

Queensland University of Technology
Brisbane Australia

This is the author's version of a work that was submitted/accepted for publication in the following source:

You, Hannah, Osborne, Lindy, & Franz, Jill
(2015)
Reflecting on Reggio: An evaluation of design intent in an early childhood learning environment. In
Creative Engagements: Thinking with Children, 14-16 March 2014, Prague, Czech Republic.

This file was downloaded from: https://eprints.qut.edu.au/91107/

© Copyright 2015 [please consult the authors]

Unless otherwise indicated, figures, images and photographs included in this paper were created by Hannah You © Queensland University of Technology, 2013

Notice: *Changes introduced as a result of publishing processes such as copy-editing and formatting may not be reflected in this document. For a definitive version of this work, please refer to the published source:*

http://www.inter-disciplinary.net/at-the-interface/wp-content/uploads/2014/01/youcrepaper.pdf

Reflecting on Reggio:

An evaluation of design intent in an early childhood learning environment.

HANNAH YOU[1],
SUPERVISORS: LINDY OSBORNE, JILL FRANZ[2]

[1]Queensland University of Technology, Brisbane, Australia
[2]Queensland University of Technology, Brisbane, Australia

ABSTRACT:

Reggio Emilia is an educational philosophy that encourages teachers, students and their parents to collaborate and actively engage with the environment. This study investigates how the Reggio Emilia design approach was translated architecturally for a kindergarten in an Australian context, and provides insights into the operation of this Reggio kindergarten and the impact that it is now having on the occupants. It evaluates the original architectural design intent of the Reggio Emilia early childhood learning environment against its spatial provision. The relationship that the Reggio Emilia approach facilitates between students and the environment, and the contribution that this approach has on their learning, are also explored.

Several key themes emerging from the Reggio values were identified in the literature. These were then used to inform an exploration of the kindergarten spaces and places.. Architects, teachers and a sustainability manager of the kindergarten were interviewed with their experiences constituting the primary data of this study.

Using a Grounded Theory methodology, systematic data coding and analysis were then conducted. Themes and concepts that emerged from this process include: differing interpretations of the Reggio Emilia philosophy; motivations for neglect of traditional external structures and play equipment; the impact of education for sustainability; and the positive effects that Reggio Emilia is having on the rest of the institution's development.

Keywords: Reggio Emilia Philosophy, Learning Environment Design, Early Childhood Learning Centres, Education for Sustainability

1. INTRODUCTION

The Reggio Emilia approach is an educational system designed for young children that relies on the collaborative efforts and relationships of parents, teachers, the environment and children (Hewett, 2001). The approach was developed by Loris Malaguzzi after World War II during the rebuilding of the Italian village of Villa Cella, in an attempt to reconnect the community. (University of Dayton, 2012). the Reggio Emilia approach defines the environment as a teacher and the teacher as a guide (Fraser & Gestwicki, 2002). It is therelationship between teacher and environment and its implications architecturally that are of interest this study. Of particular interest are; the influence of the Reggio Emilia approach on the learning centre environment, how effective this influence is, how the environment teaches and supports learning and the pedagogical approaches developed from the teacher-environment relationship.

This research examines how the Reggio Emilia approach mediates the relationship between teachers and the environment of a Brisbane early childhood learning centre. The influence of the Reggio Emilia approach on the learning centre and its educators is explored. The utilisation of the Reggio Emilia environment and how it contributes to learning are also investigated.

2. LITERATURE REVIEW

Influence on the Environment

As stated, the Reggio Emilia approach defines the environment as a 'third teacher' (the child and teacher being the first and second). This stems from the close interrelation of pedagogy and architecture, wherein learning environments are designed to provide a wealth of sensory experience for students. The specific modes through which this influence manifests is of particular interest.

At the core of architectural interpretation are the purposes and requirements of the users. As the environment is seen as a participant in the educational process, the students are directed by the educator in engaging with their peers, within the environment. Thornton and Brunton (2009) clearly identified the multiple changing purposes of spaces for specific users. Spaces are created for children so they can:

- express themselves
- explore and investigate
- think and reflect
- be involved in projects
- reinforce their identities
- communicate
- feel they identity and privacy is respected

Spaces are created for teachers so they can:

- share experiences and observations
- provoke and resolve
- guide and assist
- study and research
- have privacy

(Thornton, L., & Brunton, P., 2009)

There are multiple ways of integrating the approach of the environment as a teacher into a learning centre. Thornton and Brunton (2009) have translated the environmental spaces of the Reggio approach into architectural spaces such as; a piazza, atelier, classrooms, dining room and kitchen, internal courtyard, outdoor spaces and documentation panels.

Without refuting this interpretation, The University of Newcastle design council draws attention to serviceability elements of the environment. These include temperature and air quality, noise, lighting, colour, furniture and equipment, arrangement and layout, display and storage and ICT (Higgens, et al. 2005). The University of Newcastle Design council states, "The resulting environment should be understood far more in terms of the interaction of social and physical elements than other physical factors." This statement has also been supported by other writers, for example, Gump, 1987; David, 1975; Proshansky and Wolfe, 1975.

