IJREE

International Journal for Research on Extended Education

Content

Editors' Preface

As announced in the last issue of the IJREE, this issue doesn't have a main topic section and does include only free contributions.

The seven contributions of this issue encompass a wide array of topics and new research developments in the field of extended education in different countries, and they comprise research projects based on qualitative data, as well as projects based on quantitative data.

The first article by *Lena Boström*, *Assar Hörnell*, and *Marie Frykland,* which combines quantitative and qualitative data analysis, deals with the question of whether or not staff members at Swedish leisure time centers perceive these centers as effective learning environments. They find, among other things, that the physical environment – in some cases small and outdated equipped rooms – is not sufficiently suitable to the purpose of learning.

Jesica Siham Fernández, *Angela Nguyen*, and *Regina Day Langhout* describe in a Californian case study the use and the outcomes of concept-mapping as a participatory method for empowering elementary school-aged children in an after-school program. One conclusion to be drawn from this research is that concept-mapping can foster children's "critical and structural analyses development".

Lars Holm reports on an ethnographical research on Danish all-day schools. He shows how the implementation of all-day schooling influences the "'actors' everyday-life" and how it "generates new discourses and struggles over values and concepts in education" within a local residential area.

The outcomes of school-based after-school programs on Japanese children's and adolescents' social and emotional development stand in the center of the article by *Fuyuko Kanefuji*. Based on quantitative data, she shows that after-school classes foster, for example, 'empathetic understanding of others' – a prerequisite dimension of social competencies. But this outcome is only to be found for the children participating frequently in the after-school classes.

Joshua F. Lawrence, *Briana M. Hinga*, *Joseph L. Mahoney*, and *Deborah Lowe Vandell* as well deal with the outcomes of after-school activities. They show, on the basis of a longitudinal quantitative dataset from the USA, that children participating in designed summer enrichment classes widen their vocabulary knowledge significantly – if they are enrolled in these activities consistently over the period of three years.

"Contexts of Tinkerability" within an after-school program are described by *Lisa H. Schwartz*, *Daniela DiGiacomo*, and *Kris D. Gutiérrez* as contexts of learning for children and for undergraduate students who are becoming teachers. They show that the 'design discourses' which develop between children and undergraduates during the project change the undergraduates' perspectives on learning processes and the teacher's role within these processes.

In the seventh and last article in this issue *Kym Simoncini*, *Jennifer Cartmel*, and *Amy Young* report on how Australian children think about afterschool care. They show that afterschool care in general is perceived by the children as a place for developing "skills and competencies, make new friends as well as promoting and protecting play."

All in all the articles proof that activities and programs in the field of extended education are effective in order to improve young peoples' opportunities for learning and thriving. Additionally some of the articles show that extended education programs do not only affect young people but teachers and the whole community as well.

As we do in every issue we would like to encourage authors from all countries and all research areas to submit papers to the IJREE. We are looking forward to your papers.

Because of the limited space and the purpose of publishing as much of the papers as possible we forwent the review section this time. For their editorial support to this issue we'd like to thank Joanna Bennett, Marie-Luise Dietz, Lisa Röhrig, and Goya Kaufmann.

We hope you enjoy reading this issue of the IJREE.

Sabine Maschke and Ludwig Stecher

Learning Environments at Leisure-Time Centres in Sweden: A Comprehensive Survey of Staff Perceptions

Lena Boström, Assar Hörnell, and Marie Frykland

Abstract: The purpose of this study is to describe and analyse how leisure-time teachers perceive learning environments in general and especially the premises at Swedish leisure-time centres. Data are based on a national, comprehensive survey of all leisure-time teachers' perceptions. The theoretical framework is based on research on leisure-time centres and learning environments. The methodological approach involves both a descriptive statistical analysis and a qualitative content analysis. The results show a fragmented and paradoxical picture in terms of learning environments at leisure-time centres. On the one hand, the physical environment is characterised by small rooms, in some cases outdated and not suited for the purpose, to large groups of students and, in many cases, shared premises with the school. On the other hand, a majority of the staff say that learning environments are actively used to teach children social skills, how to establish good relations, friendship and equality. Parents' and children's opportunities to influence these learning environments are not regarded as a high priority. The main conclusion of the study is that activities housed in the school context and on its terms face congestion and many of these physical learning environments are in need of major improvements, especially considering all the policy documents and research on good learning environments. For Nordic educational research, this is an extremely important knowledge supplement since this field lacks ample research. For activities at leisure-time centres, these results have implications for policy decisions and educational development.

Keywords: Leisure-time centres, environments, leisure-time teachers, perceptions, comprehensive survey

1 Introduction

In this article, we present a study about how leisure-time teachers (LtTs) perceive learning environments in general and especially the premises at Swedish leisure-time centres (LtCs). The study is based on a comprehensive survey of staffs' perceptions about learning environments in LtCs. The background to this study is widespread criticism in recent years from various sides, including parents, staff and the school inspectorate, all focusing on how learning objectives in LtCs have been fulfilled, analysed and developed to meet learning tasks (Lorentzi, 2012; Skolverket, 2001; 2012; Skolinspektionen, 2010, 2013). These critiques emphasised, for example, that the educational mission must be taken more seriously, more variety is needed to stimulate every child, the

importance of all staff being familiar with the steering documents and the deficiencies in the physical learning environment. The latter has a direct repercussion on the children, the staff and LtC's missions.

LtCs are supposed to complement other forms of education in which students fulfil their school attendance, and it involves both care and learning. The curriculum should certainly apply in LtCs, but it has been written with schools as the base (Skolverket, 2011), though the LtCs have their own guidelines, (Skolverket, 2014). This also means that an LtC, its business and its staff are in a complex situation. Since research in this area (LtCs and learning environments) is extremely sparse, if not non-existent, we wanted to find out what the situation was in Sweden. Therefore, we designed a web survey sent to 11,109 LtTs in LtCs in Sweden during the winter of 2012–2013. This article presents partial results of this web survey with a focus on staffs' perceptions of learning environments in general and premises in particular. Before presenting the empirical data, we want to contextualise the study by giving a background about LtCs, the steering documents concerning learning environments and previous research.

2   Background

To contextualise the topic, the following section provides the LtCs' mission and purpose, the steering documents, as well as a brief summary of the current criticisms of their activities and environment.

2.1   About Leisure-Time Centres

The LtC is a pedagogical group activity for Swedish schoolchildren up to 12 years of age. Activities at the LtC can be run as free-standing group activities, usually to varying degrees. Activities should encourage the development and learning of children and provide them with meaningful leisure and recreation. Approximately 80% of all children in Sweden between the ages of six and nine and approximately 10% of all children between the ages of 10 and 12 are enrolled in an LtC (Skolverket, 2014).

The LtCs' historical origins are from 'working cottages' in the 1800s where poor children were given an opportunity to work and train in more practical and craft areas. This changed in the 1930s to afternoon homes as part of welfare development. The modern school leisure centres were created in the 1960s and 1970s as part of the continued expansion of welfare, but also as a necessity since women entered the labour market and families needed daily care of their children. LtCs came under the same management and control as the schools in 1994 and this resulted in most LtC teachers having dual roles (Rohlin, 2013). Besides being responsible for leisure activities in the afternoons many LtC teachers also began to teach or provide additional resources to schools. Since 1977, these teachers have been educated at universities or colleges. Primary teacher education with a specialisation in LtCs requires three years of study. Then they will be competent to teach in one or more practical-aesthetic subjects. The rest of their studies are focused on context and didactics in leisure

centres. The other primary teacher training programs have a greater focus on the schools' subjects.

Today, LtCs are strongly attached to the schools and physically integrated into them. They open at about 6:00 a.m. and close at 6:00 p.m. The fee for these centres is income-based, and most municipalities have a maximum rate. If the parents' incomes together are more than 4,581 Euro/month, then the fee is approximately 92 Euro for one child.

2.2   Mission, Purpose and Need for Improvements

LtCs are an extensive arena of social relationships and recreation. Children's stays at LtCs will undoubtedly influence contemporary and future society. The steering documents provide that an LtC should be a good environment for learning, and that all stakeholders should have the opportunity to share responsibility for and to influence the physical environment. A widespread criticism from various stakeholders including parents, staff and the school inspectorate has emerged in recent years (e.g., Rohlin, 2012; Skolinspektionen 2010, 2013). It is therefore important to examine the learning environment that the children are in as well as the staffs' perceptions.

Criticism of the environment in the LtCs has essentially focused on poorly adapted facilities for leisure-time activities, large groups of children, few college-educated staff, unsafe environments and the lack of quality in the educational activities. Statistics from 2012 show, that there are around 20 children per full-time staff member and about 40 children on average per section (SCB, 2013). The focus is often on the bad physical environment despite legislation that emphasises a healthy environment. As for the environment in the new Education Act, it is clearly stated: 'The operator shall ensure that groups have the appropriate composition and size, and that children [are] also otherwise offered a good environment' (SFS 2010:800, §.9). For a similar, but more detailed description, see Skolverket (2014).

The Schools Inspectorate conducted a national review 2010 that concurred with the earlier criticisms and included a stronger criticism of leisure-time activities. One of the areas where powerful recommendations were suggested was the environment, including sound/ voice volume, congestion, stress, opportunities for peace and quiet and focused activities.

In the latest Education Act (2010), LtCs have a chapter that clarifies the mission. The general guidelines (2014) are projections, but framing them as what 'should' be done is insufficient, according to the leisure-time centre staff. The LtC learning assignments are discussed only partially in the general guidelines, but they have been clarified in the act. This, together with the national inspectorate's sharp criticism, has meant that, in many places, work development has been started and the learning environment has come into focus in a new way. The situation today is that sharp criticism has been presented and development work has begun, but the question is: Where is the national and international empirical research into LtC learning environments?

2.3   *Learning Environments and LtC in Steering Documents*

Given the widespread criticism that has emerged, it is important to examine what the governing documents express. The concepts of learning environments are not mentioned in either Curriculum for Compulsory School System (LGR 11) (Skolverket, 2011) or General Recommendations for Leisure-Time Centres (Skolverket, 2014). However, there are the concepts of space, school and work in LGR 11 (Skolverket, 2011). The LGR 11 has no link to the LtC as an arena for learning. But the LGR 11 covers LtCs and their staff and clarifies the mission for these centres. However, there are different formulations that can be linked to learning settings about leisure. For example, teaching can never be the same for everyone, students developing their ability to communicate and play is important for the children to acquire knowledge. Under the heading of Good Environment for Development and Learning, the LGR 11 emphasises the importance of 'a vibrant social community that provides security and willingness and desire to learn. The aim will be to create the best conditions for students' education, thinking and knowledge' (Skolverket, 2011, p. 10).

In General Recommendations and Comments for Leisure-time Centres (Skolverket, 2007), there are references to the LtC learning environment. These include that the physical environment must be appropriate, such as size, shape, air, light, and sound, and there must be good material for educational activities. The environment should provide different kinds of activities and local integration with the school is not always desirable. The premises and the outdoor environment should be 'transparent and facilitate contact between staff and children' (p. 21). The children should learn about the local environment and its resources should be highlighted, and the LtC should offer various activities such as play, drama, music and art design.

This advice emphasises that activities should be structured so that the 'children's development and learning takes place at all times and in all contexts, and is characterized by the perception of children as active co-creators of their own development and their own learning' (p. 23). Moreover, the children should be involved in establishing the guidelines. Children should affect the contents and take responsibility for their own actions and the LtC environment. Other references that can be applied to the learning environment include democracy, equality and civic values to be translated into concrete actions.

The Education Act (SFS, 2010:800) and the School Regulation Act (SFS, 2011:185) don't mention the concept of the learning environment. However, there are references to the environment in The Education Act entitled Security and Study Environment: '3§ The training will be designed in such a way that all students receive a school environment characterized by security and study'.

3   Learning Environments – Previous Research

What follows is a summary of past research on learning environments in general and for LtCs in particular. The concept of a learning environment is described from a broader perspective that narrows the focus of this article to the premises.

3.1   Learning Environments and Schools

The term 'learning environment' describes environments, facilities, communities, activities and different approaches that contribute to learning. A traditional class-room is a learning environment, but there are many other learning environments. Characteristic of a learning environment is that it is a social environment with didac-tic and pedagogical aspects (Evanshen, 2012; Ivarsson & Boström, 2013). People interact with the social and physical environment and are affected by it (Björklid & Fischbein, 2011). Good learning environments are important in preschools, LtCs, universities and at work (Knoop, 2012). People are different and learn in different ways. Therefore, understanding these individual differences and similarities in learn-ing provides opportunities to meet the kids in the school environment on their terms (Bostrom, 2004, 2007; Evanshen, 2012). Learning environments are partly about the physical space, but they are also a pedagogical and social arena. Within this arena, the task is to find variations and focus on the activities that promote different kinds of learning (Carlgren, 1999).

Learning environments can include many different perspectives about learning and its complexity. More concretely, learning environments can include approaches, attitudes, premises and the classroom's physical characteristics – all of which are important factors that can help to create good conditions for all students to feel fully involved (Ahlberg, 1999). The external environment affects us all the time and, if it is positive, it creates favourable constructive learning. A model to create a good learning environment is at the foundation of the environment and is described by Ev-anshen (2012). When the foundation is firmly based, it can more easily engage staff to change culture and consequently to improve teaching (Boström, 2009). When it comes to buildings, new schools have been built in recent years with the aim that they will be more suited to a modern era and a new way of thinking. However, there is astoundingly little knowledge of how the interaction between children and the physical frame is shaped (Björklid, 2005; de Jong, 2011; Dranger Isfält, 1999). It seems that the physical environment as a resource has been neglected, even though children stay there for years and for a large part of their waking hours (de Jong, 2011).

3.2   Learning Environments and LtCs

The LtC staff is working in the field of tension between tradition and new forms of control, and this has repercussions for their profession, concrete activities and LtC

learning environments (Andersson, 2013). LtC staff work with social relationships that involve an important learning process (Ihrskog, 2011; Johansson & Ljusberg, 2004). Hippinen Ahlgren (2013) poses the question: 'How is the child in the existing environment?' (p. 103) and wants to see a discursive perspective on leisure activities. Hundeide (2011) also discusses this and describes how children are included in contracts through negotiations with other children and adults and with the environment of different situations. The social environment is portrayed as central and it becomes a didactic tool since LtCs traditionally consider this to be their most important task. Jensen (2001) emphasises that the leisure pedagogy should start from the varied environments that lead to different learning content. Qvarsell (2013) places an emphasis on different types of environments to provide meaningful activities, which is also confirmed in other studies, and the teaching-learning processes in leisure should be seen as cultural and contextual. The premises for recreational activities may be only classrooms, but they can also be well-adapted, reconstructed premises that have a strong focus on leisure pedagogy.

The LtC will complement the school's learning environment, according to the steering documents. Nordin (2013) argues that LtCs should focus on their complementary missions and not continue to *compensate* (our italics) for the schools. 'Children's learning should focus at complementing, not on school subject teaching'(p. 53). LtCs will complement school through practical learning what the school theoretically conveys. The school has always been dominated by formal learning. Leisure-time centres, however, have been dominated by informal learning. We find the two forms in school and leisure-time centres. But many stakeholders agree that one of the LtCs' strengths is informal learning, variations in the teaching, and the voluntary nature of creating motivation and the desire to learn.

Hansen Orwehag and Mårdsjö Olsson (2011) highlight three starting points about LtCs' complementary relation to the school: a) an environment where children can rest and relax from school, b) a content that supports the work of the school and c) that LtCs support and connect children's lives and learning outside of school to schoolwork.

Play is central in LtCs and, in particular, free play. Many LtCs have developed their learning environment by considering a good play environment. Play has also always been an indispensable part in the various forms of teacher training for LtCs. Kane (2013) argues that an important didactic starting point is to reflect on relational and physical conditions to allow space for play and see it as part of the leisure-quality work. This becomes problematic if the LtC has premises that are designed by the school (Hjalmarsson, 2014).

Another type of research is attributable to value issues and the question is whether children's perception affects the learning environment. Does the environment create problems for the child or is the child the problem in the environment? The use of environments as didactic tools exists, but it is not articulated in leisure-time teachers' work. With the environment as a didactic tool, the teacher constructs a context that stimulates the group and the individual (Hippinen Ahlgren, 2013). There is a tension between facilitating an environment for children's play and learning and personnel limitations in their attitudes (Kane, 2013). In conclusion, a learning environment is essential for children in many different aspects.

4   Aim and Methodological Approach

The purpose here is to describe LtTs' perceptions about learning environments in LtCs in Sweden. We assume the perception of the learning environment in a broad sense, but also the physical learning environment. The study is based on the following research questions:

1. How do LtTs generally perceive the learning environments in Swedish LtCs?

2. How do LtTs feel about the facilities, which are a significant part of the physical learning environment?

3. Are there special rooms for special activities, age adjustment and play, and how are these organised?

This study is based on a web survey conducted in early 2013 that was sent to all employees at LtCs in Sweden, about 11,109, with a reminder. The survey was constructed in the software Netigate and distributed by the Teacher's Federation via a link in an e-mail message (Netigate, 2014). Responses were received from 4,043 persons (36% of all respondents, 45.9% of LtTs[1]). The respondents represented 289 of Sweden's 290 municipalities. Against this background, the study can be characterised as a census survey. Participation was voluntary and anonymous. The questionnaire consisted of 21 questions about the LtC learning environment. Some questions could be answered only by set responses, while others were open-ended questions allowing relatively long written statements. The survey generated numerical and qualitative data in the form of free text. This study includes the analyses of five issues that affect staff perceptions primarily about the physical learning environment. The construction of the questions for the survey consisted of a systematic operationalisation of the theoretical concepts that guided the study, results of previous research in the area, as well as aspects of the organisation of LtC environments that we considered relevant. In order to initially secure the study's validity and reliability, the following actions were taken: multi-item scales covered the various aspects of the study's content, the survey questions were reviewed by the research team and they were evaluated through a pilot test. The Research Council's rules for ethical research in the humanities and social sciences (http://www.codex.vr.se/texts/HSFR.pdf) were taken into account.

To answer the research questions, we analysed five of the web-survey questions.[2]

To be able to answer the first research question, we analysed question 8 in the web-survey, which reads as follows: *What is the learning environment like at your leisure-time centre?* The participants commented on 14 statements about the learning environment through a five-point Likert scale (see Appendix 1), and then they could comment on their positions.

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1   The questionnaire was distributed to all members of the teachers' union who were registered as an LtT and have a higher education (about 20% did not work at recreation centers). They did not respond to the survey, i.e., a part of the falling off.

2   See the original questions in Appendix 1.

To be able to answer the second research question, we analysed question 7 (*What are the facilities like at your LtC. Try to describe them in five to 10 sentences!*) and the comments in question 8). Finally, to be able to answer research question 3, we analysed the following questions: *10. Have special "rooms" been created, ex., studios and reading rooms, at your leisure-time centre? 11. Are there adapted rooms for both older (10–12 year) and younger children (6–9 years)? 18. Are there special environments for "free play"?*

The study is based on an integrative design, which means quantitative data to qualify and qualitative data to be quantified can be combined (Polit & Beck, 2008). The methodological approaches are a descriptive statistical analysis and a qualitative content analysis. The descriptive statistics reveal outcome statements, content analysis and open-ended responses to three questions. Since the survey was intended to obtain a complete picture of LtTs' perceptions, the mean value of each claim is reported by descriptive statistics.

