my leadership skills as I was working with three other members whom I had just met... QUT student

**Experiencing place and value of historical knowledge**

Through site visits to the Lake Guatavita, the Gold Museum in Bogota, and Bogota city center, the immersion of both the student groups in local experiences enabled cultural sensitivity. This development began with cultural research that involved primary (emotional and experiential) and secondary (documentary and desktop research)
In being at the site we became prime examples of Pelle Ehn's participatory design method; in which we became the users we were designing for (d). This provided me invaluable information; true not every user would be exactly like me, or have my taste in aesthetics, but I gained a great insight as to what they could be feeling and experiencing as they saw what I did... QUT student

This short-term mobility experience provided helpful insights about how intercultural engagement, cross cultural collaboration, and immersive learning occur through design work, informing internationalisation goals in the Creative Industries disciplines. Transcending globalisation metrics, we believe that short-term mobility programs would benefit enormously from the framing of experiences where future graduates are able to experience and understand culture as a dynamic process (Soini and Birkeland 2014), observable in local and foreign cultural values, experienced with peers, and acquired in ways in which they are able to reflect on and immediately apply.

Conclusions

This paper described a short-term mobility experience that brought together Australian (QUT) and Colombian (UEB) students in a design project around a Colombian historical legend in the locality of Lake Guatavita in the city of Bogota. While only QUT students travelled as part of a short-term mobility program, UEB students equally participated in the design program and in all remote and face-to-face design tasks. We discussed both groups of students' learning as working together in mixed groups allowed them to experience the 3 dimensions that makes up the group's acquisition of global perspectives. The following are the key highlights presented in this paper:

- Elevating students' global perspectives through students' participation in this study tour comprised three dimensions: 1) intercultural engagement through
peer-to-peer exchange, 2) cross cultural collaboration during remote and immersive design work, and 3) immersing in place-based experiences enabling cultural sensitivity.

- Organising mixed groups of students from various creative disciplines and from both countries was a helpful scaffolding strategy. It helped to initiate a cross-cultural collaboration around a design task as well as establishing communication and trust necessary for the groups to work well.

- Face-to-face scaffolded activities through design tasks helped in the process of immersive in place learning activities; this approach allowed for the sharing of knowledge and enabled cultural sensitivity.

- Peripheral and informal activities organised by the students contributed to the authenticity of the students’ intercultural engagement through peer-to-peer exchange.

- Mismatch of personalities or purposes around a task within a mixed group of students affected their peer-to-peer intercultural engagement. This influenced the quality of the students’ cross-cultural collaboration and immersive in place experiences gained, as well as the outcome of their design work. Elevating students’ global perspectives requires a positive combination of all three dimensions.

In addition, the use of a future focused design project as a prompt to build students’ globalisation perspectives around the topic of the influence of culture in design, led us to the following insights:

- The design project built on the students’ personal experience as travelers and provided them with the opportunity to incorporate their personal values and stories. Being able to contextualise different cultural perspectives and values, further expanded students’ intercultural engagement, an important learning experience for future leaders working globally.

- The project provided students an instrument to understand culture not as a static and unidimensional concept, but as one that lives and permeates people and places. This experience added to their global perspectives and cultural engagement.

This collaborative project yielded insights and learnings about three different dimensions of acquisition of global perspectives through short-term mobility experiences. In this study tour, two groups of students from Australia and Colombia shared experiences and learned in place. In the students’ interactions and design outcomes we observed the different aspects influencing students’ intercultural engagement, collaboration and immersive learning. While it was only the Australian students who travelled, the participation of the Colombian students in the same activities and design work yielded interesting insights about the value of this experience for the local students. This is expressed in a Colombian students’ reflection about the value of this experience:

I enjoyed getting to know the Australian students and their different design approach. As our participation in the study tour activities was not graded, the design work and exploration, as well as our collaborative presentations, were fun and rich. Not always we
can travel overseas to collaborate in a design project, so taking part in the Australian study tour provided the opportunity and space to explore different facets of an international collaborative design work. It was motivating and the design outcomes and our own engagement were surprising. We actively collaborated in different ways, when the language was not clear, we used sign language, mimics and drawings. It helped us express our ideas in different ways, overcome language barriers and achieve unexpected design results. UEB student

We wonder how the three dimensions (cross-cultural collaboration, sharing of knowledge, experiencing place) could be furthered if additional local collaborations and connections were added to the design project, for example: working with local tour guides and artisans. Would it help students acquire a deeper sense of place and more meaningful intercultural engagement? As it is expected that creative industries graduates work and perform globally, to what extent would additional local collaborations provide valuable insights to inform short term mobility programs? While there are renewed efforts for this type of short-term mobility to take place, we acknowledge our limitations in addressing the questions raised here, as short-term mobility programs between Australia and South America in the areas of Design are less frequent. A question about how to enable more of these experiences remain unanswered as funding for short-term mobilities are connected to universities’ internationalisation priorities. Our short-term mobility program and experiences through a design project has demonstrated the value of this experience from the analysis of the designed outcomes. We believe that any further collaboration that engage students with culture and communities and beyond universities’ projects, will enrich students’ experiences. In our experience, the mixed group of peer-to-peer collaboration was the key aspect that provided the authentic platform to build and elevate students’ global competencies. It is through this intercultural exchange that students enriched their world views and understandings about the cultural impact that their designs and creations may have in the world.

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Ethics statement

This study has been conducted under Queensland University of Technology Ethics Approval number 1500000897. All images are provided under signed Image Release Consent forms.

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Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article.

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Appendix

A collage of photos of all students’ design work will be provided here.