The two aforementioned interpretations of space are clearly unique and derive from different motivations. One clearly focusses on function and spatial planning, whereas the other places importance on the usability and serviceability of the space. , However, it can be seen that the two approaches respond to the same user purposes and requirements as identified by Thornton and Brunton (2009). That is, that the purpose of these spaces and strategies is to catalyse the relationships and interaction of the key participants – being the teachers, children, parents and environment. It is therefore evident that the Reggio Emilia approach while, guided by the same over-arching goals pertaining to user experience, may manifest in vastly different design foci.

The environment supporting learning

The Reggio Emilia approach regards the environment as the third teacher and as such, has a significant role as a source of knowledge and facilitator of learning. The design elements that define the architectural interpretation are therefore of critical importance. It was found that many elements have disputed effectiveness.

High ceilings have been established as a method for expanding the perception of space, allowing natural light and ventilation to enter a building and allowing children's artwork to hang from the ceiling. Read et al (1999) found that the height of the ceiling positively affected cooperative behavior between children. However, Ahrentzen and Evans (1984) found that high ceilings produce decreased perceptions by both children and teachers and that the height of a ceiling is directly correlated with teacher satisfaction. Earthman (2004) supports Ahrentzen and Evans in dismissing high ceilings in stating that high ceilings may also produce acoustic problems.

Another element of dispute is open plan design. Thornton and Brunton (2009) have attributed open plan design as a design factor in their classrooms, allowing for greater interaction between the users in the space. Heschong (2003), agrees with this statement and concludes that teachers desired greater space for educational purposes. Brennen et al. (2002) disputes this stating that open plan classrooms resemble an office and create a lack of personal space.

It is argued that the source of the aforementioned conflict is the context of the interpretation. Rinaldi (2006) supports this idea and states that: "The schools in Reggio Emilia could not just be anywhere and no one of them could serve as an exact model to be copied literally elsewhere."
The conflicting effects produced by the built environments need to be assessed and further explored to minimize conflict.

Utilising the environment

According to Reggio Emilia philosophy, the interaction between the environment and the student occurs as a result of the teacher's guidance through the space.
. Teachers stimulate thought and discussion amongst children and provide connections in order to achieve higher levels of understanding. This is accomplished by offering suggestions, posing new questions and waiting for the child to come up with conclusions at their own pace (Stegelin, 2003).

A University of Dayton study confirms this role of the teacher, stating that teachers create intellectual conflict by manipulating the environment and by providing different points of view. It is up to the children to create through processes to accommodate these new environments and ideas, expanding on their knowledge ("University of Dayton", 2012). However, the specific details regarding how the environment is manipulated and how the teacher works with the environment in a supportive relationship is lacking and dependent on context. Case studies can be used as examples, but as the learning spaces in each learning centre are different, the relationships between the key elements and participants of individual Reggio centres need to be identified.

Once again it is observed that the actual implementation of the philosophy and utilization of the environment is highly subjective. Thus, a meaningful evaluation of such a facility will require a thorough understanding of the local context.

Pedagogical approaches

The Reggio Emilia approach to early childhood education is based upon free student investigation guided by teachers. This stems from the long-standing ideals that children must construct their own knowledge stemming from experiences and observations. To be effective, the teachers must allow the children to be contributors to their education, assisting the children through their development of knowledge. Bredekamp (1993) explains this in the statement "The teacher's role derives from and cannot be separated from the image of the child." Rosen (1992) further elaborates on this and explains that educators decide what to teach by "listening, observing, asking questions, reflecting on responses and then introducing materials and ideas children can use to explain their understanding."

Carter (2007) has taken yet another approach in engaging educators with the Reggio Emilia environment. She has created a worksheet for considering the environment as a third teacher. It displays a set of criteria to determine if aspects of the environment and classroom support the values of the Reggio environment. It ensures that educators are aware of the educational environmental elements available to them. This is of critical importance to the success of the philosophy. The values consist of: creating connections and a sense of belonging, engaging the senses and inviting physical play, provoking curiosity, and engaging intellectually This method of determining the educational merits of the environment can be used in multiple contexts to determine the relationship between the teacher and the environment and re-establish educational approaches.

3. METHODOLOGY

By examining related chosen literature, the following research gaps and issues were found:

- The required physical spaces can differ for each context and for specific spatial requirements; in depth and contextualised analyses have to be made
- Lack of information regarding the teaching methodologies of environment based learning (compared to other information available)
- As physical spaces are context dependent, the corresponding relationships are also case specific.
- No negative literature regarding the Reggio Emilia approach and the corresponding education methods has been found.

It is these gaps and critiques on the topic that provide a focus for the research of the Brisbane kindergarten presented in this paper.

To respond to these gaps the current study adopted grounded theory methodology.

Focus Group	Explanation
Workshop Teachers	Junior school teachers who provided the architects with their design brief for the kindergarten, as the kindergarten was to become an extension of the school
Architects	Architects of the kindergarten
Teaching Teachers	Current teachers of the kindergarten
Sustainability Manager	While not involved in the design of the kindergarten, represent the school's ideals and values in regards to sustainability

Grounded theory differs from conventional research as the data collected in grounded theory does not need to be in text; observations, interactions and events can be noted. These notes are then coded and defined into categories, which are then developed into a theory. (Charmaz, 2003).