The operation of the content analysis is that we systematically and incrementally classified data to better identify patterns and themes and the goal was to describe and highlight specific phenomena. The study attempts to shed light on the content, what is directly expressed in the text, and to analyse the latent contents, which means that an interpretation of the meaning of the text is made. Content analysis involves quantity contained and examined methodically, with texts interpreted incrementally and data classification for easier identification of patterns and themes. The content analytical model allows finding clear distinctive categories, narrowing them and making them specific. Traditional content analysis can be divided into three stages: selection of the focus texts, coding and interpretation of results (Auhiva, 2008). During the second step, problems can arise mainly with connotative interpretations, requiring expertise, and therefore it is best in such studies to involve least two researchers. Reviewers must continuously conduct discussion of key issues and balance their categorisations to achieve consensus (Krippendorff, 2004) and build the credibility and generalisability of the results reported by a methodical approach, categorisation and analysis.

The process for the analysis of texts was as follows: reading of the entire text (analysis unit) repeatedly to get a feel for the whole; finding meaningful themes relevant to select issues; and condensing, coding and grouping into categories that reflected the core message. These categories represent the manifest content. When we quote respondents, we use the abbreviation r (x).

# 5   Results

The following section presents the teachers' perceptions of the learning environment in general, followed by descriptions of the premises and ultimately answers to the questions of special rooms designed for different activities, different rooms for different age categories and space for free play. The open-ended responses to each question are reported based on content analysis.

5.1   Perceptions of the Learning Environment

Teachers' perceptions of the learning environment at the Swedish LtCs clearly show that the skills developed and strengthened can be attributed to 'soft skills'. Overall, it is believed that LtCs provide a good learning environment for children. Figure 1 shows a ranking (mean) of claims where it is clear that the soft values are the estimated maximum in the learning environment. This was done in order to get a clearer picture of LtTs' estimations of the important aspects of the learning environment. Figure 1 shows these estimations based on the five-point Likert scale, and the "soft values" (eg social competence, responsibility, good relations, equality) is estimated maximum in the learning environment

Above all, the LtTs state that the learning environments at LtCs are actively used to teach children friendship, good relations, equal treatment, social skills, responsibility and caring. The answers also show that the outdoor environment works well as a learning environment, but the premises are not as widely adapted. Furthermore, the influence of the children and parents is stated as lower, and ICT doesn't seem to be a central part of the learning environments.

Figure 1. Estimates of different claims about the learning environment
           at the LtCs – averages
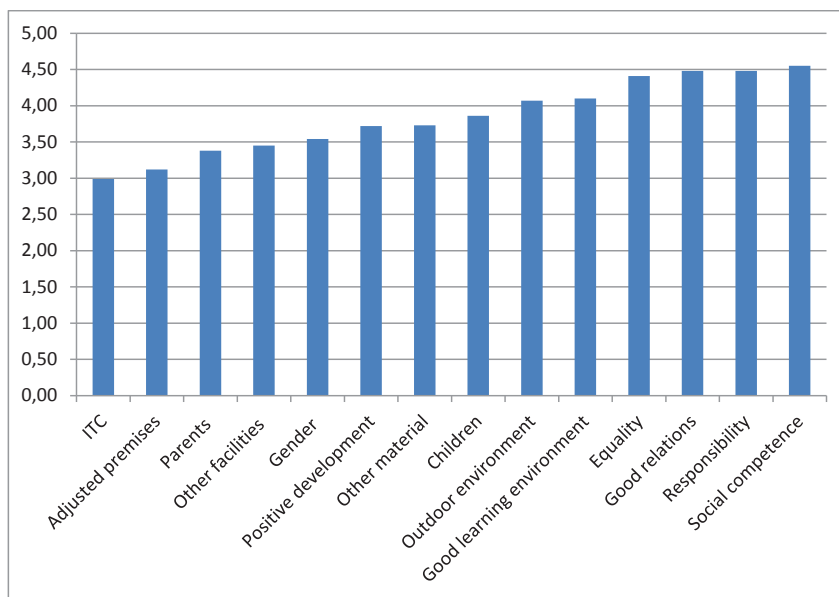
The opening remarks described mostly the premises and lack of adaptation, which is presented below.

5.2   *Large Groups, Cramped Rooms, Too Few Staff and Schooling*

To answer the second research question, namely, how the staff perceives the premises at LtC, the responses to the open comments to the above question and the open question of *What are the facilities like at your LTC* were examined. An underlying theme in the open comments on this estimation is primarily that large groups of children are in cramped spaces with too few staff, making the learning environment worse and difficult to develop. With the larger number of children's groups, it is difficult to meet all the children's needs. Some experience a stressful learning environment with a high noise level. Another aspect that hinders the learning environment is focused on the increasingly reduced planning time.

Another theme is the so-called 'schooling'. Most LtCs are housed on school premises, which create problems with design, materials and activities. The school structure is strong and it seems like a teachers' culture has prevailed. The feeling of leisure-time 'borrowing' the premises of the school was described as: 'The learning environment starts constantly from school standard and then it is difficult to profile the LtC learning environment' (r. 18).

Respondents indicated difficulties interacting in the classrooms where LtCs are used so differently and that classrooms are not designed for LtC needs. No materials can be left lying around because they distract the students during school lessons. It is difficult to affect the environment in the classrooms. The commentary describes the frustration and even powerlessness to influence the learning environment on the school premises. 'The premises are not at all suited for leisure-time activities. On holidays, we take place and rearranging and adapting rooms and surfaces to what kids want' (r. 250).

Schools and LtCs on the same premises are problematised by some respondents. They suggest that some children do not want to be in a classroom when they stopped for the day and that it comes to finding what's common and different based on a focus on children's needs. 'The difficulties are with how we differ while interacting with the school. Therein lies the big challenge, to find balance and to remember children's free time' (r. 2589).

Some respondents chose to comment on the social aspects of the learning environment. A telling quote is as follows: 'The social child can and will work anywhere regardless of where we are' (r. 56). Some even commented on the Information and Communication Technology (ICT) having a relatively low amount of equipment, as there was not much technical equipment, and they want to offer other activities compared to homes where most people have a computer.

Descriptions of LtC Premises

The buildings are also different – old houses or new houses with open floor plans and custom squares from which each LtC originates. The quality of the premises reveals a large range from totally worn out and non-functional facilities to newly built and clean rooms. A clear picture in the description, however, is that most LtCs are undersized relative to the number of children. The word 'crowded' occurs frequently in the descriptions.

LtC facilities can include various types of smaller rooms such as aesthetic rooms, quiet rooms, table tennis rooms, Lego rooms, resting rooms, movement rooms, play rooms, workshops, studios, dance/music rooms and theme rooms. Rooms can also be divided into different corners for reading, table games, Kapla and crafts. But even larger rooms such as halls exist.

When we analysed the descriptions of LtCs across the country, a clear picture of the so-called 'schooling' emerged in the sense of the physical environment. A large majority of the descriptions are about LtCs housed in the schools where the classrooms are used for both leisure and school activities. This describes classrooms, study rooms and corridors. It is difficult to make the rooms available in the way that the children would like during leisure time. Descriptions such as 'parts' and 'borrowing space' of the school, are frequently given. School activities seem to have prevailed with regards to the physical environment. An appealing description is as follows: 'Classroom environment with tables. No opportunities to save work from the day before, everything has to be put away every night' (r. 452). 'As you can imagine, they look like a classroom' (r. 65).

Many LtCs use gymnasiums, handicraft classrooms, home economics kitchens, music rooms, libraries and hallways. Some LtCs integrate their activities in the same room, such as reading and lunch. Many descriptions mention a perceived low quality of LtC environments, such as long corridors where leisure activities are squeezed, too-small rooms, lack of a kitchen pantry or a sink for creative activities, few toilets, a miscellany of furniture, no room large enough for a collection of children's material, temporary partitions for rooms, noise, and the need to have rooms where children can be undisturbed. The most telling quotes were as follows: *Too narrow. Poorly planned. Ineffective. Good location. Good outdoor environment* (r. 876). *Poor kitchen. Leisure time in the classroom. The outdoor environment is asphalt. Not enough room for everyone. Children cannot get peace and quiet* (r. 4002)

When both integrated and non-integrated LtCs use classrooms, the respondents pointed out the differences. One description:

A school building that is used for LtC, hard to arrange a good environment because of tables and chairs in the classrooms. A local used solely to LtC, the venue is easier to decorate and will be a great afternoon environment for the kids, a calmer atmosphere. (r. 2341)

Newly built schools have different solutions for leisure, (e.g., open floor plans with squares each group is based on). Some LtC are situated in preschools that have no problems with material congestion and furnishings. The following quotation may illustrate this: 'Good premises. Preschool and LtC share a site, but it works well' (r. 2006).

There are, however, descriptions of LtCs that stand out in a positive sense. Some are available on the school premises and are considered 'well-suited for leisure-time activities, even though we are in school' (r. 965), but the vast majority are not integrated with the school premises; instead, they are located in a building next to the school. Also important is the teachers' participation in the design and layout of the premises, and then it seems the premises are more suitable. The most positive images of leisure homes are when they are separated from the school premises. The following quotation illustrates this:

We have excellent facilities for both games and other creative activities. We are housed in a charming old school with two floors. In the garret, we have a large play-room, a studio, and access to a library. On the ground floor, the LtC has a room where you can play, draw, etc. We also have access to a music room and movement room where kids like to dance. We eat breakfast and snacks in the 'kitchen'. We also have access to some smaller rooms and two classrooms. We have at our disposal a number of computers. The decor is slightly worn but fully functional. I am very pleased with our facilities. (r. 2556)

In conclusion, LtC premises show large variations in rooms, physical solutions and activities. However, when the situation involves an activity that is largely housed in the school context and on its terms, then congestion and many physical learning environments are in need of major improvements.

5.3   Different Rooms for Different Activities, Ages and Free Play

To answer the third research question of whether there are rooms for special activities, ages and playing, the three questions that addressed these specific issues in the web survey were examined. "Free play" is mainly about children using their imagination and desire to learn in an environment where adults do not control the content (Pihlgren & Haglund, 2013). The children develop social, emotional, and cognitive and language skills but also physical skills in free play. At the same time, free play can also have a limiting role in children's development and learning when the free play will take too much space.

The respondents stated whether such physical rooms were in each LtC and to comment on the answers. Figure 2 summarises the responses and shows that two-thirds of the respondents indicated that they had special rooms for different activities and space for free play. Half of the respondents indicated that they had room for two age groups.

Figure 2. Specific rooms, age appropriate rooms and space for free play
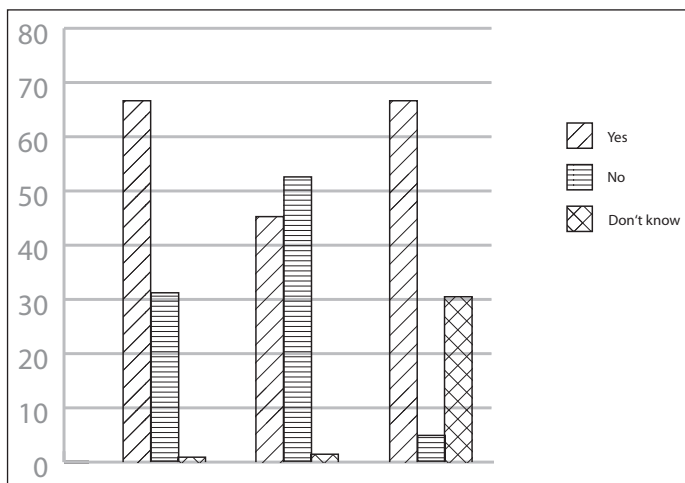
When asked about whether specific rooms were created at the LtC, for example, studios and reading rooms, about two-thirds answered that was the case and 2% percent of the respondents did not know. The picture shown in the empirical material shows that, according to the staffs' perceptions, the Swedish LtCs show a great variety of different rooms called office, reading room, workshop, doll room, play hall, study, music room, resting room, Lego room and library.

The answers describe the creation of different learning environments in different rooms. There is no standard for how the rooms in the LtCs should look and what functions they should have. They also describe that many LtCs create different corners in different rooms and that they have rooms housing play boxes. From the category that does not have special rooms for different activities, the following quote is typical: 'Lack of space that slows the activity and learning environment, we have the expertise to provide it' (r. 1899). 'We have LtC in the classrooms, and then we have no studio or reading room' (r. 2330).

The answers point out that there are not sufficient or functional premises and that the lack thereof suppresses the activities in the learning environment. Regarding the question of whether there are special rooms for both older (10–12 years) and younger children (6–9), 46% responded that there were, while 53% said there were not.

Leisure time rooms for different age groups divide operations for preschool to grade 2 and grade 3 to 5 or 6. The most important reason for this separation is to keep the older kids in the LtC. Over half of the LtCs, according to teachers' perception, have mixed ages in the same room and this clearly shows the need for space. However, staffs try to offer appropriate activities for the two major age groups. Some LtC are just young kids and some are older. In some LtCs, they offer the older children the opportunity to participate in a special leisure club.

Free play is mentioned as an important activity in leisure-time activities by virtually all respondents. An overwhelming majority of respondents (68%) answered that there are special environments for free play. Many respondents mentioned play boxes or activity boxes in conjunction with free play. They mention the fact that the kids then do not move to a specific place; instead, they can use the space available and then the contents of play boxes become more important than the environment itself. Some say that free play is mostly outdoors.

Some of the teachers believe that free play is more prevalent during the holidays when the kids are at LtCs throughout the day and may play for a long period of time without interruptions. Respondents who answered that they did not have any special environments for free play said that the free play may take place anywhere and did not need a special environment.

Some of these respondents also mentioned play boxes that children can use virtually anywhere in free games. Of the respondents who answered 'do not know', there are some who say they did not understand the question because they believe that free play is everywhere. The others mentioned that the children play where there is space.

6   Conclusions and Discussion

In this final chapter, the findings and methodological approaches are discussed followed by the educational implications of the study and further research.

6.1   *Results Discussion*

A positive external learning environment is the foundation for constructive learning (Andersson, 2013; Evanshed, 2012; Knoop, 2012), allows individual learning for children (Björklid & Fischbein, 2011; Bostrom, 2004) and is a prerequisite for making meaningful activities (Qvarsell, 2013). Although a school's governing documents provide for the right of children to a good learning environment and the importance of this to develop and learn, this study, based on about 4,000 responses from LtTs, provides a gloomy picture of the physical learning environments at Swedish LtCs. Previous research and evaluations from school authorities confirm this study.

The structural conditions for running qualitatively good work are not optimal, according to Hansen Orwehag and Olsson (2011). The Swedish Schools Inspectorate (2010) speaks of flaws in the 'crucial components, staff ratios, group size, physical environment and the organisation' (p. 33) and argues that LtCs do not reach the intentions of the governing documents. Criticism is also directed toward municipalities that do not take full responsibility for the environment, group size, staff education and monitoring objectives and guidelines in the policy documents.

The study clearly shows that the social and relational aspects of learning environments at LtCs are prized and the staff provides a positive image and is proud of their centres, but the majority of the employees are dissatisfied with their premises. The physical learning environments seem to be different from extremely poor to good ones. The responses indicated schooling at LtCs is a big problem to create good learning environments. Other obstacles cited include large groups, reduced space and reduced staff as previously described by researchers and the Schools Inspectorate (Skolinspektionen 2010, 2013). Another problem scenario is LtC occupancy on the schools' premises. The importance of play is often reduced in these environments. The question then becomes whether the free play will be free or organised by the staff. One consequence of this is how much learning and development leads to free play.

Since previous research studies clearly pointed to the learning environments' importance of LtCs for children's learning (e.g., Ahlgren, 2013; Hunheide, 2011; Jensen 2011), meaning (Quarsell, 2013) and social development (Ihrskog, 2011), we ask ourselves what consequences for the children and staff will come from a longer societal perspective. Hippinen Ahlgren (2013) has asked, 'What about the kids in the existing environments?' (p. 112). Maybe this leisure time will be counterproductive, despite all the good intentions in the governing documents? Another important question is how the staff can continue work in a difficult environment.

Because many children leave LtC at the ages of eight to nine years old, we wonder if this is due to fewer good environments, increased children's groups and re-

duced staffing. To cater to the age group requires various organised spaces, rooms or activities. A concrete sign of this may be the special play boxes available on shelves in the rooms. Is this a solution when the spaces are reduced? Or is it that things are more important than the premises? From a kid's perspective, perhaps this is most important because they have the ability to focus on the activities in the present moment: On the other hand, one may ask how learning could be developed with better environments. Many respondents in this study expressed that their educational ideas could be developed better if the premises were improved.

The so-called schooling of the LtC seems to be an obstacle to optimising learning environments and problematic for many of the staff. To this may be added that the LtC that exists in its own building offers more opportunities to exercise activities. An examination of the integration school premises would therefore be desirable.

6.2   Methodological Discussion

In order to enhance the study's validity and reliability, the survey questions were built on empirical research and proven experience and a pilot study was conducted. A response rate of 43% is deemed as satisfactorily high for the generalisability since this is a comprehensive survey with an exploratory purpose. Since the survey was based on multi-scale items, it covered various aspects of the survey content. We can see the consistency of the results between the different parts that address the same research question, e.g., the premises at leisure homes. Thus, we can assess that the study has high internal consistency reliability.

Three researchers have used the same methods and theories to identify the same aspects. As for reliability, we can ask if two measurements that would measure the same thing would give the same result since we used a partial qualitative approach with interpretations. On the other hand, we met the requirements of content analysis as we are three scientists who load and interpret text coherence, which enhances reliability. However, we are aware that the empirical material could have been analysed and interpreted by other methods. In retrospect, we realise that the web survey could have been extended to other further questions. After all, the results show that we have discovered something new, so that new implications are evident.

6.3   Educational Implications

An important implication of this study is that politicians and local authorities should take a greater responsibility for LtC learning environments. As the guidelines are clear in the policy documents, LtC educational foundations could be implemented in a better way. In other words, the physical environment, in general, should be improved qualitatively and quantitatively. The staff should have opportunities to achieve policy documents goals and guidelines. LtCs have a good potential to complement schools in terms of learning.

Another implication is reviewing LtC learning environments at the national level from an equivalent perspective. The study shows that there are great differences

between the LtC and municipalities in Sweden. How will the LtC provide an equivalent complement for the whole country?

6.4   Further Research

Because the field is especially unexplored, we see many new areas of research. First, we would like to examine children's views about learning environments. Second, we would like to conduct a longitudinal study of children's experiences of their LtC stays and the potential influence on their learning from different perspectives. Researching factors for good learning environments at LtCs are also of great interest to us and to immerse ourselves in the tension between social and relational learning environment and the physical learning environment.

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Appendix 1.

Original questions from the web-survey.

7. What are the facilities like at your leisure time centre? Try to describe them in five to 10 sentences! (Open-ended question)

8. What is the learning environment like at your leisure-time centre? How well do you agree with the following statements?