4. METHODS

The research was undertaken by analysing the effects of the Reggio Emilia approach and how it creates relationships between the environment and some key users of the kindergarten. Data was collected through focus groups involving the teachers of the early childhood learning centre, the assistant teachers, the teachers of the junior school who assisted the architects with developing a design brief and the architects of the facility.

The key themes of Reggio values were condensed into four main elements; space, pedagogy, teaching philosophy and familiar environment. Other associated themes derived from the key themes are also included in the main elements (Figure 1).

These elements were then used as specific foci for specific participant groups. (See. Figure 2)

The participant focus groups are as follows:

Key Themes	Reggio Values
Space	- Architecture Facilitating Intellectual Engagement - Provoking Curiosity - Behaviours
Pedagogy	- Active Learning - Physical Play - Creating Connections - Activities
Teaching Philosophy	- Reggio - Engaging Senses - Materials
Familiar Environment	- Sense of Belonging - Engaging senses - Quality of Space

Figure 1. Reggio elements (You, 2013)

The discussions and activities conducted within the focus groups are informed by the relevant elements of each group. For example, the workshop teachers were mainly interviewed on space and environment, as they would not be involved in the teaching or pedagogic activities, and the architects emphasized space, teaching philosophy and environments as those were the elements that would have most likely shaped their design of the kindergarten.

The focus groups explored how the users and designers interpreted the spaces. To facilitate this a matrix (Figure 3) was developed that connected the Reggio thematic elements (Figure 1) with key architectural spaces and elements. These elements were identified by the kindergarten architect as:

Central Core: kitchen, service, bathrooms, laundry, storage, platform
Furniture: textiles, materials, feeling like home, recycled
External Spaces: veranda, views of school, tree, rainwater tank, veggie patch, sandpits
Interior Spaces: display spaces, play areas, materials, sustainable design
Materials: paint, adhesives, differentiation of areas, future use, recycled

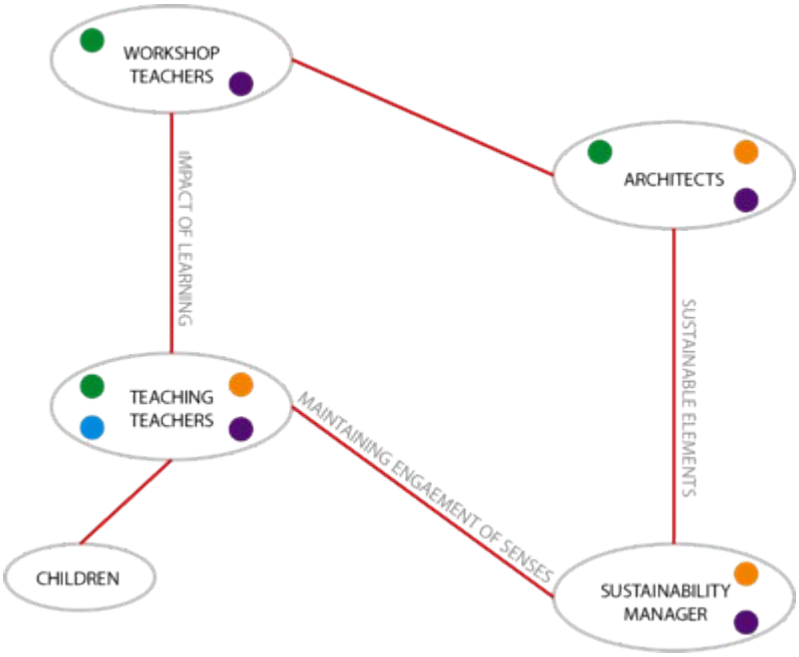


Figure 2. Elements within focus groups diagram
(You, 2013)

Values / Spaces	Central Core	Furniture	External	Interior	Materials
Space					
Pedagogy					
(Teaching) Philosophy					
(Familiar) Environment					

Figure 3. Observation Matrix (You, 2013)

These spaces and elements were considered in relation to the key Reggio themes to determine in which locations the values are most prominent. (See Figure 3)

As is evident, the observation matrix was used selectively. True to grounded theory the overall aim was to encourage open, unbiased discussion.

The table below shows the activities conducted for each focus group.

Phase	**Focus Group Activities**
1) Workshop Teachers	- Discussion

2) Architects	- Observation Matrix - Discussion
3) Sustainability Manager	- Discussion
4) Kindergarten Teachers	- Observation Matrix - Discussion

Figure 4. Focus Groups (You, 2013)

5. ANALYSIS

The necessary data to complete this research was collected through discussions with the focus groups.
The discussions were then transcribed and coded through several tiers of analysis. The observation matrices were also analysed and as a result, four key themes emerged.

The four thematic areas are:

1) *Impact of differing interpretations of the Reggio Emilia Philosophy:*
Each focus group had its own interpretation of the philosophy within an Australian context

2) *Children's preferences to engage with natural landscape elements:*
The landscape was identified as a potential area for improvement in order to achieve a truly authentic Reggio experience.

3) *Learning to use the learning environment:*
A change management strategy is required for the building to reach maximum potential.

4) *The positive influence the kindergarten has on the rest of the school:*
The philosophy has developed into design leadership, confronting standardized education. It is discovered that architects need to engage in research prior to committing to a design.

Additional themes regarding regulations and parent involvement also arose, however these were not critical to the focus of this paper.

6. DISCUSSION

1) Impact of differing interpretations of the Reggio Emilia Philosophy

The definition of Reggio Emilia was different for each focus group. As each had different interests and fields, they focused on different areas of the philosophy resulting in varied interpretations. The main ideals of these interpretations are discussed herein.

The architects appeared to focus on the design elements that encompassed the environment as a third teacher.

"One of the things that really that excited me about the philosophy straight away was the environment being the third teacher. So having a project where the building was actually going to be a third teacher and having a learning force who actually supported that as one of their fundamental principles." [2.4.18]

The Reggio belief that the environment assists in the education of students, with the teachers supporting learning through environmental surroundings, was their inspiration when designing the kindergarten. However, the architects acknowledged that the philosophy may be interpreted in different ways by different people, which led to the need to further communicate with the junior schoolteachers.

"Because when people say, "Okay, my kindergarten is a Reggio Emilia kindergarten or space or whatever, learning environment." You don't actually know whether they have the same understanding as you, because it's actually quite a broad learning philosophy and how you interpret it is very individualised," [2.3.20]

The architects interacting with junior schoolteachers to initiate a brief proved to be a successful step to reaching a mutual understanding of the philosophy.

The junior schoolteachers confirmed the architect's interpretation that the environment is an important factor of Reggio. They stated that:

"You have the teacher, then you have the parents, and then you have the space and the environment. If you look at something that's on that plateau is equal and being equal, you've got to look at … and the environment has really got to be really good." [1.3.3]

The teachers also understood the philosophy as having a child-learning focus and concluded that Reggio involved the environment allowing flexibility and manipulation for the benefit of the children.

"They take ownership of that space, and I think that that's what's important, that we can't put our own pre-determined steps on spaces. It must be flexible enough to be able to move, and that the children can move, and move within those spaces as well. Now, whether you're talking wall space or floor space, and even furniture, it allows that flexibility." [1.3.7]

The sustainability manager of the school, focused on the sustainable aspects of Reggio Emilia. This included advocating the use of recycled materials and sustainable building systems within architecture to intellectually engage and educate the inhabitants of space. Although the sustainability manager was not involved in the design of the kindergarten, the manager had his own interpretation of the approach and how it should be incorporated throughout the school.

"approach in terms of using the surroundings, using the environment, using the recycled type of material…Just all exposed services, expose them as a learning tool… they can actually see services and why they work the way they do." [3.3.18]

The current practicing teachers of the kindergarten regarded the approach as being child orientated.

"Well, basically, I mean I see Reggio as the children being valuable, capable, competent human beings and so we value them… It's all about the children and it's a community and we all have a voice..we see them as capable and that they run the programme in our curriculum, they steer us." [4.4.22]

"The views of Reggio's is the children are citizens…and that how we listen to them and how we value what they have to say and their interpretations of the world are really significant—and, for them, they have the right as a citizen." [4.3.17]

The observation matrices completed by the architects and the current practicing teachers of the kindergarten reinforced their different views regarding Reggio.

As described earlier the observation matrix related Reggio values to spaces in the kindergarten. The architects believed that all spaces within the kindergarten held Reggio Emilia values (see Figure 5). The teachers interpreted Reggio as being child-centered, with the environment facilitating the learning of the children. As the kindergarten had been designed as a response to the Reggio approach, the teachers felt that most of the spaces held Reggio values. Although the teachers both had differing opinions on what elements had Reggio values, they found that some of the spaces and elements of the kindergarten were not Reggio orientated.

Both teachers felt that the external and internal spaces held all the Reggio values, with, the central core, furniture and materials space. They missing some values. However, each teacher held differing opinions of the reflected on their interpretation of the philosophy. As the teacher's definition of Reggio is child and education based, the first teacher felt that as less teaching is done in the central core, and as children do not play in that space, it did not hold any Reggio values (Figure 6). Another reason for the lack of perceived Reggio elements present in the core may be due to design restrictions on providing regulatory spaces within a core.

The second teacher deemed furniture and materials as teaching tools and did not hold any architectural space-related Reggio values (Figure 7).

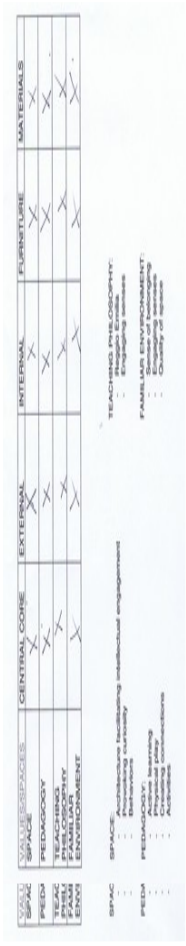


Figure 5. Architects Observation Matrix (You, 2013)

Figure 6. Teachers Observation Matrix 1 (You, 2013)

Figure 7. Teachers Observation Matrix 2 (You, 2013)

2) Children's preferences to engage with natural landscape elements

The focus groups revealed design elements that were not functioning as intended and that change was required to achieve a more successful learning environment.