Not at all	Not so much	Neighter or	To a certain extent	Very much

1. The learning environment is developing positively at our LtC.

2. The premises are adjusted for the business.

3. There are other premises outside school centre that we use.

4. LtC is a good learning environment for the children

5. Outdoor environments serve as a learning environment at our LtC.

6. In our LtC there are educational materials that are not available at the school

7. ITC is a key part of our learning environment.

8. The children can influence the learning environments.

9. The parents can influence the learning environments.

10. When we designed the learning environment, we have actively been using a gender approach.

11. The learning environment is actively used to teach children the camaraderie and good relationships and social skills.

12. The learning environment is actively used to teach children equality.

13. The learning environment is actively used for teaching children social skills.

14. The learning environment is actively used to teach children the care and responsibility.

10. *Have special "rooms" been created ex. Studios and reading room, at your leisure?* (Open ended question)

11. *Are there adapted rooms for both older (10–12 years) and younger children (6–9 years)?* (Open ended question)

18. Are there special environments for "free play"? (Open ended question)

"It's a puzzle!" Elementary School-Aged Youth Concept-Mapping the Intersections of Community Narratives[1]

Jesica Siham Fernández[2], Angela Nguyen, and Regina Day Langhout

Abstract: We present a concept-mapping activity, developed within a youth Participatory Action Research (yPAR) after-school program, to demonstrate how the activity contributed to young people's conceptualization of social structures as interconnected. We analyze fieldnotes from the Change 4 Good yPAR program, which includes primarily Latina/o 4th and 5th grade students attending a California public elementary school. We discuss the concept-mapping activity in terms of its processes and outcomes, and how youth constructed interconnected meanings from thematic community narratives.

Keywords: yPAR; curriculum; children; structural thinking

1   Introduction

Youth Participatory Action Research (yPAR) provides young people with empowering opportunities because it is a research paradigm and method of critical inquiry that engages their lives and experiences (Cammarota/ Fine 2008). Empowerment, within this paradigm, is defined as having control over material and psychological resources, as well as decision-making that affect one's life (Rappaport, 1995). Although beneficial to young people (Gaventa/Cornwall, 2001), yPAR is often relegated to out-of-school time because of the explicit political focus (Cammarota, personal communication, 5/17/13). In yPAR, young people often collect and analyze data from their community to help them determine an action designed to bring about socially just change. As a methodology and epistemology that is becoming more prevalent in psychology, education, and public health across the globe, yPAR can provide enriching learning experiences for young people. Indeed, yPAR is growing

in popularity, yet there is little research on pedagogical methods that assist with yPAR processes and subsequent critical literacy development.

The dearth of pedagogical methods for use with yPAR prompted Venezuelan social-community psychologist Martiza Montero (2009) to encourage researchers to develop methods that engage cultural narratives in the service of social transformation. Hence, we present a "concept-mapping" pedagogical activity that facilitates young people's conceptualization of social structures. In doing so, we address the following research question: How does concept-mapping contribute to young people's understanding of structural and intersectional connections among thematic community narratives? To examine this question, we analyze fieldnotes from Change 4 Good, a yPAR after-school program in California (U.S.) that serves a group of fourth and fifth grade students who are predominantly Latina/o.

In the sections that follow, we provide the theoretical foundation for our work. We discuss yPAR and its theoretical links to problematization. Next, we discuss the current study and how concept-mapping enabled young people to discern social problems and their interconnections across different themes that emerged from their experiences and community narratives. Finally, we conclude with implications.

2   YPAR as an Epistemology

yPAR can facilitate the process of uncovering "truths" that are founded on the experiences of "the Other" or subordinated groups (Cammarota/Fine 2008). The core process is identification of a social problem, as well as the structural or social conditions that allow for the social problem to exist. Through this process, yPAR allows for the problematizing of hegemony that shapes people's actions and views of the world, as well as their capacity to transform it (Fals Borda 1980).

One approach to critically assessing the conditions and existence of social problems, and therefore challenging the normalized explanations that reify them, is problematization (Freire 1970/1988). Through problematizing, people situate their "social condition" – or problems – within a structural analysis of the circumstances that led to the normalizing of the problem. The problematizing process often begins with a "trigger" that elicits both a cognitive and emotional response (Montero 2009). This reaction leads one to question or participate in critical dialogue with others, in a form of critical engagement, such as sharing narratives (e.g., stories, feelings, beliefs). These narratives become symbolic representations that can lead to further dialogue or problematizing questions that challenge naturalized explanations.

Considering yPAR, few pedagogical methods to facilitate problematization have been empirically examined. One approach that has been, however, is a systematic problem-posing activity called the *5 Whys* (Kohfeldt/Langhout 2012). In an illustration of this method, fourth and fifth grade students in an after-school program identified the root causes to a social problem. Through iteratively asking questions, students moved from a deficit-based explanation of a social problem (e.g., toilets are not flushed because students are lazy) to a structural problem definition of a broader

social issue in their school (e.g., students do not feel in control of school property because they do not have a lot of freedom at school).

Once problem definition is set in yPAR, youth collect data to assess the problem and analyze it. One of the few pedagogical tools that has been empirically examined for helping youth analyze qualitative data is the Youth ReACT (Research Actualizing Critical Thought) method (Foster-Fishman/Law/Lichty/Aoun 2010). In a demonstrative study, sixth and seventh graders engaged in a series of systematic activities during out-of-school time. Activities included a candy sort and message scavenger hunt to help young people learn how to analyze qualitative data. In the candy sort, youth worked in small groups and were given different types of candy. They were told they owned a shop and to sort the candy into a fixed number of piles to help customers find their choices. After a specified time, all groups explained their sorting process. Each group was then told that they lost shelf space and needed to re-sort their candy into fewer groups. They again explained their sorting rationale. These activities taught students about category and thematic construction. Afterward, they grouped narrative data (or music lyrics, newspaper articles, etc.) in a message scavenger hunt, where they identified key messages and then sorted these messages (like they did with the candy). Through these activities, young people were able to analyze their data and present a story about their community through an analysis of systematically identified social problems (Foster-Fishman et al. 2010).

These activities empirically assess pedagogical methods that facilitate young people's development of a structural analysis of social problems, but these yPAR examinations have not highlighted the interconnections among social problems or conditions. Unfortunately, few pedagogical methods exist that explicitly help young people explore how a particular social issue intersects with others. Yet, these intersections are essential if children are to develop an understanding or a shared narrative of how social issues connect to one another, as well as underlying structural conditions (Cole/Bruner 1971; Martín-Baró 1994; Montero 2009). Indeed, if social problems are to be remedied, a structural analysis of interconnecting conditions must be explored in order to shift the theory of change (Dussel 2007; Ryan 1972). This is, essentially, the process of problematization and de-ideologization (Dussel 2007; Martín-Baró 1994), or deconstructing the world by deconstructing the word (Cronmiller 2007; Freire 1970/1988; Freire/Macedo 1987; Hull 1993; Hull/Schultz 2001). Through this structural analysis, different possibilities arise for righting the world (Martín-Baró 1994).

As yPAR researchers, we begin to address this gap in the empirical literature by assessing a concept-mapping pedagogical method. In developing this activity, we drew from Montero (2009), who emphasized the democratization of knowledge by situating the practice of critical thinking within historical, political, cultural and social contexts. Our study seeks to contribute to the field of yPAR by expanding the approaches available to help scaffold young people's understanding of interconnected social structures. This is an important endeavor because understanding how social structures are interconnected helps people, in their telling of narratives, connect to their lived experiences. Having control over emerging community narratives is an important psychological resource and therefore a form of empowerment (Rappaport, 1995).

3   Current Study

This study assesses the use of concept-mapping as a pedagogical method for elementary school-aged youth within a yPAR after-school setting. We examine the ways in which a concept-mapping activity can serve to further facilitate interconnections of structural conditions during the young people's data analysis phase of the PAR cycle. Although some other methods and activities for organizing data with youth have been proposed, such as the ReACT activities (e.g. candy sorting and message scavenger hunt), these could be complemented by activities that further facilitate structural examinations, such as concept-mapping. Concept-mapping scaffolds youth's ability to examine relations between thematic community narratives through a structural intersectional process that involves making theme connections that focus on problem definition, social structures, and solutions.

4   Method

4.1   Setting

Maplewood Elementary School[3] serves as the setting for this study. The school provides pre-kindergarten through fifth grade education to approximately 400 California students, 84% of whom are considered socioeconomically disadvantaged. Regarding ethnicity, approximately 75% of the students are Latina/o, 13% are white, 3% are African American, 2% belong to a different ethnic or mixed-ethnic group, and 7% did not report an ethnicity. Approximately 64% of the students are designated English learners (California Department of Education 2013).

  After-school Program. The Change 4 Good yPAR program is a weekly seventy-minute after-school program coordinated by the Community Psychology Research & Action Team (CPRAT), which is affiliated with a nearby public university, and it is part of a broader network called University-Community Links. The goal of the program is to teach youth how to conduct action research and, through that process, create an empowering setting that facilitates critical literacy and provides the youth with the skills and resources necessary for addressing issues they find important within their school and community.

  At the time of this study, Change 4 Good consisted of 22 fourth and fifth grade youth/participants (ages 9–11) from Maplewood Elementary School. Twelve were female and 10 were male; 16 were Latina/o, 3 were White, and 3 were of mixed ethnicity (African American and Latino, African American and White, and Cuban and Filipino). The program was supervised by one faculty advisor and coordinated by two graduate students and nine undergraduate research assistants (RAs). Our research team was primarily female (75%) and Latina/o (42%), but also White (33%), Asian American (17%), and Armenian American (8%). The school-collaborator – a

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3   All proper names have been changed.

white female literacy specialist – also attended most sessions and participated in the planning of weekly lessons by providing feedback, offering developmentally-appropriate teaching strategies, and acting as a school liaison.

4.2   Project Overview

To contextualize the concept-mapping activity, we first provide an overview of the program and project. Change 4 Good follows a yPAR model, which consists of four phases: 1) problem definition, 2) data collection and analysis, 3) action, and 4) evaluation. Each year's curriculum changes according to the phase of the program and the particular research interests of the youth. We made the strategic decision to build each year's curriculum by continuing and elaborating on activities from the previous year. Our curricular choices are informed by research indicating that this type of building is more likely to lead to traction, action, and change (Ozer et al. 2013).

At the time of this study, the youth were in the second phase of their yPAR process. This means that the youth had identified an issue they wanted to address, which was that a previous school-based mural they had created did not represent the stories and experiences of the broader school and community. As a result, they decided to create a second mural that would incorporate a more diverse representation of school/community experiences and stories in order for more people to feel more connected to the school. The youth decided on a method of data collection (focus groups) and endeavoured in the second phase – data collection and analysis - of their process. We focus on this phase because it serves as the foundation for the themes the youth engaged with during the concept-mapping activity.

Focus Group Data Collection. Between summer 2011 and winter 2012, the youth collected data to help them discern themes and images to represent in their school mural. Consistent with a yPAR process, a previous cohort of youth in the program had decided on a focus group prompt that they would use to gather community narratives: "Tell me a story about a time when you had the power or didn't have the power to make a change in your community." Upon deciding the prompt, the youth conducted a total of eight focus groups with teachers, school staff, parents and community members, including school peers and other youth. All focus groups were youth-led and facilitated.

Focus Group Data Analysis. In order to analyze their data, the youth engaged in a clustering and coding process, which included a variation of the ReACT candy sort and messaging activities (Foster-Fishman et al. 2010). The youth first did the candy sort to learn about category and thematic construction before engaging in a line-by-line coding process that consisted of going through notes of each story told during the focus groups and circling words or phrases that they thought were significant. They then compiled, sorted, and narrowed down a list of words that represented the stories gathered from the focus groups. This then served as their themes. Throughout this process, the youth engaged in several continuous iterations of data collection and coding, as well as discussions about what each theme meant in relation to the community narratives (stories) derived from their focus groups. The final outcome of this inductive coding process resulted in twelve themes (i.e. *diversity, safety, resources,*

history, opportunities, powerlessness, struggle, education, school, community, love, and *communication*), each with its own narrative-based description (e.g. Safety *can be possible by having more knowledge about gangs and how members of gangs can recruit youth, and how violence and crime can lead to unsafe communities*) (Appendix A).

Once all data were collected and analyzed, and themes and theme descriptions discerned, the youth were introduced to a concept-mapping activity to explore the interconnections across and within themes. This activity is the primary focus of our analysis.

4.3   Concept-Mapping Analysis

In addition to facilitating program activities and directly engaging with the youth, all CPRAT members wrote ethnographic fieldnotes as participant observers (Emerson/Fretz/Shaw 1995). The fieldnotes were written shortly after each session and consisted of descriptive accounts of the day's activities and discussions during the after-school program.

Data analysis for the concept-mapping activity was conducted via consensus coding by the three authors of this paper, all of whom have insider knowledge of the after-school program. In order to assess our research question – how does concept-mapping contribute to young people's understanding of structural and intersectional connections among thematic community narratives – we analyzed the fieldnotes for the day on which the youth did the concept-mapping activity. Specifically, we coded for instances during the activity in which the youth engaged in particular theme assessment processes (i.e., making connections to themes based on narratives from focus group data, narratives about personal experiences of individual youth, or narratives about the community not derived from focus group data); meta-narrative construction (i.e., making connections between multiple themes); and different levels of analyses (i.e., assessments of social problems as structural or individual).[4] Multiple codes could be assigned to each instance of theme engagement, and disagreements in coding were settled through discussion until all three coders reached agreement.

In the following results section, we discuss the concept-mapping activity in more detail, both in terms of process and outcomes.

5   Results and Discussion

The concept-mapping activity was used to facilitate the youth's process of organizing their experiences, the stories (focus group data) they collected and analyzed, and the themes they discerned from their data. By allowing connections to be built between themes, rather than merely clustered and merged into standalone meta-themes,

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4   Codebook available upon request.

concept-mapping allows for narratives regarding the interrelatedness of social issues to be retained, and thereby also sets the stage for a more nuanced structural analysis to develop.

The concept-mapping activity we discuss utilized the youth's familiarity with the previous sorting and coding activities. First, pieces of paper with each individual theme and its narrative-based description were taped onto candy bars and laid out on a table in front of the youth (see Figure 1 and the end of this article). Research team members then asked the youth to arrange the themes based on the ways they related to one another, and to explain the connections to the group (see Appendix A). The youth took turns reading each theme and its description out loud and engaged in dialogical conversations with one another, describing why and how each theme was interconnected to others (see Figure 2). To demonstrate this process, we provide the following fieldnote of the youth's initial engagement with the themes:

Bruno (5th grade student) said he wanted to explain the connection. He chose Safety, Love and Communication. He asked, "How do I start?" Jesica (graduate student) asked, "Why do safety and love connect?" Bruno said, "Love is connected to Safety… Communication is connected to both because Safety can lead to … we need each other to exist." Bruno sounded a little frustrated and said, "It's hard." Jesica said he could explain it in Spanish. Angel (5th grade student) said that he could help him, and Bruno nodded his head. Angel said, "Look Bruno!" as he put Safety and Communication next to each other, and then Love on top of them. Santiago (4th grade student) said, "It's a puzzle!" (Fieldnote 5/31/2012)

The fieldnote shows how Bruno attempts to articulate a connection between the themes *love*, *safety* and *communication*. In the course of his explanation he becomes frustrated because he realizes that the connections he is trying to make are much broader in that they involve more than one connection between two themes. In his closing remark, he states that "we need each other to exist," thereby making reference to relational aspects of community building, based on safety and communication. In his attempt to help, Angel suggests that *love* is the glue that sustains a collective community based on *communication*, or transparency, and *safety*, as accountability to one another.

Problem definition. During the activity, the students initially organized themes related to problem definition. Themes were therefore organized to conceptualize a problem or condition through structural analyses of the interconnections within certain themes. For example, the following fieldnote demonstrates how two students connected several themes to illustrate a structural problem, inequality:

Bruno struggled to read, "Opportunities that are just and fair, and do not perpetuate the racism, ageism, sexism, heterosexism, and classism." [...] Angel then explained that the themes "diversity" and "opportunities" could go together due to the need for equality. Angel then read, "Powerlessness can lead to helplessness and sadness, as well as poverty and hunger." He added that this theme [powerlessness] could also connect with "opportunities" and "diversity" because some groups may not get some opportunities. (Fieldnote 5/31/2012)

In this example, the students' analysis of the root problem is not individual effort, but social inequities, and the unequal distribution of resources and opportunities in a community. According to Angel, *diversity* and *opportunities* are connected because different social groups struggle for equality. In connecting these themes, Angel explicitly recognized that people experience opportunities differently across dimensions of race, class, gender, sexuality, age and ableness. This is consistent with

literature suggesting that children from a very early age are aware of social catego-
ries, such as race, gender and class, and that these social categories have different
implications for how people are treated and their life experiences (Chafel 2008).
Furthermore, in saying that "*diversity* and *opportunities* could go together due to the
need for equality," Angel made the structural association that equality is related to
access to opportunities. Angel implied that diversity should not be an impediment
to accessing opportunities, and, therefore, equality. Regardless of diversity, equal
opportunities should be afforded to all. These connections are structural as well as
intersectional because the young people linked the themes, as well as the broader
context in which the themes unfolded.

Similarly, in another example, Bruno made structural connections to power and
powerlessness as he attempted to operationalize "powerlessness."

Bruno pondered the categorization of "powerlessness", as well. He spoke in Spanish, "Communication,
love, and safety are about having power. But powerlessness is about not having power." Angel thought
about it intensely. He put his hands on his head and squinted his eyes, as he became deep in thought.
Eventually, the students decided that it would be best to categorize "powerlessness" and "struggle"
because people without power tend to struggle more. (Fieldnote 5/31/2012)

Bruno's structural understanding of powerlessness as not having power is connected
to the experiences of people who struggle to be heard, be loved, and feel safe. In this
way, Bruno suggested that people without power – those who are silenced, oppressed
and disenfranchised – tend to struggle more, perhaps because social structures are
not set up to support communication, love and safety for some communities. In a
follow up discussion, however, Joey (4th grader) states, "the two themes [*power-
lessness* and *struggle*] can also relate to *opportunities* which can help avoid *struggle*
and *powerlessness*." It was finally determined that *powerlessness* and *struggle* are
interconnected with *opportunities* and *diversity*, which were together in another pile.
These connections are consistent with bell hook's and Frerie's writings on love as
the foundation for social change and action, of working against domination, and
therefore oppression, through a practice of love, or an "ethic of love," that is encom-
passing of listening to one another empathically, recognizing the humanity of all, and
living in community (Freire 1970/1988; hooks 1994).

   Taken together, these examples demonstrate that problems, such as structural
inequality and powerlessness, are rooted within social structures, and not individuals
and their merit. In seeing *opportunities* and *diversity* connected, yet also intercon-
necting these themes with *powerlessness* and people's *struggle*, the young people
co-constructed a narrative around power as something that must be taken, which is
consistent with theories of power (Freire 1970/1988). Hence, their problem defini-
tion consisted of viewing powerlessness as socially and structurally interconnected
with other themes, which are rooted in their experiences and derived from commu-
nity narratives they had gathered through focus groups. Indeed, this dual process of
critically interpreting and giving meaning to the social world and what can be done
to transform it, is central to a critical thinking process that strives toward a more just
society (Morrell 2002).

   Social structures. With concept-mapping, themes are linked and connected with-
out necessarily being consolidated into a meta-theme. This allows each theme to

stand on its own in representing an important issue while also challenging youth to think more broadly and structurally about the interconnectedness of social problems. For example, in the following fieldnote, Santiago is attempting to make a connection between *school* and *education*:

Santiago continued his point by saying, "School goes with Education because, it's the same--and Community, wait! Resources and School [go together] because Education and school resources come together because people support..." It seemed like Santiago was having a tough time connecting the themes so he was thinking out loud about the connections. Jesica (graduate student) encouraged him to keep going until he got it. He continued by saying, "If people get education and knowledge, they can get a job and work. History is pretty much like before. We read about history in education." (Fieldnote 5/31/2012)

Santiago initially views *education* and *school* in relation to *community*. Yet in the course of his explanation, Santiago identifies school *resources* as central to the sustenance of *education*. He explains that school resources are made possible through people's support of *education*, which pulls from the community narratives the youth gathered that focused on acquiring more resources for the school, as well as instances where people came together in the community to organize resources for themselves. Santiago concludes that education affords people several experiences that enable them to pursue a career or employment, thereby viewing *resources*, *education*, *school* and *community* as interconnected, and mutually reinforcing. Angel then assists Santiago by listing *history*, *education* and *school* together with *resources* and *community* in a different pile.

In another example Angel makes similar structural connections by linking *diversity* and *struggle*. The following fieldnote demonstrates his process:

The next pile was Powerlessness and Struggle. Angel said, "trying to fight for peace in the world... or maybe, let's see another." Angel continued, "Diversity and Struggle come together because people struggle to be treated equally." (Fieldnote 5/31/2012)

Angel associates *diversity* and *struggle* with structural barriers toward equality. Diversity, characterized by differences in race, class, gender, sex, age, ableness and other social statuses, as well as differences in worldviews, is situated in relation to people struggling or fighting for rights. This structural connection is reinforced by other research demonstrating children's understanding of rights as privileges that are unequally distributed, and therefore people must engage in movements to demand rights (Solis, 2003).

Solutions. Amidst the process of unraveling structural problem definitions with themes as the basic unit of analysis, the students were better equipped to offer solutions that were more structural in addressing the causes of social issues. For example, in the following fieldnote, one student engaged with the theme of *love*, and offered it as a means for increasing *safety*:

Angel read, "Love can give others hope that there can be peace in the world." Angel decided that the themes Safety and Love should be placed together because Love and peace can lead to Safety. (Fieldnote 5/31/2012)

Although the narrative-based description for *love* does not explicitly mention *safety*, Angel made a connection between the two themes. To be specific, Angel framed *love* as a pathway to *safety* – *love* is conceptualized as a method for enacting liberation or

peace (Sandoval 2000; Freire 1970/2000), which creates *safety*. In this vein, *safety* is conceptualized to mean community wellness, as well as transformative healing that is founded upon an ethic of love that encompasses caring for one another (hooks 1994).

Angel later adds that "peace and *safety* lead to a *community*" (Fieldnote 5/31/2012) while arranging the pieces for *safety* and *community* on the table. Although *safety* was already connected with *love* and *communication,* it was not limited from analysis with other themes. *Safety*, therefore, could be connected without necessarily being merged with *community*. Through this process, we could see that the concept-mapping activity allows space for the youth to build an intricate relational map with the community narratives they had collected – space that was not afforded by the previous clustering and coding activities. Furthermore, youth were able to examine the ways in which the themes and community-related social issues were structurally interconnected, whilst offering solutions that addressed these issues on a structural level in the process:

Angel read another: "Community is the joining and coming together of people to help families and schools to learn about one another, especially to learn about the different cultures that make up the community." Angel seemed to be very invested in this activity. He also related Community to Resources because if people in a community work together there would be more resources to obtain. (Fieldnote 5/31/2012)

Angel connected *community* – specifically, collective action – to the gaining of material resources. By conceptualizing social action as *community*, Angel offered it as a solution to addressing the structural lack of access to resources. Collective social action, in this view, relates to changing the boundaries of political participation, or freedom, to bring about social structural change (Ginwright/James 2002).

The concept-mapping activity explicitly asked youth to make structural connections between and within themes. In doing so, the youth were able to think about the interconnectedness of social issues, and therefore discern structural problem definitions and identify structural solutions. In examining their concept map, this more structural analysis becomes clear. First, connections are not unidirectional. Second, all themes except *powerlessness* now have multiple connections. In this mapping, *struggle* is not only related to *powerlessness*, but also *opportunities*, and indirectly to *history* (see Figure 3). These connections make visible other ways to right the world that are more structural, yet also built upon community narratives.

6   Conclusions and Implications

Our motivation for this research stems from our desire to contribute to the developing field of yPAR with children of elementary school-age, a group often overlooked by yPAR researchers and practitioners. We offer an activity that can support empowering opportunities for them to engage in research and intervention, while facilitating their critical and structural analyses development.

Although we recognize that not all activities or practices within the Change 4 Good program can apply to all contexts and settings, this example can serve as a

case study for those engaging in similar work with other young people. We think this activity is especially relevant for groups positioned to have narratives written *about them* instead of *by them*. These groups include (but are not limited to) subordinated groups such as the working class, people of color, indigenous people, and im/migrants, in the United States and internationally.

The concept-mapping activity is especially relevant to these groups because it provides ideas for actions that address structural barriers. In our case, the concept-mapping activity helped young people develop visual symbols and images that depicted interconnected community stories, which were then represented in their school-based mural. The concept-mapping activity is a tool that engages young people in making connections between structural issues; however, more pedagogical tools and practices that facilitate this process into the action and evaluations stages of the yPAR process are needed. More research must be conducted to develop structured activities that facilitate young people's skills toward implementing actions and evaluating their research outcomes. The concept-mapping activity we have introduced is a contribution to this nascent movement on conducting yPAR with children in ways that facilitate and legitimize their participation.

The concept-mapping activity builds on the ReACT activities to assist youth in organizing qualitative data (Foster-Fishman et al. 2010). To further complement the ReACT activities, concept-mapping allows youth to do more than cluster data - it allows them to determine links between (multiple) thematic clusters and to maintain these links within an interwoven network of connected themes that facilitate critical thinking and discussion of larger structural narratives. For example, although line-by-line coding of focus group data helps youth cluster messages about violence and gangs together to form an overarching theme about *safety*, concept-mapping allows youth to link the theme of *safety* with other related themes such as *love* and *community*, which themselves may be linked to other themes such as *diversity*. Instead of being incorporated into a larger cluster, each theme stands on its own while sharing multiple links to other themes – thus forming a relational map that further challenges youth to think about the structural complexities within social issues, instead of viewing issues as isolated stories. This process allows for direct structural analyses that builds on youth's data and can further aid in the fostering of critical consciousness and actions that transform the world.

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Figure 1. Concept-Mapping Activity
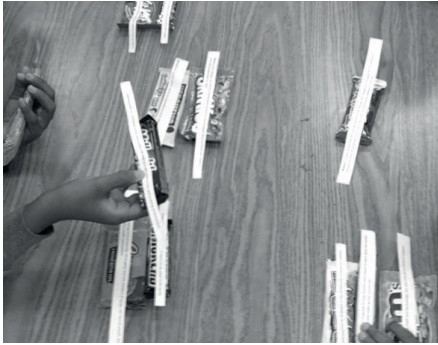
Pieces of paper with themes and narrative-based descriptions were taped onto candy bars and laid out on a table in front of the youth.

Figure 2. Concept-Mapping Activity

The youth took turns reading each theme and its description out loud and engaged in dialogical conversations with one another, describing why and how each theme was interconnected to others

Figure 3. Concept Map
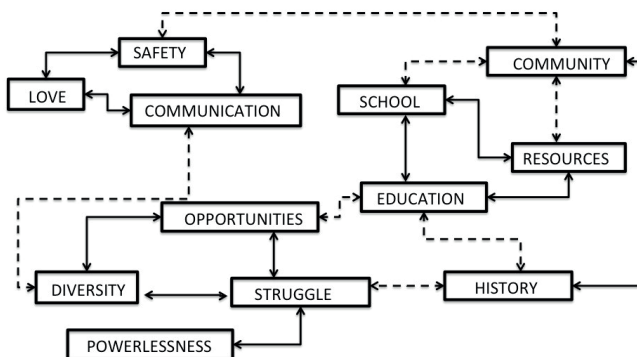
Solid lines represent direct connections, whereas dashed lines are intersectional connections.

Appendix A Concept-Map Activity

A Concept-Map allows one to see visually how different terms or concepts can be connected to each other. It is similar to a "brainstorm" or a "mind map" that generates and produces different ideas. For example, think of the word "community." Next, think of how "community" is related to other words or how it connects with other themes from the list below. Then, once you have discussed in your groups how "community" can be tied to other words or themes, cluster it. Use the template below to help you guide your thinking.

Themes:

1. *Diversity* of culture, language, race, ethnicity and generations deserve to be acknowledged, because these can create a sense of pride and appreciation for others.

2. *Safety* can be possible by having more knowledge about gangs and how members of gangs can recruit youth, and how violence and crime can lead to unsafe communities.

3. *Resources* such as money, more jobs, and programs for all people in the community involved are needed.

4. *Education* is what we learn in our classrooms about science, math and technology, but also how we as students support and help each other learn.

5. *History* is a way of learning and sharing experiences from the past with the present, and bringing the two together to present a story of what was once a farm town, and is now the growing community of Maplewood.

6. *Love* can give others hope that there can be peace in the world.

7. *Opportunities* that are just and fair, and do not perpetuate the racism, ageism, sexism, heterosexism, and classism.

8. *Powerlessness* can lead to helplessness and sadness, as well as poverty and hunger.

9. *Community* is the joining and coming together of people to help families and schools to learn about one another, especially to learn about the different cultures that make up the community.

10. *Struggle* is the fighting for human rights, to be treated equally and have the same opportunities as others.

11. *Communication* with different members of the community can lead to a safe place to live, and a caring environment.

12. *Schools* are lacking resources, some of which include Spanish-English bilingual teachers, nutritious, health and quality lunch food, and more education programs for youth.
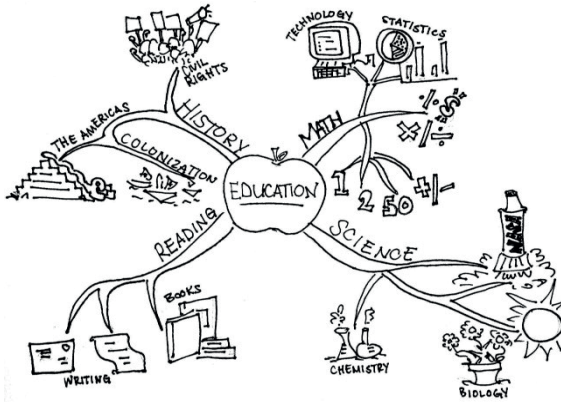
Researching Extended Schooling Ethnographically – With Danish All-Day Schools as Examples

Lars Holm

Abstract: The aim of this article is to discuss and demonstrate how ethnographic-oriented research might contribute to broadening the research interest in extended education. Extended education might be seen as a societal investment in education. This perspective calls for different kinds of school effectiveness research that generates useful and relevant knowledge about how and to what degree extended schooling effects academic achievements seen from a general societal perspective. Extended education might, however, also be seen as a new school strategy – as a new way of organizing pupils, teachers and parents everyday-life. Ethnographic-oriented educational research seeks to examine how an implementation of extended education in a local area impacts actors' everyday-life and generates new discourses and struggles over values and concepts in education. This is illustrated through an analysis of the dynamics created by the implementation of all-day schooling in a specific residential area in Denmark.

Keywords: all-day schools, ethnographic-oriented research, Denmark, cooperation between school and parents, cooperation between school-teachers and kindergarten-teachers.

1   Introduction

In the last decades educational policy in many European countries seems to have been highly influenced by two parallel processes. The first is the concept "the knowledge-society" that indicates a post-industrial époque in which production and distribution of knowledge is thought to be central for maintaining and/or increasing the gross domestic product. The second is the growing political attention to supranational educational agencies and organizations (e.g. PISA, TIMMS, EU, OECD) measurements, strategies and concepts. Together these two processes have created a situation in and around education in many European countries in which a pursuit of improved academic achievements in international comparisons, such as PISA, and in various nationwide measurements has become central. The general strategy in many countries has been an extension or supplementation of traditional educational institutions and their forms of instruction[1].

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1   For an overview of these processes see: International Journal for Research on Extended Education, Vol. 1, 2013.

The all-day schools in Denmark and, for example, Germany share the same background. In both countries international PISA-measurement showed unsatisfying national results in the public schools, and in both countries one of the political initiatives taken to improve schooling was to develop all-day schools. Another similarity in both countries is the multiple objectives beyond improved academic achievement such as improved societal integration and increased cooperation between school and parents (Holm, 2008). However, being embedded in different national educational traditions and political landscapes also creates substantial differences in how all-day schools are conceptualized, implemented and interpreted by key actors. The all-day schools in Denmark are compulsory, and the distinction seen for example in Germany between compulsory and open forms of all-day schooling ("gebundene und offene Ganztagsschulen") has never been an issue on the Danish political agenda. Another substantial difference is the strong tradition in Denmark for school leisure-time centers ("Skolefritidsordninger/SFO"), which has been highly affected by the establishment of all-day schooling

Implementation of all-day schools and other forms of extended schooling results in different processes depending on the historical and political contexts and circumstances in which extended schooling is introduced. Drawing on a concept from discourse analysis (Laclau & Mouffe 2002) the term "all-day schools" might be characterized as an "empty" or "floating signifier" that functions as a symbolic common denominator for a wide variety of projects. This makes it relevant to examine all-day schools as a complex societal enterprise that is locally situated and given its form and content by different groups of actors' behaviors and attitudes towards school, learning, socialization and society. Theoretically speaking, this research approach is inspired by policy-ethnography (Shore & Wright, 1997; Levinson & Sutton, 2001). The use of this theoretical lens means the policy is understood as something that is simultaneously negotiated in different social arenas, and something that is actively acquired by the various actors who might support or reject a project like the all-day school. This approach represents a shift away from an understanding of education policy as a linear, top-down process and from the implicit idea that the implementation of concrete policy initiatives is a more or less passive transfer to a given target group. Policy ethnography is a form of extended, "multisited ethnography" (Marcus 1995) that combines ethnographic interview and observational material, background history and current and historical policy analysis. These multiple categories of data make it possible to shift the analytic focus between analysis at the micro-level (personal experiences and interactions), the meso-level (organizational and institutional factors) and macro-level (government structures and political-economic forces). (Gustafsson, 2003; Acosta &Volk, 2001). In this article the focus is on some of the processes and dynamics on the micro- and meso-level that emerged as central issues when the all-day schools were implemented in a housing area in Denmark.

This article is based on the results of a three-year research project in a residential area named "Vollsmose" of the municipality of Odense in Denmark. The general aim of the research project was to examine how this "first wave" of extended schooling was constructed and understood by key group actors, and how these groups of actors behaved in response to the extended schooling. In the following, I focus on two different processes around the implementation of the extended schooling – which was

termed "all-day schools" in the Danish context. The first is the process around the integration of the leisure-time teachers in the school, and the other is parents' understanding of the all-day schools. The central question to be examined and analyzed in relation to the first process is the dynamics when two different professional understandings of children, pedagogy and schooling are expected to merge in a common project: the all-day school[2]. In relation to the second process the focus is on how parents and school interpret and react to the establishment of all-day schooling in a specific local area. When the all-day schools were implemented in the three schools in the area a number of different local issues emerged in the three schools. Discussions about how the extended time should be used, about the general organization of the extended school day, about the distribution of lessons and playtime, and about the time for lunch breaks and other breaks took on different shapes from school to school (Holm & Valentin, 2007). However, two issues emerged as more general in all three schools, and became central in the national discourse about all-day schools at that time. The integration of the leisure-time teachers in the all-day schools caused a more general and national discussion about the role of teachers and school leisure-time teachers in school and about the relation in schools between "learning" and "play" (Holm, 2010). The parents' reaction to the all-day-school in Vollsmose was a loud protest that was covered by national media and gave reason to more general discussion for and against all-day schools in general and brought parents into focus as central actors in relation to implementation of all-day schools (Holm & Valentin, 2007).

2   The First Wave of Extended Schooling in Denmark

The first all-day schools in Denmark were established in 2006 in four municipalities in Denmark in areas with a high concentration of ethnic-minority students (Holm & Valentin, 2007)[3] – so-called "disadvantaged residential areas" or "ghetto areas". These housing areas are, according to the criteria of the Ministry of Welfare, defined as areas where at least 40% of the residents receive benefits, and at least 40% are migrants and descendants from non-Western countries (Socialministeriet, 2006).

Vollsmose is an area of northeastern Odense that has approximately 10.000 residents. The three district schools in the local area have around 1200 students in total, of which 90% are ethnic minorities. When the all-day school started in 2006 more than 500 students and 80-90 school teachers and leisure-time teachers were involved. The three all-day schools in Vollsmose in the municipality of Odense were established with an eight-lesson[4] school day by means of an application for dispensation from the Danish *Law on primary and lower-secondary schools* § 16 part 3, which states that the longest teaching period for early-schooling students must not exceed

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2   As a consequence of the all-day schools leisure-time centers were closed or reduced substantially.

3   In Denmark the term "all-day school" is also used to describe schools for children with behavioral problems or special psychological conditions.

4   The term lesson describes in a Danish context a specific time unit that consists of 45 minutes' teaching and 15 minutes' playtime.

six lessons in a school day. A central theme in the applications from the schools to the Ministry for Children and Education is that the all-day school is justified and needed due to the special conditions that apply to the students in these specific areas. In the applications from the three schools that applied to become all-day schools the students in the residential area are characterized as children who are not "linguistically, socially and behaviorally at the age-appropriate level", and as children in need of better school results (Holm & Valentin, 2007). Thus, the arguments for all-day schools are related to general deficiencies and a lack of academic success among a particular group of students living in a particular residential area.

3   The Empirical Data

The empirical basis for the examination and analysis of the cooperation between school-teachers and leisure-time teachers is three months of fieldwork a year over a period of three years. The fieldwork took place at all three schools in three selected focus classes from 0. to 2. grade. This diachronic perspective made it possible to identify and analyze changes in practices and attitudes in the all-day schooling project. More specifically, the fieldwork has consisted of classroom observation, informal conversations with school-teachers and leisure-time teachers and participation in teacher meetings at the school. With regard to the cooperation between school and home the empirical basis for the analysis are informal conversations with parents, observations during meeting at schools and parent-teachers meetings. However, during the research process it became clear that the specific language situation in Vollsmose made it difficult to create a situation in which a somewhat equally matched and open dialogue was possible. It would lead to obvious problems in terms of a representative sample if the interviews were conducted only with parents who could and would speak Danish. In order to overcome this substantial methodological issue – which relates both to being an "outsider" (Goffman, 1959) and to not speaking the parents preferred language, I involved an "insider" to conduct semi-structured research interviews with Arabic-speaking parents of children in the three focus classes. My research assistant was multilingual, speaking both Danish and Arabic, lived in Vollsmose and had been a student at one of the all-day schools.