The focus groups were in mutual agreement regarding the external landscapes of the kindergarten. Upon further investigation of the philosophy, the architects had rethought initial design features of the exterior that are typical to a traditional playground. Elements such as the slide and totem poles were later regarded as structures that would not be included in future designs.

"In hindsight, looking back at it now, I would have done things differently in the landscape… I don't think we explored as much as we could have or challenged as much as we did... Next time—."[2.4.54]

"The children aren't using as much as he thought like those totem poles. I think they cost a lot of money and from speaking to the teachers, they don't really use those. Kids used it for about two weeks and then nothing changed, so the novelty wore off. So now there's big totem poles standing there doing nothing." [2.4.56]

The practicing teachers of the kindergarten confirmed this realization in regards to the external playground. The children were not engaging with the traditional playground elements and were instead interacting with the Reggio inspired aspects of the landscape.

"They love outside the rock, the creek, the dry creek bed (see Image 1). …They use those rocks for everything! You need something to put on your paper, you go and get a rock from the dry creek bed; you need rocks for the sandpit, you go and get them from the dry creek bed. It's just endless what they do… it's a natural environment and it's just lovely." [4.4.40]



Image 1 . The dry creek bed. (You, 2013)

The images below show the different ways the rocks are used in imaginative play. The children show varied imagination, exploring the shapes, texture and qualities of the stones, letting the natural environment engage senses in physical play, true to the Reggio philosophy.






Images 2, 3, 4 (Counter clockwise from top) Rocks used by the children. (You, 2013)

Another practicing teacher stated that his and his students favourite area outside was also a non-traditional playground element and was able to be found in the natural environment.

"My favourite outdoor space might seem really simple, but it's the hill (Image 5) … That's one of the things that I love about here, the kids will just go out on the hill and run on it and roll on it. It's just one of those such a natural child thing to run over the hill and roll on it, get on the other side and flop on the ground and just roll." [4.3.28]



Image 5. The hill. (You, 2013)

The children of the kindergarten have reacted much more positively towards the natural elements of the kindergarten due to its flexibility of activity and constant development of use and appearance.

The flexibility of a space stimulates the imagination of the children, and maintains interest in a space. This is reiterated by the practicing teachers and it was stated that:

"the ropes and the stepping stones, they're much more open-ended as to what they can do. Last year they made the ropes into cubby things with sheets, whereas the slide is always a slide,"[4.4.60]





Images 6 and 7 (from top to bottom). The stepping stones, Ropes tied to totem poles. (You, 2013)

3) Learning to use the learning environment

Analysis showed that there was considerable confusion as the correct use of the building with respect to its sustainable design.

Sustainability elements were a strong focus in the design of the kindergarten. For the intended design of the architects to be achieved, building systems and sustainable operations should be taught to all inhabitants of the building as the users were stating that artificial air-conditioning was required.

The teachers of the kindergarten felt that air conditioning was required within the building to achieve the amount of ventilation they required.

"Well, I guess in places where I've been where it's been air-conditioned and they've been totally different environments—so much smaller and much more restrictive anyway…When you would have it on would be when the children are resting and it's obviously much more conducive to if you're hot and you're sweating on your bed and things, on those mattresses. So that's when it's probably helped." [4.4.69]

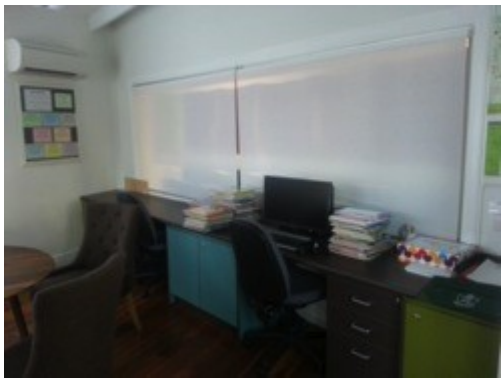


Image 8. The air-conditioned parents lounge. (You, 2013)

The architects of the kindergarten designed the building to be naturally ventilated, using sustainable systems. However, as the system is not automated, the users of the building must know how it works. Consequently, each new inhabitant of the building must be educated about the workings of the building to fully utilize the design intentions. This was confirmed by the architects when they stated that:
"…say a new group of people comes in and just says look, "This is crap. I don't like this."…A lot of people don't like what they don't understand and they just say, "Oh well, we're going to close up all those windows." "Hey, you can't do that because then the building can't breathe..." [2.4.137]

4) The positive influence the kindergarten has on the rest of the school

All focus groups were extremely positive about the concept of Reggio Emilia. Children require natural and constantly changing environments to provoke curiosity. Interacting with such elements encourages independent active learning. Reggio inspired architecture should facilitate learning and the flexibility of changing spaces. Such elements have been deemed successful to the extent of being implemented in the junior school.

In addition to creating more Reggio type learning spaces, this influence would also assist the kindergarteners in their transition from early learning to a school environment.

Influenced by the kindergarten, the junior school is amending and altering their play spaces and classrooms to better align with the Reggio approach. A junior schoolteacher when describing a former traditional playground that is now a space with natural and constructible elements in order to encourage active learning explained this. "This area here – there was a playground there…so we've taken that down, and we call this the prep village now. And there's a storeroom round the back, and people can bring all sorts of things out, so there's water play, hammers and nails, there's gardening, and all sorts of things." [1.4.71] (see Image 9)

The junior school appears to be altering their play spaces and classrooms to better align with the apparent success of the Reggio approach in the kindergarten. Items such as the traditional playground have been taken down and replaced by the '… prep village…'[1.4.71]. A storeroom has also been implemented to allow water play, gardening and the use of tools such as hammers and nails.

Reggio has also influenced the junior school classrooms. The traditional classroom elements, such as the institutional room layout and plastic learning materials were discarded and replaced with objects and materials that fulfill the philosophy.

"So again, you can see different textures on the floor, changing over the cane baskets and those sorts of things … glass jars, bringing plants in. Giving them spaces with quiet areas." [1.3.64]

Future spaces of the junior school are also going to be Reggio informed. The junior school teachers are planning a new playground that is reflective of the philosophy and the kindergarten.

"So we don't want another plastic play area. So, see where that stump is out there? … we, hopefully for next year, will have a natural environment. So with a sandpit, with logs and big boulders, and plants and things around, with all different spaces, all running down there, so we're very excited about that, to have like a space, where they can build and create." [1.4.89]



Image 9. The former playground. (You, 2013)

7. CONCLUSION

It can be seen that the Reggio Emilia approach has been successfully implemented in the current kindergarten context.. However, some areas of improvement have been identified.

Four key emerging themes and new concepts were discovered:

- Differing interpretations of the Reggio Emilia philosophy
- Potential areas of improvement
- Motivations for neglect of traditional external structures and play equipment
- The impact of education for sustainability
- The positive effects that Reggio Emilia is having on the rest of the institution's development.

Interpretations of the philosophy differed regarding the interests of each focus group. The architects focused on elements of the philosophy that encompassed the environment being the third teacher. The sustainability manager viewed that the approach should provoke curiosity. This can be achieved by buildings with exposed systems, teaching users of the space how elements in the structure work together.
The teachers viewed the approach as being child orientated.

- **Potential Areas of Improvement**
- Potential areas of improvement have been identified as the external landscape of the learning centre and sustainability education. To achieve a truly authentic Reggio experience, less traditional elements should be included. Play structures such as slides are less effective in engaging the children in activities and encouraging active learning. Natural and flexible elements are much more intriguing to children, as there is much more scope for imaginative play. This encompasses Reggio values of provoking curiosity through play.
- Another potential area of improvement involves a change management strategy that communicates how to use the building and its sustainable building systems in order for the building to reach maximum potential.
- The inhabitants of the space must be educated in regards to the use of the space. As the building changes users, the new occupants must be informed of the building and how it is used to its greatest effect.
- Consequently, a change management strategy is required to provide users of the building with this information to fulfil the design intent.
- **The Effects of the Philosophy**
- The success of the Reggio approach was quickly identified by the school and is being adopted in the junior school, creating a standardised education system For example;
- The external play areas of the school have discarded the traditional structures and have implemented natural play elements. Classrooms have applied natural materials and rearranged learning spaces in the rooms that are not typical of institutional settings.
- **Future Work**
- A number of areas for future work were found within the study:
- The Reggio Emilia approach and how the environment dictates curriculum and learning
- How change management strategies can be effectively implemented
- Alternative contexts and how they are influenced by the Reggio Emilia approach.
- The Reggio Emilia environment and the curriculum from a child's perspective
- In the first section of the discussion identifies that teachers interpret Reggio Emilia as a child orientated approach. How this translates into teaching and curriculum should be studied.

- Section three of the discussion regarding the use of sustainable systems in a building was identified as an issue and potential area of improvement. How these systems can be related to other users of a building is another area that needs to be addressed.
- A third line of further research relates to different contexts. This research focuses on an Australian context, which effects architecture and learning habits that are culturally and environmentally specific. The literature review found that physical spaces are context dependent and as a result the corresponding relationships are case specific. Investigations of multiple contexts of Reggio learning centres and how they influence the philosophy should be undertaken.
- Due to ethical guidelines, interacting with children were not permissible. However children are main users of early learning educational centres and it is evident that the exploration of how children react in a Reggio learning centre is an area should be pursued.

Limitations

The limitations of this research were time based. As the entirety of this research was to be completed in 15 Weeks there is a limit to the amount of data that can be collected and times that interviews, observations and analysis can be conducted. As the research involves a childcare facility, there are limitations to when the data collection can be undertaken. In addition to this, this research cannot test psychological/emotional issues related to children.

8. ACKNOWLEDGEMENT

I would like to express my gratitude to my supervisors Lindy Osborne and Professor Jill Franz for the useful comments, remarks and engagement through the process of this research project.

Furthermore I would like to thank the participants in the focus groups, who have willingly shared their precious time and opinions.