4   The Cooperation Between School Teachers and
        School Leisure-Time Teachers

Until 2014 the weekly number of lessons from grade 0 to grade 3 in the Danish primary school has typically been between 20–25 lessons. The school was thus basically a "half-day school" for the younger pupils. But more than 80% of the younger children also attend school leisure-time centers in the afternoon (Thorsen & Danø, 2006). The school leisure-time centers are organizationally a part of the school with

their own facilities and their own staff. In most cases the leisure-time centers are situated in a separate building but on the same premises as the school. In contrast to the school, the school leisure-time centers are not free of charge. Parents pay a fee for each of their children attending the school leisure-time center.

In Denmark the school teachers and the school leisure time teachers are educated into two different types of pedagogy. In the educational practice and in the academic and professional discourse in Denmark there is a sharp distinction between school-pedagogy and leisure-time pedagogy (Broström, 2010; Højholdt, 2009). The pedagogy of teacher training is basically a didactical tradition with a focus on school subjects and curriculum. Teaching is seen as a process in which the teacher orchestrates a situation that makes it possible for the child to acquire knowledge, skills and competences. The pedagogy of leisure-time is based in developmental psychology and represents a tradition in which a child's development is understood as something that advances through play and other forms of practical activities and in interaction with other children and adults. The main objective for the leisure-time teacher is upbringing and caregiving, and upbringing is seen as a social-pedagogical organization of social interaction, in which the child, through its own activities, acquires norms, attitudes and behaviors. These different theoretical understandings, described here in very generalized terms, represent two different understandings of children and childhood with great impact for the practices and expectations in the two institutions. In the school discipline is expected and required and the child is regarded as a pupil who has to learn. In contrast to this, the school leisure time centers are characterized by an ideal or ethos of freedom in which the child is regarded as a child or as a being in its own right.

When the all-day schools were established in Odense in 2006 with 40 lessons a week it reduced the need for the school leisure-time centers dramatically and all or most of the leisure-time teaches were mowed from the school leisure-time center to the school. This meant that school teachers and leisure-time teaches were challenged with developing the all-day school in cooperation. Due to the integration of leisure time teachers in the school and due to more teacher resources given to the all-day school there were typically two teachers in the classes in more than 50% of the lessons, and quite often (but not always) a leisure-time teacher and a school teacher were together in the classroom (Holm, 2010).

The analysis of the cooperation between school teachers and leisure time teachers in the three schools revealed interesting patterns and practices that basically did not relate to the different educational backgrounds of school teachers and leisure-time teachers. Cooperation in teaching can be organized in many different ways. Creese (2005) makes a distinction between a "partnership mode" and a "support mode". A "partnership mode" is characterized by a common planning of the teaching, by both teachers working in cooperation towards the same subject aims and by both teachers having a number of different roles in teaching. In a "support mode" there is a clear distribution of roles. One teacher administrates the class and the subject aims, while the other teacher has a function as support for individual pupils.

The fieldwork revealed that the "support mode" was the dominant way to cooperate no matter who it was that cooperated – be it school teachers, or school teacher and leisure-time teacher, or leisure time teachers. There was clearly a prevailing

consensus in the three all-day schools that cooperation in the classroom meant that one teacher took a special responsibility for one or a few pupils in the classroom – typically the weakest or most difficult pupils in the class. The teacher taking on the role of "support-teacher" could either be a school teacher or a leisure-time teacher, and the teacher responsible for administrating the class could also be a leisure-time teacher or a school-teacher. Thus, the integration of the leisure-time teacher in the all-day school did not result in "a fusion of horizons" (Arkoudis, 2003, p.162) in which new and common aims and practices develop through a mutual interpretation of a common task founded in different epistemological understandings of childhood and schooling. In the first year the three all-day schools appeared to be a quantitative extension of the "half-day" school – "school as usual", but now with more support to the weakest pupils.

This demonstrates that bringing two different professional epistemologies together cannot be expected to automatically result in unification and qualitative change. The leisure-time teachers were newcomers in the school, and the extended school day was divided into lessons that mostly took place in classrooms. This physical organization of the all-day school – and the name of the project – indicated "school as usual" and thus legitimized a predominance of expectations of a school-pedagogy and of schooling. This context made it difficult – not to say impossible – for the leisure time teachers to argue for an understanding of childhood not based in traditional school logics.

However, after the first year of the all-day schools many teachers found that 8 lessons a day was overload for the younger children, and extended schooling consisting only of more lessons was seen as an unsatisfying way of implementing all-day schools. This issue was repeatedly on the agenda at meetings in the schools and discussions about the all-day school seemed to give more space to reflections on leisure-time pedagogy than previously. In the three schools much effort and much creativity were put into attempts to combine play and learning in order to move away from "traditional" teaching. After one year with the basic concept "more school" one of the all-day schools changed the structure to school-like before lunch and leisure-time-center oriented after lunch (Holm, 2010). But the traditional basic logic of schooling in which adults are in charge of organizing social activity for pupils was not and could not be abandoned. From a child's perspective this meant that the previous change in pedagogy in the transition from school to leisure time center – from the "discipline of the school" to the "freedom of the leisure-time center" – did not take place anymore.

What gradually became evident for many school teachers and leisure-center teachers in the all-day school was that a combination of play and learning understood within the theoretical frameworks dominating school pedagogy and leisure time center pedagogy were incommensurable epistemologies. In some cases this understanding of the all-day school project made school-teachers and leisure-time teachers quit their job in the all-day schools and apply for jobs in contexts without all-day schooling.

All in all, the data reveals that the idea of integration of the school-leisure time teachers disturbed and challenged more traditional ways of thinking schools as places for teaching and learning, and the bringing together of different professions with

different theoretical frameworks for understanding children and schools were clearly a potential source of conflict and contradictions.

5   Parents' Reactions and Interpretation of the All-Day Schools

Increased cooperation between schools and parents appears as an explicit aim in the all-day school applications from the three schools. In an ethnographic-oriented perspective this makes it highly relevant to examine how this group of actors reacted to the establishment of the all-day school. Hence, the analytical focus is directed towards the actions of the parents and their interpretation of the all-day schools. Insight into this might both shed light on the processes around the all-day school and on more general positions, norms and values among parents in relation to their children's schooling.

Based on observation from parent-teacher meetings, among other things, the fieldwork revealed that the parents in the area are very engaged in their children's schooling and education, and they place great importance on their children doing well at school. Success at school, not least the mastery of the Danish language, is thought to pave the way to higher education, social progression and success in later life. It is an internationally well-documented phenomenon that ethnic-minority parents are generally very aware and engaged in their children's education (Bouakaz, 2007). In light of this, schooling and education is a central meeting place between ethnic-minority parents and central education-policy actors at the local level.

The following analysis of parental perspectives draws on Freebody and Ludwig (1995) who use an approach in which discursive positions and theoretical understandings that are primary in various actors' perspectives is seen in relation to the school's function. If some actors, for example, consider the school's main task to be to equip students with particular academic competencies, then their discursive position is related to the education system's *skill-development* function. If the school's primary function is thought to be socialization via the regulation of children's time at school and home, then the actors' discursive position is related to the *regulatory* function.

It is a key element in the applications for the all-day schools that the students are defined as being "delayed" compared to the average Danish student at the same age, and therefore it is central for the all-day schools to give students "the opportunity to achieve the same academic level as students at the other schools in the municipality of Odense" as it is expressed in one of the applications (Holm & Valentin, 2007). It is thus the education system's *skill-development* function that is foregrounded. The foremost means to achieving this goal is to expand the teaching hours in early schooling to 40 lessons a week. This indicates a quantitative temporal logic that is based on the assumption that more time at school leads directly to better academic achievement. Furthermore, the all-day schools in Odense are characterized by a departure from the Danish school system's traditional premise that the time children

spend in school should gradually increase according to their grade, and (implicitly) according to the child's biological age and cognitive development (Holm & Valentin, 2007). The extended school day in the three schools was only introduced in early schooling making the relationship between biological age and time spent at school a very visible trait of the all-day schools.

At parents' meetings and in the press the parents strongly criticized the all-day schools, although they were generally very engaged in their children's schooling. The parents' critique was based on a range of perspectives that were mostly related to the school's regulatory function. At numerous well-attended parents' meetings the all-day schools were the subject of often heated discussions, in which the legitimacy of the all-day schools was brought into question. Some parents pointed out that older students would benefit more from an extended school day than those in the early schooling, and other parents felt that the all-days school would have a negative influence on the child's childhood because a longer school day reduces the amount of time children can be with their friends, participate in sports activities and develop their interests. Either the parents were of about the idea that an extended school day leads to better academic achievement, or they did not focus on this in their interpretation of the all-day school.

Observations from meetings and interviews with parents clearly indicate that most parents had a sociologically oriented view of time. Time is perceived as a resource that can be negotiated between different social actors, and having control over time is seen as a manifestation of social control (Holm & Valentin, 2007). From this perspective the all-day school appears to regulate time and fill it with content – not just for the students, but also for the families. When a mother expressed her perception of the all-day school by saying in a loud voice at a parents' meeting "You are taking our children away from us", it demonstrates that the school's regulatory function is in the foreground of this parents' interpretation of the all-day school.

The departure from the traditional temporal logic of the Danish school system is interpreted by many parents as an intensified institutional regulation of ethnic-minority families' lives rather than a qualitative improvement of school services. Thus, some parents view the all-day school as a kind of "replacement family" (Kolbe et al., 2009), wherein the school takes on a greater role in the socialization of the children, thereby reducing the family's role. Some parents interpret this as offensive and as indicating that they – in contrast to average "Danish" parents – are not considered to have the social, cultural and linguistic capital that is required to socialize their children. One specific reason for this interpretation was that the all-day schools were constructed to be homework-free schools. This meant that the all-day schools shift the responsibility for homework to the school. Some parents felt that an important function has been taken away from them, that they were not given enough opportunity to support their child's academic development. One of the mothers formulated her point of view as such: "Children should have homework to do at home so that parents can assist in helping and developing their child. At the moment, we cannot be part of it because the children do not bring their books or homework home". Homework clearly has an important symbolic role in many parents' perception of their parental roles and in their view of the school enterprise. The fact that homework plays an important role in how the school is interpreted – and that it can be a significant

marker of difference between traditional Danish schools and independent "ethnic" schools – is illustrated by a student who explained that her father has told her that she would be transferred to an independent Arabic school "where there is homework".

The examples above all demonstrate that the regulatory function of the school appears to be the main interpretive position among the group of parents in this area. To a great extent, their interpretation is related to the departure of all-day schools from the traditional temporal logic in Danish schools. The extended school day is also viewed as an extended socialization on the part of the school, which disempowers the parents to a certain extent and interferes with their ability to plan activities for the children's free time or to do homework with their children. This interpretive position leads to a discourse with a strong opposition between the ethnic-minority parents on one side and the local district schools and the municipality of Odense on the other: Although the parents, the schools and the municipality all attach great importance to the academic success of ethnic-minority students, there does not seem to be a broad consensus among the parents with regard to the all-day schools in Vollsmose.

The fieldwork in the three schools revealed that the categorization, legitimization and temporal logic of the all-day schools in Odense have led to a dynamic among parents that represented oppositional norms and values regarding time, learning and responsibility. The parents respond critically to the quantitative increase in the amount of time children spend at school as well as to their children being categorized as "not at an age-appropriate level". The parents also interpret the all-day school as a form of intensified regulation and feel that it invalidates the family's cultural and linguistic capital. Although the critique from the parents was more pronounced in the first year of the all-day school, the introduction of the all-day school in Vollsmose appears to be a process that is wrought with conflict, in which opposition between groups of parents and school as an institution becomes actualized and intensified. Furthermore, the introduction of the all-day school has provoked and escalated discussions about which school parents want for their children and which values and norms they want to invest into them.

6   The Second Wave of Extended Schooling

The three all-day schools in Vollsmose analyzed in this article were evaluated in a report from October 2012 together with 9 other all-day schools placed in "disadvantaged residential areas" (Rambøll, 2012). It was a central conclusion in the report that there was no significant relation between the all-day schooling and the academic achievement of the pupils in national tests (Rambøll, 2012, p. 2). In other words: the first wave of extended schooling did not confirm the expectations to extended schooling about improved academic achievements. It was, however, underlined in the report that it was difficult to draw final conclusions about the effects of extended schooling concerning academic achievements. The result was an average based on data from the 12 schools, and more detailed analysis showed an increase in academic achievements in five schools, no substantial change in two schools, and a decrease

in academic achievement in five schools (Rambøll, 2012). It was further empha-
sized that the extended schooling could have other un-examined positive or nega-
tive effects for schooling beyond what could be measured through the national tests
(Rambøll, 2012). In general the report stated that the foundation of the evaluation
was too weak to draw final conclusions about all-day schooling.

However, extended schooling – or all-day schools – for *all* children were put
on the political and public agenda in 2012/2013 when the Minister of Education re-
vealed an ambitious plan for a school-reform with extended schooling - often talked
about as an all-day school. The proposal quickly generated an intense discourse pro
et contra. A central component in this discourse was about "play and learning". In
the often heated and extensive debate about all-day schools for all children it was
emphasized by the proponents that new ways of combining play and learning should
play a central role in the extended schooldays. Examples demonstrating how to com-
bine play and learning were discussed and made accessible on the homepage of
the ministry (http://nynordiskskole.dk). These examples basically reveal a didactic
epistemology: practices for learning curriculum while playing. The didactic episte-
mology was also central in the political and academic reasoning for the extended
schooling. The necessity of the all-day school was closely related to a need for better
PISA-results; to a need for children delivering better academic results in different
specific school subjects according to national and international measurement of in-
dividual children's subject skills. Finally the dominant position of the didactic epis-
temology is made evident by the fact that most teachers in the all-day schools would
be school-teachers trained in a didactic epistemology.

The arguments against the all-day school were primarily related to the episte-
mology of leisure time pedagogy. It was emphasized that the all-day school would
result in a "schoolification" of childhood in which children's play – understood as an
autonomous social, and child-generated activity – would be heavily reduced or even
disappear, and that this would do harm to childhood and to the development of inde-
pendent children. Childhood researcher Erik Sigsgaard's main argument against the
extended schooling related to broader issues of socialization and had the headline:
You don't learn to live life at an institution (Sigsgaard, 2013). A well-known Dan-
ish author, Jakob Stegelmann, argued from a more psychological point of view and
characterized the all-day school as an assault on children and childhood that would
traumatize a whole generation of children (Stegelmann, 2013).

In general the pro et contra discourse in relation to the second wave of extended
schooling was centered around the same clusters of arguments and logics that were
also put forward in relation to the first wave of extended schooling. What did not
seem to be questioned was, for example, the assumptions behind the school reform
– that extended schooling would result in an increase in academic achievements
and that increased academic achievements is a necessary condition for an ongoing
increase in gross national product due to the competitive nature of the world market
(Laursen & Holm, 2011).

In august 2014 the new Danish school-reform with extended schooling was im-
plemented for all school children (Weirsøe & Holm-Pedersen 2014). It is a central
aim of the reform to increase the scores in the national tests in literacy and math-
ematics and to reduce the number of pupils with bad results in the national tests.

The central means to reach these and other aims such as increased social equality is extended schooling. 30 lessons a week for children in grade 0 to grade 3. 33 lessons a week for children in grade 4 to grade 6, and 35 hours a week for children in grade 7 to grade 9. Not only are the means the same in relation to the first and second wave of all-day schools. The multi-professional character of the school is also a similarity. In the second wave of the all-day schools leisure-time teachers and other personnel are given supporting teaching functions and are allowed to have full responsibility for a class of pupils without a school teacher being present. Compared to the legal regulation around the first wave of extended schooling this is an extension of the leisure-time teachers' role in the school. Differently to the first wave of all-day school the traditional temporal logic of the Danish school system, in which the number of lessons a week increases according to children's age, is reinstalled in the second wave of all-day school. Time will show if this second wave of all-day schools will have more success in reaching its ambitious aims concerning academic achievement, and time will also tell which types of research, with which central research questions, will examine and document the complexity around the second wave of all-day schools in Denmark.

7   Concluding Remarks

In this article I have argued for a research approach to extended schooling that is ethnographically oriented and inspired by policy ethnography. I would like to argue, that such a research endeavor might be a relevant supplement to the more effect-oriented research in extended schooling. A central strength in an ethnographic-oriented research approach is the local and situated character of the research and the inclusion of actors' interpretations and actions in relation to a given social enterprise. As it has been demonstrated in this article an analysis of the cooperation between school teachers and leisure-time teachers in the all-day schools in Vollsmose is not only of local interest. It contributes to our general knowledge on the challenges and possibilities for constructive and fruitful collaboration between different professions in relation to extended education – a research field that needs to be more closely examined, as Schüpbach and von Allmen (2013) convincingly argue, based on the understanding that multiprofessional collaboration seems to be a central component in extended education.

The analysis of the locally situated dynamics around extended education in Vollsmose has revealed conflicts, norms and values about schooling, pedagogy and family life that might be valuable for the development of school strategies and dialogue in local areas but also for our general understanding of the processes extended education might generate. In many western European countries it is central to schooling, and not least to extended schooling, that it should reduce social inequality and strengthen societal integration. At the same time schooling and academic achievement are more than ever seen in a national competitive perspective. Better academic achievements – through extended schooling – are given the highest priority in the political discourse in a way that does not seem to leave much space for dialogue with

the actors who are bringing the extended education to life in their everyday practices at school. This might result in interpretations and actions that are counterproductive to the intention towards increased equality and integration. The complex, unforeseeable and locally situated processes around all-day schools or other forms of extended education make it highly relevant to direct research interest towards all the groups of actors involved in constructing and creating extended education by asking how extended education in a local context impacts the everyday life of children, parents, teachers and other central actors.

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Evaluation of School-Based After-School Programs in Japan: Their Impact on Children's Everyday Activities and Their Social and Emotional Development

Fuyuko Kanefuji

Abstract: The purpose of this study is to identify the current state of school-based after-school support in Japan and to evaluate programs providing such support, known as 'After-school Classes for Children'. This study focuses on the impact of After-school Classes for Children on children's everyday activities and their social and emotional development. The analyses were conducted based on data collected from questionnaire surveys targeted at elementary school children in Tokyo. The total number of children sampled was 5,307.

The impact on children's everyday activities and their social and emotional development were identified from data analysis. This study also developed a scale for measuring the impact of 'After-school Classes for Children' on children's social and emotional development. Based on the results of analyses, it can be concluded that 'After-school Classes for Children', a program run by MEXT (the Ministry of Education, Culture, Sports, Science and Technology), is likely to contribute to the enhancement of the following two aspects of children's social and emotional development: 'Empathetic Understanding of Others' and 'Enhanced Interest and Ambition'.