9. REFERENCES

Ahrentzen, S., & Evans, G. W. (1984). Distraction, Privacy, and Classroom Design. Environment and Behavior, 16, 437 - 454. Retrieved from http://eab.sagepub.com/content/16/4/437

Bali Educator. (2007). Loris Malaguzzi and The Reggio Approach to Early Childhood Education. Retrieved 2 April 2013, from http://www.baliadvertiser.biz/articles/teach_children/2007/loris.html

Bredekamp, S. (1993). Reflections on Reggio Emilia. Young Children, 49, 13-17. Retrieved from http://www.eric.ed.gov/ERICWebPortal/search/recordDetails.jsp?ERICExtSearch_SearchValue_0=EJ474756&searchtype=keyword&ERICExtSearch_SearchType_0=no&_pageLabel=RecordDetails&accno=EJ474756&_nfls=false&source=ae

Brennan, A., Chugh, J. S., & Kline, T. (2002). Traditional Versus Open Office Design: A Longitudinal Field Study. Environment and Behavior, 34(3), 279-299. Retrieved from http://libra.msra.cn/Publication/44506304/traditional-versus-open-office-design-a-longitudinal-field-study

Cadwell, L. B. (1997). Bringing Reggio Emilia Home: An Innovative Approach to Early Childhood Education. New York: Teachers College Press.

Carter, M. (2007). Making Your Environment “The Third Teacher”. Exchange, 22-26. Retrieved from http://www.eccenb-sepenb.com/uploads/Website_Assets/Making_Environment.pdf

Charmaz, K. (2003). Grounded Theory. The SAGE Encyclopedia of Social Science Research Methods. Retrieved from http://guides.temple.edu/groundedtheory

Daws, J. E. (2005). Teachers and Students as Co-learners: Possibilities and Problems. Journal of Educational Enquiry, 6(1), 110-124. Retrieved from http://www.ojs.unisa.edu.au/index.php/EDEQ/article/viewFile/505/374.

Earthman, G. I. (2004). Prioritization of 31 Criteria for School Building Adequacy. Retrieved from http://www.schoolfunding.info/policy/facilities/ACLUfacilities_report1-04.pdf

Edwards, C. P., Gandini, L., & Forman, G. E. (1998). Partner, Nurtrer, and Guide: The Role of the Teacher. In One Hundred Languages of Children (2nd ed., pp. 179-183). USA: Ablex Publishing Coporation.

Edwards, C. P., & Springate, K. W. (1995a). Encouraging Creativity in Early Childhood Classrooms. Clearinghouse on Elementary and Early Childhood Education(December 1995). Retrieved from http://www.ericdigests.org/1996-3/early.htm.

Edwards, C. P., & Springate, K. W. (1995b). The Lion Comes out of the Stone: Helping Young Children Acheive Their Creative Potential. Dimensions of Early Childhood, 23(4), 24-29.

Edwards, M. J. (2012). Environment as Third Teacher: Examining the Reggio Emilia Approach for Application in 21st Century Classroom Design. Paper presented at IDEC 2012 Annual Conference, Baltimore. Retrieved from http://2012.idec.org/environment-as-third-teacher-examining-the-re

Exchange, R. E. A. I. (2011). Pedagogical Documentation. Retrieved 20 March 2013, from http://www.reggioaustralia.org.au/component/content/article/61

. Experiencing Reggio Emilia- Implications for Preschool Provision. (2001). In C. N. Lesley Abbott (Ed.), Experiencing Reggio Emilia. Buckingham: Open University Press.

Fraser, S., & Gestwicki, C. (2002). Authentic Childhood: Experiencing Reggio Emilia in the Classroom. Albany, NY: Delmar.

Gandini, L. 1998. “Education and Caring Spaces” in Edwards, C., Gandini, L., & Forman, G. The Hundred Languages of Children. Greenwich, CT: Ablex.

Gina. (2012). Reggio Emilia: How to Bring the Most Out of Your Early Learning Environment. Retrieved 2 April 2013, from http://play-basedclassroom.blogspot.com.au/2012/08/reggio-emilia-how-to-bring-most-out-of.html

Glaser, B., & Strauss, A. (1967). The Discovery of Grounded Theory: Stategies for Qualitative Research. United States: Aldine Transaction.

Haigh, K. (2012). Reinterpreting the Reggio Emilia Approach in the USA: An Approach for All Children. Retrieved 20 March 2013, from http://www.communityplaythings.com/resources/articles/Reggio/Reinterpreting.html

Hertzog, N. B. (2001). Reflections and Impressions from Reggio Emilia: “It’s Not about Art”. Early Childhood Research and Practice, 3(1). Retrieved from http://ecrp.uiuc.edu/v3n1/hertzog.html.

Heschong, L. (2003). Windows and Classrooms: A Study of Student Performance and the Indoor Environment. Retrieved from http://www.energy.ca.gov/2003publications/CEC-500-2003-082/CEC-500-2003-082-A-08.PDF

Hewett, V. M. (2001). Examining the Reggio Emilia Approach to Early Childhood Education. Early Childhood Education Journal, 29(2). Retrieved from http://link.springer.com/article/10.1023/A%3A1012520828095 - page-1.