Keywords: School-based after-school activity, evaluation, impact on children, questionnaire survey, children's everyday activities, social and emotional development

1   Introduction: The Purpose of this Study and the Background of After-School Activity Programs in Japan

The purpose of this study is to identify the impact of 'After-school Classes for Children' using data collected through questionnaire surveys conducted with elementary school pupils in the Tokyo metropolitan area. Before analysing the data and discussing the impact of After-school Classes for Children on children, this section first of all outlines the background to Japanese after-school activities for children, which have been developed as part of Japanese state policy. It will describe the development of this provision, its characteristics – including governance and the availability of funding – and the current state of implementation.

The school-based after-school activity mentioned in this paper mainly refers to the 'After-school Classes for Children' projects, which have been developed since 2007 as part of a Japanese government policy called 'After-school Plans for Children'. This policy was implemented in May 2006 by the Ministry of State for Measures for the Declining Birth-rate in agreement with the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Ministry of Health, Labor and Welfare (MHLW). The 'After-school Classes for Children' project is based on a proposal that facilitated the combined implementation of the 'Local Children's Classroom Promotion Project', which was run by MEXT, and the 'Healthy Child-rearing Project with After-school Plans for Children', which was run by MHLW. Both of these projects emerged from the context of various social problems that Japan has been facing in recent years such as an increasing number of violent and criminal acts against children and the diminishing roles of home and community in children's education. The aim of these projects was to raise happy and strong children in society as a whole.[1]

Table 1 shows an outline of 'After-school Plans for Children'. MHLW's 'After-school Children's Club' is mainly aimed at caring for children while their parents are at work, and thus mainly targeted towards children between the ages of seven and nine years. This program only accepts children with both parents at work, and on submission of proof of work. On the other hand, MEXT's 'After-school Classes for Children' accepts children of any grade and does not require proof of work from parents. It is open to all children.

The focus of this paper is 'After-school Classes for Children' and the following analyses of data are based on programs provided under this project. The characteristics of after-school activities provided under this project can be summarized in the following three points: 1) they mainly use spare classrooms and sports grounds in state elementary and middle schools; 2) their planning and implementing is conducted through the cooperation of school, family, and community; and 3) they include learning, sports, intercommunication, and other activities. The content of specific activities can be decided by each municipality and thus varies according to the region. MEXT recommends that coordinators should be appointed at the city or town level, and should be incorporated into the planning stage. Decisions on appointments are entrusted to local boards of education. In this way, municipalities play the primary role in implementing projects. In terms of finance, it is stipulated that the state, prefecture, and municipality must each bear one third of the expenses respectively (as a form of budget assistance).

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1   'After-school Plans for Children' will continue to be implemented under the jurisdiction of these two authorities (i.e. MEXT and MHLW, the Ministry of Health, Labor and Welfare). Details of initiatives and relevant materials are published on the following website: http://manabi-mirai.mext.go.jp/cooperation.html

Table 1. Program Outline for the Promotion of the 'After-school Plans for Children'

	'After-school Classes for Children' (run by MEXT)	'After-school Children's Clubs' (run by MHLW)
Budget from the state in 2014	5,147 million yen (42,3 million US Dollar)	33,223 million yen (274 million US Dollar)
Number of schools	10,376 (as of Financial Year 2013)	21,482 (as of May 2013)
Location of the provision	Elementary schools: 71.3% Community centres: 13.2% Children's halls: 3.4% Other: 12.1%	Elementary schools: 28.1% Child welfare facilities: 24.1% Children's halls: 12.8% Other: 35.0%
Number of days open per year (Average)	111 Days (Average of Final Year 2013)	In principle, 250 days or more including long vacations
Instructors	Various community members and parents	After-school child care workers (full-time)

* Adapted from the material produced by the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

Table 2. The state of implementation of 'After-school Classes for Children'

	2007	2008	2009	2010	2011	2012	2013
Amount of the state subsidy	2,359 million yen	3,774 million yen	4,411 million yen	4,631 million yen	5,166 million yen	4,649 million yen	4,870 million yen
No. of schools implementing	6,201	7,736	8,610	9,197	9,733	10,098	10,376
Average no. of days that classes are held per year per school	111.7 days/year	117.2 days/year	114.8 days/year	118.5 days/year	118.8 days/year	No data	111 days/year
Total no. of municipalities implementing	851	1,011	1,053	1,060	1,075	1,076	1,090

* Adapted from material produced by the Ministry of Education, Culture, Sports, Science and Technology (MEXT).[2]

** The state subsidy for the three prefectures affected by the Great East Japan Earthquake in 2011 has been separated from the normal budget for after-school classes, and has been provided as a special budgets since 2012. This is why the total amount of state subsidy in the table appears to have decreased in 2012. However, the real amount of state subsidy provided for after-school classes in total is in fact increasing.[3]

Table 2 shows the time series data for 'After-school Classes for Children', which was financially supported by MEXT. The number of implementations has increased on a national scale over the last five years. As of 2013, a total of 1,090 municipalities have implemented the program with 10,376 schools being involved. The average number of days when classes are held per year per school is about 110–120 days. Of the total of 1,741 municipalities in Japan (as of April 2014), 62.6% have implement-

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2   The data are quoted from the following MEXT website: 'After-school Plans for Children', http://manabi-mirai.mext.go.jp/assets/files/pdf_jissijyoukyou/H24jissijyoukyou.pdf

3   The After-school Classes for Children project has continued to be implemented in earthquake affected areas. Since 2012, however, this has been delivered as part of another initiative called the 'Project Supporting Regional Community Generation through Learning' (total budget: 1.082 billion yen), which was set up to tackle the aftermath of the disaster. The operation of this project is entrusted to the municipalities of the disaster affected areas including Iwate, Miyagi, and Fukushima Prefecture.

ed the project. The percentage is gradually rising and is expected to rise even further in the near future.

2 Literature Review of After-School Programs and Their Impact on Children in the Japanese Context

In Japan, academic research to identify the current state of school-based after-school activities has been conducted since around 2008. Some of this was done by a commission from MEXT, and the entrusted organisations have also examined the current state of school-based after-school classes on their behalf.

A nation-wide survey of after-school classes was conducted by the Systems Research & Development Institute of Japan (SRDI, 2008). Their research results showed various changes in the consciousness and behaviour of children who participated in 'After-school Classes for Children' projects. A questionnaire survey was conducted on children, parents and program coordinators to analyse any changes in children from the perspective of both the children and their parents. Then the data collected from 3,312 children who participated in the after-school programs were analysed. According to the results, 47% of children responded that they were now able to greet adults in the community and 45% answered that they played with friends in different grades more than before. Furthermore, 52% of parents whose children participated recognised that their children were now able to look after younger children, and 65% of them thought that their children were able to greet adults in the community better than before. The program coordinators said that they felt positive changes in their own awareness of and attitudes towards after-school activity compared with previous perceptions.

Another research project commissioned by MEXT identified the responses of coordinators and volunteers who engaged in 'After-school Classes for Children' projects. The Outdoor Education Research Foundation (OERF, 2008, 2009) conducted a study to discover the characteristics of leading examples of after-school classes. They analysed the content of the activities as well as perceptions of the program coordinators and volunteers in twenty cases. Their findings revealed that coordinators and volunteers 'felt fulfilled', 'became more aware of and interested in children in their local areas', and 'became more interested in issues in their communities' by engaging in the project (OERF, 2008, 2009).

There are also distinct approaches to understand after-school programs and their impact on children in Japan. The National Institution for Youth Education (NIYE, 2010) conducted a large scale questionnaire survey and analysed the data in order to understand the relationship between experiential activities and their impact on changes in children's consciousness and behaviour. In this study, nationwide questionnaire surveys were conducted on approximately 11,000 samples of children between the ages of 11 and 17 years and 5,000 samples of adults between the ages of 20 and 60 years. The samples of children were selected using a random sampling method. The survey of adults was conducted in the form of a web survey. This study

showed that participating in a variety of experiential activities in childhood has a strong impact on children's consciousness and behaviour as well as on consciousness and behaviour in adulthood. The study also showed that the frequency of participation in experiential activities is strongly related to the personal and social development of children and adults and to self-reliance in childhood and adolescence. The researchers developed a set of evaluation criteria consisting of seven categories and thirty-five specific items in order to assess the impact of these after-school experiences on children's social and emotional development.

Some studies also discussed the values, desired effects, and desired future directions of the 'After-school Children's Plan' and 'After-school Classes for Children' programs (Kato, 2007; Morimoto, 2007). These studies, however, are not evidence-based and simply discuss the issues theoretically.

The characteristics and roles of extra-curricular and out-of-school education in Japan were also analysed based on a survey conducted by MEXT and on some case studies (Yanagisawa, 2013).

There were some earlier studies conducted on pupils, parents and coordinators that attempted to measure the impact of 'After-school Classes for Children' projects (e.g. SDRI, 2008; OERF, 2008, 2009). Some of these studies (for example the study conducted by SDRI, 2008) suggest some impacts of after-school activities on children as well as on adults who participated in the activities. Nonetheless, the designs of these studies are not rigorous enough and their focuses are only on the participating children, their parents, and adults, such as coordinators and volunteers, who are engaged in after-school activities. Thus, it can be argued that the effects of after-school classes have not been adequately investigated. It can also be pointed out that many of these studies are based either on small sample surveys or individual case studies, and that some are not even evidence-based. Therefore, we have relatively little evidence of the effects and impacts that after-school programs have on children, their parents, school teachers, and the local communities in Japan.

On the other hand, studies conducted in the USA and other Western countries suggest the potential impacts of after-school programs on children and adolescents. Durlak et al. (2007) pointed out that:

> Current data offer clear empirical support for the conclusion that well-run ASPs can produce a variety of positive benefits for participating youth. More specifically, there is significant improvement in youths' feelings and attitudes (i.e. self-perceptions and bonding to school), their behavioural adjustment (i.e. increases in positive social behaviours and decreases in problem behaviours and drug use), and in their school grades and level of academic achievement (Durlak et al., 2007, p. 6).

The evidence for such positive impacts are reported by other meta-analysis and empirical studies (see, for instance, Baker, 2013; Vandell, 2013; Crawford, 2011; Cummings et al., 2011; Durlak et al., 2010; Durlak & Weissberg, 2013; Huang et al., 2012a, 2012b, 2007; Lauer et al., 2006; Zief et al., 2006; Scott-Little et al., 2002; Fashola, 1998; Posner & Vandell, 1994). These studies suggest the impact that Japanese after-school programs could potentially have on Japanese children, and provide valuable information including effective research designs and outcome measures for evaluating after-school programs that can assist Japanese researchers in future studies in this field.

Kanefuji et al. (2012) conducted an international comparative study with the aim of identifying the current state of school-based after-school activities and support in five developed countries (the United Kingdom, Germany, France, Korea and Japan).[4] The methods of the study included questionnaire surveys of elementary school children and interviews with government and state level officials and with school staff in metropolitan areas. This study contributed to outlining the current state of school-based after-school activities in each country. The results of the questionnaire surveys on children suggested there was some impact on participating children in the surveyed areas. The data used for the current article was collected in Tokyo as part of this international comparative study. Details of the Tokyo data will be described in the method section below.

It is expected that more evidence-based evaluative studies will be conducted on the effects and impacts of after-school programs in Japan. It is desirable that future studies consider not only the impact on children but also on their parents, coordinators, school teachers and other adults in the wider community. Because Japanese after-school programs are delivered by a partnership between school, family and community, they are expected to impact on all the parties involved.

Taking into account the current research situation in Japan, the following study sets out to identify the impact of after-school programs on children. It investigates the differences between participating and non-participating children. A scale for measuring the impact of school-based after-school programs on children's social and emotional development was developed from analysis of the data. By using the scale developed, the impact of school-based after-school programs on children is evaluated.

3 Methods

3.1 Definition of Key Concept

3.1.1 After School Activities

In this study, the term 'after-school activities' are defined as: 'systematic learning and experiential activities that are provided to children primarily at school before and after normal school hours and that are supported by adults including teachers, parents, local residents, and other relevant parties'.

This study focuses on after-school activities provided under the 'After-school Classes for Children' project. The reason behind this is that these activities have received government funding as a major part of 'After-school Children's Projects', an initiative implemented by the government in 2007, and expected to be promoted further with other associated educational policies in the near future. MEXT is plan-

ning to secure more funding to promote school-based after-school projects for children from 2015 and onwards. Taking into consideration the current state of research, more studies should be conducted to identify the impact of after-school activities, especially those of school-based 'After-school Classes for Children', in order to encourage more activities to be promoted throughout Japan.

3.1.2   Children's Everyday Activities and Their Social and Emotional Development

(1) Definition and categories for measuring children's everyday activities

In this study, children's everyday activities are defined as 'activities in which children are engaged at home after school'. Seven categories of everyday activities were established for the purposes of this research and were investigated in order to find out what activities children were engaged in during the week prior to the survey. The seven categories are as follows: 1) Time spent watching TV; 2) Number of days spent without an adult's supervision after returning home; 3) Average number of friends played with regularly; 4) Number of hours spent studying outside of school hours (including cramming schools); 5) Frequency of playing video/computer games; 6) Frequency of using the Internet; and 7) Frequency of reading comic books.

The study was conducted on the assumption that participating in after-school activities will reduce time spent watching TV, the number of days when children spent time without adult supervision, time spent playing video/computer games, using the Internet and reading comic books, and that it will increase the number of friends played with regularly and the number of hours spent studying outside of school hours. In the data analysis, cross tabulation and statistical tests were conducted against participation in 'After-school Classes for Children'.

(2) Criteria for measuring children's social and emotional development

This study used the set of evaluation criteria developed by NIYE (The National Institution for Youth Education, 2010) for measuring children's social and emotional development. As mentioned above, the NIYE's evaluation criteria consist of seven categories and thirty-five items. They were developed in order to collect data and assess the effects of various experiences on children's social and emotional development (NIYE, 2010). This set of evaluative criteria was named 'The Power of (Hands-on) Experience'.

Although NIYE did not develop a scale using these thirty-five items, they were very useful in this study. As after-school programs consist of many experiential activities, it was assumed that these items can be applied to measure changes and impacts that after-school programs had on children. This study developed a scale for measuring the impact of 'After-school Classes for Children' based on these criteria developed in the NIYE study.

The seven categories developed by the NIYE are as follows: 1) a sense of self-respect; 2) awareness of social norms; 3) interest/ambition; 4) ability to sympathise; 5) interpersonal skills; 6) outlook on work; and 7) awareness of culture (including etiquette). There are five items in each category. For this study, however, three items were selected from each category (i.e. Table 9 is a list of seventeen of the twen-

ty-one items selected. These are those that showed high communality scores and were therefore used to develop the scale). These were items that were considered to be significant in measuring changes in children brought about by various experiences based on the results of the NIYE study.[5]

In the questionnaire survey, children were asked to choose the most suitable answer from four choices offered for each item. The choices were: 1) This does not apply to me at all; 2) This does not really apply to me; 3) This applies to me a little; and 4) This applies to me a lot.

3.2   Target Children in this Study

Although 'After-school Classes for Children' are provided for elementary and middle-school students, 71.3% of these are provided in elementary schools according to the survey conducted by MEXT in 2013 (see Table 1 for the data in 2013). It can be said that the majority of 'After-school Classes for Children' are provided for elementary school children. Therefore, it was decided that this study would focus on elementary school children and the programs provided for them. The questionnaire survey was conducted with children between 10 and 12 years of age (i.e. between the fourth and sixth grades in Japanese elementary schools).

3.3   Survey Outline and Data

Table 3 shows details of the data collected for this study. The total number of planned samples was 6,062, corresponding to the total number of children between the fourth and sixth grades of elementary school in T ward and K city, Tokyo. See below the number of valid responses collected was 5,321 and the valid-response rate was 87.8%. The proportions of each age group and gender are as shown in Table 4. The ratio of male to female was about 50:50, and the proportion of each age group was about 30% to 40%.

The characteristics of the two surveyed areas are as follows. Under the jurisdiction of the Tokyo Metropolitan Government, there are 23 wards and 26 cities. T ward is located in the centre of Tokyo. The resident population of T ward is about 40,000 while its daytime population is more than 850,000. This means that as many as 810,000 people are commuting into T ward. There are many government administrative offices, schools, and business enterprises in T ward. It can be said that T ward is the geographical and functional centre of Tokyo and is a well financed district. On the other hand, K city is located in the western part of Tokyo, and is a typical suburban residential area. The resident population of K city is about 190,000. The financial status of K city can be described as being about average for Tokyo.

The first reason for choosing these districts for the survey was that both districts have implemented 'After-school Classes for Children' in all of their elementary

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5   The author participated in the NIYE study as a member of the research committee. During data analyses of the NIYE study, the thirty-five items were examined and twenty-one of them were selected to measure the impact of 'After-school Classes for Children' in this study.

schools and thus the level of provision of after-school programs was similar. The second reason was that the local board of education in each district agreed that we conduct the survey in all of their elementary schools. In this respect, it can be said that the sampling method used in this survey to extract districts was a judgment sampling (i.e. positive or purposive sampling). This survey was conducted by means of a complete enumeration.

The procedure for conducting the survey was as follows: 1) each local education board held a meeting with the principals of all their elementary schools, explained the purpose and content of the survey, and asked for their participation; and 2) the teachers at each school collected the data and each school posted the completed questionnaires to us. The questionnaire survey was conducted between 17th January and 28th February 2011.

Table 3. Data for this study (i.e. Numbers of schools, planned samples, valid responses, and valid-response rate)

No. of schools surveyed		No. of planned samples	No. of valid responses	Valid-response rate
Total no. of primary schools in T Ward, Tokyo:	8	1,394	1,258	90.2%
Total no. of primary schools in K City, Tokyo:	19	4,668	4,063	87.0%
Total number of primary schools:	27	6,062	5,321	87.8%

Table 4. Baseline attributes of the sample

Age & Gender	Real number	%
Age (& Grade): 10 years old (4th grade)	2,006	37.8
11 years old (5th grade)	1,741	32.8
12 years old (6th grade)	1,560	29.4
Gender: Male	2,707	51.0
Female	2,577	48.6
N/A	23	0.4
Total	5,307	100.0

* The 14 samples that responded N/A in both age and gender are excluded from Table 4.

4   Results

4.1   *How do Children Spend Their Time After School?*

How do children spend their time after returning home from school? In the questionnaire survey, the children were asked to give the number of days they spent time alone or without adult supervision after returning home during the week prior to the survey. Table 5 shows the results for this question. The most common answer was 'almost none', provided by 44.8% of children. This means that approximately 55%

of children in the two districts of Tokyo spent time alone or without an adult after returning home from school on at least one day.

Table 5. Number of days on which children spent time alone or without adult supervision after returning home during the week prior to the survey (Tokyo survey results)

	None	1 day	2–3 days	4–5 days	6 days or more	Don't know	n
% of children	44.8	14.4	19.5	12.0	8.7	0.6	100.0
Real Number	2,376	765	1,033	635	464	34	5,307

Table 6 shows the number of days children participated in school-based after-school activities during the week prior to the survey. It shows that more than 70% of children did not attend any after-school classes at all.

Table 6. Number of days children participated in school-based after-school activities during the week prior to the survey (Tokyo survey results)

	0 days	1–2 days	3–4 days	5 days or more	Don't know	n
% of children	73.0	10.9	4.8	2.2	9.1	100.0
Real Number	2,977	444	196	91	369	5,307

The data show that a large percentage of children do not participate in school-based after-school activities even though their schools provide them, and that many children spend their time after school at home alone or only with other children. Judging by these results, it can be argued that there is a need to promote after-school activities supports for children more proactively.

4.2 Impact of Participating in After-School Programs on Children

4.2.1 Impact on Children's Everyday Activities

In this analysis, cross tabulation and χ^2 testing were used to examine the effects of participation in after-school activities. As shown in Table 7, seven items were analysed and a visible statistical significance was observed for the average number of friends played with during the week prior to the survey. No statistical significance was observed for other items.

Table 8 shows the relationship between participation in 'After-school Classes for Children' and the average number of friends played with during the week prior to the survey. It shows that a higher percentage of children who participated in school-based after-school activities played with 5–9 and 10 or more friends. In contrast, a higher percentage of children who did not participate in 'After-school Classes for Children' tended to play alone or with one friend. It should be noted, however, that the effect size of Table 8 is relatively low (Cramer's V= 0.125).

This finding is underlined in the analysis of the relationship between the number of friends played with and the number of days the child participated (Figure 1). It

shows that the more the child participating in after-school classes, the more friends s/he played with. The effect size of this χ^2 test was .086.

Table 7. Results of χ^2 test in cross tabulation (children's everyday activities on schooldays vs. participation in after-school programs)

Children's everyday activities	χ^2 value	df	p value	Cramer's V
1. Time spent on watching TV during the week of the survey	4.793	5	.442	0.036
2. Number of days in which children spent time without an adult's supervision after returning home during the week of the survey	4.969	5	.420	0.037
3. Average number of friends the child played with regularly during the week of the survey	58.399	5	.000	0.125
4. Number of hours spent studying outside of school hours (including cramming schools)	8.447	5	.133	0.048
5. Frequency of playing video/computer games	2.053	4	.726	0.024
6. Frequency of using the Internet	2.257	4	.689	0.025
7. Frequency of reading comic books	0.933	4	.920	0.016

Table 8. Average number of friends the children played with regularly during the week prior to the survey shown against participation in 'After-school Classes for Children'

No of friends	None	1	2–4	5–9	10 or more	Unknown	Total%(n)
Participation, % of children	3.1% (23)	4.2% (31)	43.2% (316)	29.0% (212)	19.8% (145)	0.5% (4)	100.0% (731)
No participation, % of children	8.9% (264)	5.7% (171)	46.1% (1,372)	27.2% (810)	11.8% (351)	0.3% (9)	100.0% (2.977)

$p < .001$, n =3,708, Cramer's V= .125

* Numbers in parentheses are real numbers.

Figure 1. The number of friends played with regularly after school vs. the number of days participating in 'After-school Classes for Children'
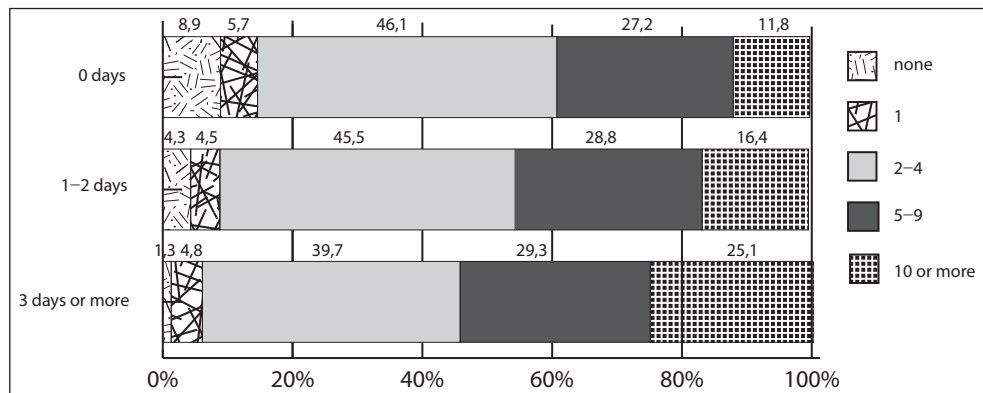
p <.01, Cramer's V= .086

From the results of these analyses, it can be argued that participation in, and a higher frequency of participation in 'After-school Classes for Children' programs can have an impact on increasing the number of friends with whom children play schooldays. Taking account of the small scale of the effect size in both analyses, it should be born in mind that the impact of participation on the number of friends played with is restrictive in this study.

4.2.2 Impact on Children's Personal and Social Development

This section explains how the scale for measuring impact on children's social and emotional development was developed in this study, how the impact was measured using this scale, and the results of the analyses.

There are various approaches to measuring the impact of after-school programs on children. While some preceding studies focused on children's academic attainment in areas like math or reading (Crawford, 2011; Huang et al., 2011; Lauer et al., 2006; Vandell, 2013), other studies attempted to measure other types of impact, including that on children's social and emotional development, behavioural changes, safety, and changes brought to families (Durlak et al., 2007, 2010; Durlak & Weissberg, 2013).

This study focuses on the impact on children's social and emotional development. This decision was made by taking account of the nature of Japanese after-school programs that are delivered through a partnership of school, family and community. It was assumed that children's personal and social development will be nurtured by participating in such programs, in which they have opportunities to interact not only with other children but also with adults including parents, coordinators, and local residents.

The questionnaire contained twenty-one Likert scale questions and the data were collected on these from 5,307 children. The protocol adopted for the factor analysis was to use Maximum Likelihood estimation and to rotate the matrix of loadings to

obtain independent factors. This study used Promax (oblique) rotation. The Kaiser-Meyer Olkin Measure of Sampling Adequacy was conducted to test the size of partial correlations among variables. Bartlett's Test of Sphericity was conducted to confirm that the correlation matrix is an identity matrix, indicating that the factor model in this study is appropriate and that the items are factorable (i.e. KMO =.906, Bartlett's test's p < .000). Table 9 shows the results of an oblique rotation of the solution. After excluding the loadings of less than 0.40, it yielded a five-factor solution with a simple structure (i.e. factor loadings were = >.40). A total of seventeen items was used in the factor analysis.

As shown in Table 9, five items were loaded onto Factor 1. These five items are all related to social norms or contribution to society. For example, these include: awareness of social rules (e.g. one must obey traffic rules); willingness to give up ones seat on a train/bus for elderly/disabled passengers; and having a desire to work for the sake of society or people if possible. This factor was named 'Positive Perceptions of Social Norms'.

The four items that were loaded onto Factor 2 are related to the children's reported perceptions about: feeling happy when friends had happy experiences; feeling pain on hearing about sad stories happening to others; worrying about friends who are ignored by others; and feeling angry when someone is tormenting other people. This factor was named 'Empathetic Understanding of Others'.

Table 9. Factor analysis of children's personal and social development vs. after-school programs (Exploratory factor analysis, *maximum-likelihood method, promax rotation, factor loading matrix*)

Items	Cronbach's α	Factor					h²
		1	2	3	4	5	
Being aware of social rules (e.g. one must obey traffic rules)	.691	.658	-.020	.045	-.188	.050	.383
Willing to give up ones seat on a train/bus for elderly/ disabled passengers		.657	.046	-.023	.060	-.137	.407
Ability to speak politely to the elderly and to speak kindly to younger people		.460	.042	-.038	.055	.097	.315
Believing that one ought to visit family graves several times a year		.453	-.031	-.002	.070	.011	.228
Having a desire to work for that sake of society or other people when possible		.374	.042	.170	.024	-.002	.293
Feeling happy when friends had happy experiences	.717	-.072	.675	-.003	.023	.023	.419
Feeling pain on hearing other people's sad stories		-.002	.657	-.017	-.007	-.023	.399
Worrying about friends who are ignored by others		.030	.630	.035	-.056	-.013	.408
Feeling angry when someone is tormenting other people		.243	.428	-.017	-.006	-.006	.368

Items	Cronbach's α	Factor					h²
		1	2	3	4	5	
Having an occasional desire to study something more deeply	.641	-.029	.011	.665	-.016	-.051	.388
Curiosity about things that are difficult to understand		.140	-.035	.606	-.071	.026	.434
Having a desire to take on a new challenge with no previous experience		-.061	.035	.480	.168	.069	.362
Being able to speak to new people without hesitation	.603	-.077	-.040	.001	.796	-.031	.313
Being able to greet people in ones neighbourhood		.350	-.048	-.043	.393	.000	.352
Being able to make up with friends after disagreements		.041	.146	.049	.357	.088	.313
Recognising oneself as being a person who cares about ones family	.553	.085	.015	-.077	-.011	.696	.508
Having a sense of liking oneself		-.087	-.026	.066	-.004	.592	.319
Eigen value Percentage of total variance Cumulative percentage of variance		5.017 25.847 25.847	1.2253.796 29.643	1.097 3.008 32.651	1.065 2.759 35.410	1.035 2.411 37.821	
Correlation between factors		1	2	3	4	5	
	1	-	.707	.618	.531	.574	
	2		-	.562	.474	.528	
	3			-	.483	.499	
	4				-	.481	
	5					-	

The three items that were loaded onto Factor 3 are related to children's interests or ambition to learn: an occasional desire to study (something) more deeply; curiosity about things that are difficult to understand; and a desire to take on a new challenge with no previous experience. This factor was named 'Enhanced Interest and Ambition'.

The items loaded onto Factor 4 are related to the following abilities in children: ability to speak to new people without hesitation; ability to greet people in ones neighbourhood; and ability to make up with friends after disagreements. This factor was named 'Positive Interpersonal Skills'.

The items loaded onto Factor 5 represent children's self-perception as a person: i.e. recognising oneself as being a person who cares about one's family; and having a sense of liking oneself. This factor was named 'Positive Sense of Self-esteem'.

Based on the results of the factor analysis, the scale scores of each factor were calculated. The scores were then compared in relation to participation in after-school programs. Table 10 shows the results of the Man-Whitney U Test, with which the scale scores of the five factors were calculated against participation in after-school programs. It showed statistical significance in the three scale scores of Factors 1, 3 and 4. In these findings, the scores of the non-participating children are all higher than those of the participating children. The results will be considered further in Discussion.

Table 10. Participation in after-school programs and the scale scores for the five factors (Results of Man-Whitney U Test)

	n	Average ranks	Standardized U	Sig.	r
Scale scores of **Factor 1**: Participant Non-participant	731 2,977	1,742.71 1,881.95	-3.183	.001***	-.052
Scale scores of **Factor 2**: Participant Non-participant	731 2,977	1,797.53 1,868.49	-1.618	n.s.	-.027
Scale scores of **Factor 3**: Participant Non-participant	731 2,977	1,769.28 1,875.42	-2.429	.015**	-.039
Scale scores of **Factor 4**: Participant Non-participant	731 2,977	1,681.37 1,897.01	-4.936	.000***	-.081
Scale scores of **Factor 5**: Participant Non-participant	731 2,977	1,817.65 1,863.55	-1.063	n.s.	-.017

n =3,708, *** p <.01, ** p <.05

Table 11 shows the results of the Kruskal Wallis Test, with which the scale scores of the five factors were calculated against the number of days participating in after-school programs. Statistical significances were found in the two tests conducted on the scale scores of Factors 2 and 3. Based on these results, it can be argued that more frequent participation in after-school programs contributes to an enhancement of children's personal and emotional development, especially in terms of 'Empathetic Understanding of Others' (Factor 2) and 'Enhanced Interest and Ambition ' (Factor 3).

Table 11. Number of days children participated in after-school programs per week and the scale scores of the five factors (Results of Kruskal Wallis Test)

		n	Average ranks	χ^2 value	df	Sig.	r
Scale scores of **Factor 1**:	1–2 days 3–4 days 5 days or more	444 196 91	360.42 375.17 373.48	.813	2	n.s.	.030
Scale scores of **Factor 2**:	1–2 days 3–4 days 5 days or more	444 196 91	354.93 363.40 425.63	8.643	2	.013**	.320
Scale scores of **Factor 3**:	1–2 days 3–4 days 5 days or more	444 196 91	352.51 375.91 410.51	6.451	2	.040**	.239
Scale scores of **Factor 4**:	1–2 days 3–4 days 5 days or moree	444 196 91	365.16 369.08 363.44	.064	2	n.s.	.032
Scale scores of **Factor 5**:	1–2 days 3–4 days 5 days or more	444 196 91	358.40 376.81 379.80	1.547	2	n.s.	.057

n = 731, ** p < .05

5   Discussion

Based on the analyses above, the impacts of 'After-school Classes for Children' can be summarised as follows:

- With regard to children's everyday activities, the children's participation and high frequency of participation in after-school programs (i.e. After-school Classes for Children) bore some relation to an increased number of friends with whom children play after school on schooldays.

- With regard to the children's social and emotional development, a scale consisting of five factors was developed based on data from seventeen categories, and was used to measure the impact of 'After-school Classes for Children' on children's social and emotional development.

- Compared with non-participants, participants in 'After-school Classes for Children' showed lower average rankings in the following three factors: 'Positive Perceptions of Social Norms (Factor 1)'; 'Enhanced Interest and Ambition (Factor 3)'; and 'Positive Interpersonal Skills (Factor 4)'.

- Compared with the children who participated less frequently, the children who participated more frequently in 'After-school Classes for Children' showed higher average ranks in both Factor 2 ('Empathetic Understanding of Others') (r =.320) and Factor 3 ('Enhanced Interest and Ambition') (r=0.239). It can be argued that 'After-school Classes for Children' are likely to enhance children's social and emotional development with regards to these two aspects.

Concerning the first point, it could be argued that many factors can affect the relationship between participation in after-school activities and the number of friends children play with. While it could mean that participation in after-school programs is associated with the increased number of friends children played with, it could simply mean that children who like playing with other children are more likely to participate in after-school programs. Thus, one should not assume cause and effect without reflection. It should also be noted that it is difficult to discuss this relationship adequately in this study because: 1) the effective sizes of the analysis were not large enough; and 2) the survey was based on a cross-sectional study and thus requires more evidence. Therefore, more controlled data analyses would be necessary to explain this relationship further.

Secondly, it can be suggested that the scale developed in this study is valid as one method of measuring the impact of school-based after-school programs in Japan. As shown in Results, the Cronbach's α was relatively high for some items in each factor, and all five factors were positive in this study. These results are also consistent with preceding research mentioned in the literature review.

The third point is contrary to what was expected. One of the possible explanations for this is the fact that many children do not participate in 'After-school Classes for Children'. More than 70% of the sample children did not attend school-based after-school programs. The reasons for their non-participation could be that these children attend other activities such as cramming schools, private lessons, or sports

clubs instead. It should be pointed out that cramming schools and private lessons are very popular in Tokyo and that the demographics of the surveyed areas are likely to be upper-middle class or higher and thus the parents of these non-participating children can afford out-of-school activities and other learning opportunities on a daily basis. This fact may offset the significant differences between the non-participating children and the participating children. It would be necessary to conduct further analysis focusing on the children who do not participate in either school-based after-school programs or other activities outside of school such as cramming schools. Further analysis would highlight the differences between children who participate in school-based after-school activities and children who spend after-school hours alone or only with other children.

The final point supports the positive impact of 'After-school Classes for Children' on children's social and emotional development. As described above, Japan's 'After-school Classes for Children' consist of various programs including advanced learning activities, supplementary learning activities, sport, traditional performing arts and exchange activities. These various activities facilitate children's communication with other age groups and adults, including local residents. Such experiences should increase the cultural capital of children and contribute to the enhancement of their interests and ambitions as well as their empathetic understanding of others. In the results of the analysis, a higher frequency of participation showed higher average scores in both Factors 2 and 3. This is an indication that the analysis was consistent and rational.

Based on the analyses and discussion above, it can be argued that this study triggers the following new research issues, which have to be addressed in future studies. Firstly, although the survey was conducted by means of a complete enumeration, it cannot be denied that the study areas were restrictive. It is necessary to conduct statistical analysis on a survey in which children are selected by means of a random sampling method. It can also be pointed out that it requires better designed analysis methods such as the RCT method.

Secondly, although it is of principal importance to measure the impact and effects of after-school activity from the perspective of the changes brought to children's awareness and behaviour, it should also be examined from other perspectives. For example, it is important to bear in mind that after-school activities are funded by the Japanese government as part of a policy to promote education through the cooperation of schools, family and community. Therefore, it can be argued that after-school activity should also be examined from the perspective of their impact on school teachers, after-school program coordinators and instructors, parents, and other local residents who are involved in the programs.

It is desirable that future studies on the impact of after-school activity take account of these multiple perspectives. By doing so, more evidence of the effects of after-school programs may be gathered and, as a result, add depth to research in this field in Japan.

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Summer Activities and Vocabulary Development: Relationships Across Middle Childhood and Adolescence

Joshua F. Lawrence, Briana M. Hinga, Joseph L. Mahoney, and Deborah Lowe Vandell

Abstract: This paper examines the relation between children's summer activities before fourth through sixth grade and their vocabulary knowledge in fifth grade and at age fifteen using the NICHD SECCYD dataset (N = 1,009). We used OLS regression and propensity score analyses to understand how children's summer reading, library visits, participation in enrichment classes, and unsupervised time predicts their vocabulary knowledge. Propensity score matching and OLS analyses show that time spent reading predicts vocabulary during the following two years, and high levels of time allocated to reading across three or more summers in middle childhood predicts vocabulary knowledge at age 15. OLS analyses suggest a relationship between library visits and vocabulary knowledge. There is no short-term relationship between enrichment classes and vocabulary knowledge, although our OLS analysis demonstrated that consistent enrollment in summer enrichment classes over three years predicted improved vocabulary. Unsupervised time predicted poor vocabulary in both the short and long-term.

Keywords: summer, out-of-school time, vocabulary, reading, unsupervised time

1　Introduction

Student vocabulary knowledge correlates strongly with reading comprehension measures across grade levels (Snow, Porche, Tabors, & Harris, 2007) and is a key component of skilled adolescent reading (Kamil, 2003; Snow & Biancarosa, 2003). Children learn new words rapidly throughout early childhood (Anglin, 1994) and the amount and quality of home language exposure predicts children's vocabulary knowledge (Hart & Risley, 1995; Pan, Rowe, Singer, & Snow, 2005). As children progress through elementary school they begin to learn more words from explicit instruction at school and text than from family or peer discourse. In the summer, families have more discretionary time to allot to preferred activities. The current paper explores the relationship between children's summer activity and vocabulary knowledge, in both the short and the long term (at age 15). We examine the time students ($N = 1,009$) spend reading, visiting the library, engaging in supervised enrichment

activities, and unsupervised with friends in relation to their vocabulary scores in fifth grade and at age fifteen using the NICHD SECCYD dataset.