Higgins, S., Hall, E., Wall, K., Woolner, P., & McCaughey, C. (2005). The Impact of School Environments: A Literature Review. Retrieved from http://128.240.233.197/cflat/news/DCReport.pdf

Hong, S. B., & Trepanier-Street, M. (2004). Technology: A Tool for Knowledge Construction in a Reggio Emilia Inspired Teacher Education Program. Early Childhood Education Journal, 32(2). Retrieved from http://link.springer.com/article/10.1007/s10643-004-7971-z - page-1.

Innovative Teacher Project. (2012). Values of the Reggio Emilia Approach to Childhood Education. Retrieved 2 April 2013, from http://www.innovativeteacherproject.org/reggio/values.php

Jin. (2008). Literature Review in Grounded TheoryWriting with Learning and Thinking. Retrieved from http://jin-thoughts.blogspot.com.au/2008/01/literature-review-in-grounded-theory.html

Katz, L. G. (1998). What Can We Learn from Reggio Emilia? In A. P. Corporation (Ed.), One Hundred Languages of Children (pp. 27-44). USA: Ablex.

Katz, L. G., & Chard, S. C. (1996). The Contribution of Documentation to the Quality of Early Childhood Education. Retrieved from ERIC website: http://bern.library.nenu.edu.cn/upload/soft/0-article/022/22017.pdf

Leadbeater, C. (2010). Charles Leadbeater: Education Innovation in the Slums. TEDSalon London [TED Talk]. Retrieved from http://www.ted.com/talks/charles_leadbeater_on_education.html

LEICS. (2012, 1 April 2013). Using the Reggio Emilia Approach to Personalise Learning. [online .PDF]. Retrieved from http://www.leics.gov.uk/using_the_reggio_emilia_approach_to_personalise_learning.pdf

Martin, S. H. (2002). The Classroom Environment and its Effects on the Practice of Teachers. Journal of Environmental Psychology, 22(1-2), 139-156.

Malaguzzi, L. (1996) The right to environment, in T. Filippini and V. Vecchi (eds)
The Hundred Languages of Children: The Exhibit. Reggio Emilia: Reggio Children.

New, R. S. (1993). Reggio Emilia: Some Lessons for U.S Educators. 7. Retrieved from ERIC website: http://www.terraenterprise.org/pdf/Reggio-Emilia-Approach-Italy.pdf

New, R. S. (2000). Reggio Emilia: Catalyst for Change and Conversation. Clearinghouse on Elementary and Early Childhood Education, (December 2000). Retrieved from http://ecap.crc.uiuc.edu/eecearchive/digests/2000/new00.pdf

Piaget, J. (1973). To Understand is to Invent: The Future of Education. NY: Grossman Publishers.

Piccinni, S. (2010). The Wonder of Learning. Rechild.

Read, M., Sugawara, A. I., & Brandt, J. A. (1999). Impact of Space and Colour in the Physical Environment on Pre-school Children’s Cooperative Behavior, Environment and Behavior. Retrieved from http://eab.sagepub.com/content/31/3/413.refs

Reggio Children Inspired. (2013, 7 April 2013). Reggio Children Inspired. [Facebook Page]. Retrieved from http://www.facebook.com/pages/REGGIO-CHILDREN-INSPIRED/314246196381

Rinaldi, C. (2006). In Dialouge with Reggio Emilia: Listening, Researching and Learning. New York: Routledge.

Rosen, I. (1992). Reggio Emilia: A model in Creativity. Scholastic Pre-K Today, 7(2), 81-84.

Soler, J., & Miller, L. (2003). The Struggle for Early Childhood Curricula: A Comparison of the English Foundation Stage Curriculum. International Journal of Early Years Education, 11(1), 57-68. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/0966976032000066091.

Stegelin, D. A. (2003). Application of the Reggio Emilia Approach to Early Childhood Science Curriculum. Early Childhood Education Journal, 30(3). Retrieved from http://link.springer.com/article/10.1023/A%3A1022013905793 - page-1.

Strauss, A. C., & Corbin, J. M. (1998). Basics of Qualitative Research. New York: SAGE Publications.

Thornton, L., & Brunton, P. (2009). Understand The Reggio Approach. UK: David Fulton Publishers Ltd.

"University of Dayton". (2012, 3 April 2013). An Analysis of the Reggio Emilia Approach to Early Childhood Education. Retrieved from http://zjys.net.cn/jpkc/teacher/eWebEditor/

Vakil, S., Freeman, R., & Swim, T. J. (2003). The Reggio Emilia Approach and Inclusive Early Childhood Programs. Early Childhood Education Journal, 30(3). Retrieved from http://link.springer.com/article/10.1023%2FA%3A1022022107610?LI=true#page-1.

Vechhi, V. (2010). Art and Creativity in Reggio Emilia: Exploring the Role and Potential of Ateliers in Early Childhood Education. NY: Routeledge.

Wurm, J. (2012). How the Environment Inspires Curriculum. Retrieved 3 April 2013, from http://www.communityplaythings.com/resources/articles/Reggio/environment.html

"Unless otherwise indicated, figures, images and photographs included in this paper were created by Hannah You © Queensland University of Technology, 2013."