Summer time. Summer is a time when many students, especially students from low-income homes, struggle to maintain learning trajectories established during the school year (Alexander, Entwisle, & Olson, 2001). Heyns (1978) found that sixth and seventh graders ($N = 2978$) learned vocabulary at a higher average rate during the school year than they did during the summer. She also found that out-of-school activities and differences in family socio-economic status accounted for differences in summer vocabulary learning, but not vocabulary learning during the school year (during which time all students were receiving instruction). Lawrence (2009) found that sixth-grade ($n = 87$) and seventh-grade ($n = 104$) students' vocabulary knowledge (measure on the Group Reading and Diagnostic Evaluation; Williams, 2000) decreased during the summer. In separate longitudinal analysis of an academic vocabulary intervention, middle-school children in both treatment ($n = 757$) and comparison groups ($n = 204$) showed marked decline in their knowledge of high-leverage academic words during summer months (Lawrence, Capotosto, Branum-Martin, White, & Snow, 2012). These findings mirror results in related literacy domains (Carver, 1994; Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996; Entwisle, Alexander, & Olson, 1997; Kim, 2004; Kim & White, 2008). A multi-year study of student learning across early grades suggests learning differences during the summer are cumulative, and that these cumulative differences explain the reading achievement gap (Alexander, Entwisle, & Olson, 2001).

Understanding which activities are most likely to help students continue to learn during the summer months is difficult because students who struggle during the summer are also usually the least prepared at school entry and had the least support during the school year. Although many studies control for well-known predictors of children's vocabulary growth such as maternal education, family socio-economic status, home literacy environment and school year activity in OLS regressions, statistical controls do not necessarily guard against selection bias. If high-income families make up most or all of the subsample that engage in enrichment activities, for example, an OLS model might suggest a relationship between enrichment activities and student achievement that is driven by many factors related to family wealth rather than the enrichment classes *per se*. In this paper we use propensity score matching as a robustness check to guard against selection bias.

This study examines how reading, library use, enrichment activities, and unsupervised time predict vocabulary outcomes. We also test how cumulative summer persistence in each activity is related to vocabulary knowledge at age 15. Each of these activities is common during the summer, and have been explored as predictors of vocabulary growth.

Reading. Researchers have argued that reading increasingly drives student word learning as they get older (Nagy, Herman, & Anderson, 1985). Firstly, the density of new words that children meet in text increases as they expand their reading diet to include more expository texts in upper elementary and middle grades (Gardner, 2004). This means children are more likely to encounter new words in reading than in discussion at this age. Secondly, older children are better able to infer the meaning of new words encountered in text (Swanborn & de Glopper, 1999). Out-of-school

reading is correlated with vocabulary knowledge. Anderson, Wilson, and Fielding (1988) gathered self-reported daily activity logs from 155 fifth graders for 26 weeks and found reading books was associated with improvement on a vocabulary checklist measure even after controlling for second grade reading achievement. Lawrence (2009) found that students' self-report of time spent reading narrative and expository texts during the summer was related to improved vocabulary scores for better readers but not for less skilled ones. Heyns (1978) found that summer reading offset the summer setback of middle schoolers in her comprehensive analysis. Recognition tests are an alternative measure of reading amount and correlate with vocabulary knowledge (Cunningham & Stanovich, 1990; Cunningham & Stanovich, 1991). Cunningham and Stanovich (1991) found that reading and receptive vocabulary correlated moderately ($r = .46$, $p < .05$) in a sample of fourth-, fifth-, and sixth-grade students ($N = 134$). Allen, Cipeilewski and Stanovich (1992) used both activity preference questionnaires and title recognition tasks and found these measures correlated with fifth-grade students' ($N = 63$) vocabulary knowledge as measured by the Peabody Vocabulary Test and two checklist measures. For instance, students who reported reading more books did better than peers on the vocabulary checklist measures ($r = .41$, $p < .05$). In a study that recruited its participants ($n = 1687$) from ethnically diverse elementary schools, Kim (2004) found that summer readers improved more on the Stanford Achievement Test of reading than less-frequent readers. Kim and White (2008) randomized students to three intervention conditions and found that books plus instructional scaffolding resulted in improved literacy outcomes for students.

There are certainly individual differences in how well students learn new words from independent summer reading. Lawrence (2012) found that summer reading did not offset predicted vocabulary setback for sixth and seventh grade students ($N = 278$) in a longitudinal model controlling for grade level, baseline standardized scores, gender, and home-language status. Kim and Guryan's (2010) study of fourth-grade students ($N = 370$) included measures of vocabulary knowledge, and found that student participation in a summer reading program did not result in improved vocabulary or comprehension scores. In a randomized trial, Kim (2006) found that participating in a summer reading program, (which included reading instruction and texts provided to the student during summer months) resulted in improved reading, but was especially helpful for less-fluent readers and students with fewer books at home.

This study extends the literature about summer reading and vocabulary. For one, we explore both short- and long-term gains associated with summer reading. Additionally, we analyze the impact of summer activities over multiple summers to test whether the cumulative impact of activities is related to later vocabulary gains. Furthermore, we use propensity score matching to compare differences between groups of individuals who read different amount despite having the same statistical propensity to read (based on key characteristics).

Library visits. According to the American Library Association (2000), 94% of libraries surveyed throughout the US provide study space, 95% of libraries offer summer reading programs, and 89% of libraries offer story hours – each of which are provisions linked to academic achievement (Celano & Neumann, 2001). Kim

(2004) found that access to libraries during the summer predicted improved reading outcomes (controlling for baseline achievement) and there was an interaction between access and race such that Black students benefited even more than other students from summer access to texts. Our study adds to the sparse research on library patronship by examining the relationship between library visits and vocabulary, and especially how regular patronship over many summers relates to adolescent vocabulary knowledge.

Enrichment. Enrichment activities are of interest because they offer opportunities for aural vocabulary exposure and rich discussion. Enrichment activities, in this paper, refer to courses or programs that promote learning through recreational means. For example, woodworking courses and hands-on science programs constitute enrichment courses. In some respects, participation in these activities is similar to school attendance. For instance, these activities are likely to provide students with opportunities to talk and work with adults in contexts that facilitate use of specialized language in completing problem-solving tasks. Thus, while summer enrichment activities may not provide rich opportunities to encounter new words in text or learn from direct vocabulary instruction, they may provide opportunities for discussion and new experiences. Although there is a rich research literature related to discussion and reading outcomes in school contexts (Lawrence & Snow, 2010; Murphy, Wilkinson, Soter, Hennessey, & Alexander, 2009), much less is known about how child-adult discussion in summer or enrichment settings might support student word learning.

Unsupervised Time with Peers. Unsupervised time may provide opportunities for peer-to-peer discussion. During the school year, unsupervised time has been associated with mostly negative academic outcomes, however most research has been conducted on adolescent samples. Unsupervised time has been linked to behavioral and academic problems (e.g., Mahoney & Parente, 2009; Richardson , Radziszewska, Dent, & Flay, 1993). Unsupervised time is more problematic (i.e., it leads to delinquency) when peers are present (Osgood and Anderson, 2004; Osgood, Wilson, O'Malley, Bachman Johnston, 1996; Warr, 2005). The current paper extends the investigation into the relationship between unsupervised time with peers by adding to the small body of literature on the implications of unsupervised time in elementary school.

One of the few studies involving unsupervised time in elementary school aged children found that third grade children who spent time unsupervised actually earned higher grades and scored higher on standardized test scores than children attending low quality after-school programs (Vandell & Corasaniti, 1988). Also, there is evidence that peer-to-peer discussion facilitates vocabulary learning (Cekaite, Blum-Kulka, Grøver, & Teubal, 2014). The current study adds to the small body of literature investigating the link between unsupervised time with peers and vocabulary development.

The Present Study

The current study examines the link between time spent reading, visiting the library, taking enrichment classes, and being unsupervised during the summers before fourth through sixth grade and vocabulary knowledge. Vocabulary is measured by Woodcock Johnson Test Picture Vocabulary (PV) in 5th grade and at age 15. Because activity involvement and academic achievement are dynamically related over time (Posner & Vandell, 1999), stability and change of summer activity involvement is measured and accounted for here. The current study includes a longitudinal exploration of whether cumulative participation in each activity across summers is related to performance on delayed vocabulary scores and uses propensity score matching as a guard against selection bias. If child outcomes are determined by characteristics that differ between those who select to participate in given activities versus those who do not, propensity score matching ensures comparison between groups of students who do not statistically differ on key observable characteristics and acts as our robustness check. Our research questions are:

(1) Does participation in each of the above activities during summers before fourth and/or fifth grade predict PV tests scores in fifth grade?

Based on current knowledge, we hypothesize that reading, library use, and enrichment will predict higher vocabulary scores in fifth grade. Because of inconclusive findings surrounding unsupervised time with peers in elementary school and vocabulary, we do not have a prediction of whether unsupervised time with peers will predict lower or higher vocabulary scores.

(2) Does participation in particular types of activities during one, two, and/or three summers (compared to zero summers) before fourth through sixth grade summers predict PV test scores at age fifteen?

We hypothesize that more reading, library use, and enrichment will predict higher vocabulary scores at age fifteen. We do not have a prediction of whether unsupervised time with peers will predict lower or higher vocabulary scores.   We do not have a prediction of whether unsupervised time with peers will predict lower or higher vocabulary scores.

(3) Do students who participate in an activity for several summers improve more than those how don't meet a participation thresh hold?

Because studies on cumulative activity involvement and vocabulary are lacking we do not have specific hypotheses for the number of summers associated with vocabulary outcomes.

2   Method

2.1   Participants

Participants in the NICHD Study of Early Child Care and Youth Development were recruited as newborns in 1991 from hospitals in or near Little Rock, AR; Irvine, CA; Lawrence, KS; Boston, MA; Philadelphia and Pittsburgh, PA; Charlottesville, VA; Seattle, WA; Hickory and Morganton, NC; and Madison, WI. Of the 8,986 mothers who gave birth during the sampling period, 5,416 (60%) met eligibility requirements and agreed to be contacted. From that pool, a conditionally random sample of 1,364 were included in the study pool which attempted to mirror the demographics of the overall eligible sample, including: 24% ethnic minority children; 11% mothers who had not completed high school; and 14% single family homes. Of these 1,364 children, 1,009 remained in the study until they were 15 years old. A detailed description of participant selection can be found in several publications (see NICHD ECCRN, 2005 for complete details) as well as on the National Institute of Child Health and Human Development (NICHD) Study of Childcare and Youth Development website (https://secc.rti.org).

A total of 992 children completed vocabulary tests in 5th grade, and data contributed by these children are used in the first set of analyses. For the second set of analyses (RQ2 and 3), we use data collected from 889 children who also completed vocabulary tests at age 15.

2.2   Measures

Summer Activity Participation. During the fourth, fifth, and sixth grade school years, mothers reported their children's previous summer's activity participation. Mothers indicted the frequency that their child "read a book, magazine or newspaper" and "visited a library". Response options for *reading* and *library use* ranged from "less than once per month" to "almost every day" on a six-point scale. Parents also reported how many weeks their child "attended an enrichment class (e.g. foreign language) or program for recreational learning activities such as woodworking, hands-on science projects, art, performing arts, etc." Lastly, parents were asked how much time their child spent "out with friends without an adult supervising." Response options for *enrichment* and *unsupervised time with peers* ranged from "none" to "8 weeks or more" along a six point scale. See Table 1 for a complete summary of category distributions.

Activity participation responses were collapsed into two categories: high and low activity levels. If past literature provided insight into the minimum level of each activity which lead to improved literacy, we used criteria from existing research. If there is no empirical base for choosing a threshold of activity participation, an attempt was made to create a roughly equal distribution between groups in our data by examining the frequency of responses.

Summer reading groups were created by identifying students who read a few times per week or more (i.e., the "high" group) and those who read one time per week or less (i.e., the "low" group). This cut was made because benefits of reading occur when children engage in independent reading more than once a week (Kane, 2004). Between 64% and 68% of students were categorized as "high" readers each summer.

Library patronage is understudied. It is not clear what threshold of library patronage is associated with improved vocabulary. We designated students who went to the library at least 2–3 times per month as frequent library patrons (in the "high" group). Between 32% and 41% of students were identified as active patrons each summer.

Current research suggests relatively low levels of unsupervised time experienced by children in the United States; even one unsupervised period a month could be considered a high level (Mahoney & Parente, 2009). The current study categorized students having experienced at least one period of unsupervised time a month as frequently unsupervised and those who had not as infrequently unsupervised. The group of "highly unsupervised" students was between 38% and 50% of the sample each summer using this criterion.

There is sparse empirical research on the impact of enrollment in summer enrichment courses. We wanted to split the distribution as evenly as possible, so we categorized "high" enrichment participation as equal to any level of enrichment course activity, and low participation as no participation. This cut off resulted in between 23% and 26% of students being grouped into the high enrichment category each summer.

In addition to considering what levels of activity participation are used to distinguish between high and low levels of participation at each level, our analyses investigate the relationship between participation levels across multiple summers and their vocabulary scores. Table 2 presents the percentage of students who participated at a high level of each activity for either zero, one, two, or three summers during the summers before fourth through sixth grade (under the heading *high levels of summer activity*).

Vocabulary Measure. The Woodcock-Johnson Psycho-educational battery Test of Achievement was used to measure children's Picture Vocabulary (PV) scores in fifth grade and at age fifteen. This vocabulary test measures verbal comprehension (i.e., naming pictured objects). This task asks children to identify one of four pictures that matches a word spoken by the examiner. Normative data for PV scores allows for standardization and comparison of scores across time (McGrew, Werder, & Woodcock, 1991; Woodcock, 1990). A person's standard vocabulary score will stay the same if their vocabulary increases at a standard rate across time. Table 2 demonstrates the mean scores of the study sample remains within a half of a standard deviation of the normed score across all waves; vocabulary growth in this sample is roughly similar to the norming sample.

Control variables. Because summer activity participation was not randomly assigned to children, the current study takes careful steps to control for confounding variables that may be related to both activity participation and vocabulary scores. The following three sections describe possible confounds which were controlled for

in Ordinary Least Squares (OLS) regression equations and used as matching variables in analyses using propensity score matching.

Vocabulary. Third grade vocabulary test scores were included in each analysis to control for vocabulary performance not long before the first summer of interest (the summer before fourth grade).

Child and Family Characteristics. Maternal education was reported by the child's mother when the child was one month old (Table 2). Average number of years of maternal education ($M = 14.23$) indicates that on average mothers completed a little over two years of school after 12th grade. Child gender was reported by the child's mother when the child was 24 months old; 48% of the sample is female. Ethnicity was coded as either white or non-white; 80% of the sample is white. The family income-to-needs ratio is based on the total family income divided by the poverty-level income for that family size based on federal guidelines. Scores between 0 and 1 indicate poverty, scores between 1.1 and 1.9 indicate near poverty, and scores greater than 1.9 indicate non-poor. The mean income to needs ratio of the sample is substantially above poverty level ($M = 4.5$). Finally, mothers reported the number of parents in the home when the child was in third grade. Eighty percent of the children in this sample lived in two parent homes.

School-year activities. The current study aims to measure how *summer* activity involvement relates to vocabulary knowledge independent of *school-year* participation. To clarify the influence of school-year and summer activities, third grade school-year activities that paralleled summer activities were controlled for. To control for the influence of school-year reading practices on test scores, the home literacy score during the school year was controlled for in analyses involving summer reading and library visits. The home literacy score was computed as the sum of points assigned to nine items related to the child's home literacy environment (Griffin & Morrison, 1997). The score was based on the mothers' answers to nine survey items related to the following: television watching; library card use; newspaper subscription score; adult magazine subscription; child magazine subscription; mother reads to self; adult reads to self; someone reads to child; and books owned by child. Each of the nine items was scored from 0 to 2 points, with 2 indicating a more positive literacy environment. Total scores range from 0–17. The home literacy score was used as a school-year control of library use.

We used the After School Time Use Child Interview, a modification of the time use interview used by Posner and Vandell (1994, 1999), to separate the influence of school-year and summer-time enrichment and unsupervised time. A guided recall format was used to obtain information about children's weekday afternoons during the third grade school year. For each fifteen minute interval from the end of the school day to 6:00pm, children were asked to report how they spent their time. The interview was completed with each child up to three times in third grade. To allow for comparisons across children, children's time use across twenty eight recorded activities were summed and then scaled to twelve intervals per interview to allow comparisons to be made across children. Values for academic enrichment ranged from 0 to 9 intervals per day. Values of unsupervised time range from 0 to 12 intervals per day.

School-year and summer activities (i.e., the independent variables of interest) are only modestly correlated with each other (Table 3).

2.3   Data Analysis

Analyses corresponding to the first research question (RQ1) illuminate relations between summer activity participation in fourth or fifth grade and fifth grade vocabulary scores. Analyses corresponding to the second (RQ2) and third (RQ3) research questions illuminate relations between participation across summers between fourth through sixth grade and vocabulary scores at age 15.

RQ1. Summer activity participation predicting vocabulary tests in grade five. The first set of analyses tested hypothesized associations between participation in specified activities during the summers before fourth and fifth grade and tests of vocabulary in fifth grade. These analyses were conducted in two steps. First, fifth-grade vocabulary tests scores of children who participated in each activity (i.e., reading, library visits, enrichment courses, and unsupervised time with peers) during fourth and/or fifth grade summers were compared with scores of students who did not participate in each summer activity. Because participants were not randomly assigned to activity participation, control variables included: third grade PV scores; gender; ethnicity; maternal education; single parent status; and family income to needs ratio. Additionally, independent school-year activity participation levels were also included as control variables (as described above).

As a robustness check against selection bias, propensity score matching was performed to match individuals who participated in each summer activity during the summers before fourth and fifth grade to those who did not participate in the activity but had a similar probability of participation. Using PSMATCH2 (Leuven & Sianesi, 2003) to perform 1-to-1 propensity score matching with replacement, propensity scores were developed to predict participation in each summer activity using control variables (i.e., third grade PV scores; gender; ethnicity; maternal education; single parent status; family income to needs ratio and participation in each activity during the school year). To determine whether each summer activity predicted tests of vocabulary, children who participated in each activity during each summer were compared to propensity-matched individuals not involved in the activity of interest during that summer.

RQ2. Cumulative summer activity participation predicting vocabulary scores at age fifteen. The second set of analyses tested the hypothesized associations between vocabulary scores at age fifteen between children who participated in each activity during either one, two, or three summers (during fourth through sixth grade) versus those who do not participate in the activity during any of these summers. Again, because participants were not randomly assigned to activity participation, a list of confounds were controlled for in this initial regression analysis (see list of control variables above). Propensity score matching was not performed in this case because the variables of interest (number of summers at high levels of activity) were not dichotomous.

RQ3. Threshold analysis of summer activity participation predicting vocabulary scores at age fifteen. The third set of analyses tested whether a minimum number of summers (i.e., a threshold) significantly related to test scores when comparing children who participated in activities above and below this threshold. The threshold of activity participation across summers was determined as the least number of summers associated with significantly different test scores for children in each activity compared to those who did not participate in the activity at all in the analyses for RQ2 above. This threshold was used to determine two groups of children for each activity (i.e., those who participated in the activity at or above the threshold versus those who did not).

As a robustness check, propensity score matching was performed to match individuals who participated in each summer activity at or above the threshold to those who did not but had a similar probability of activity participation up to the threshold. Using PSMATCH2 (Leuven & Sianesi, 2003) to perform 1-to-1 propensity score matching with replacement, propensity scores were developed predicting participation in each summer activity of interest using the control variables specified above as matching variables. To determine whether each "threshold" of summer activities predicted WJ-R tests of vocabulary test scores, children at or above the threshold were compared to propensity-matched individuals not involved in the activity of interest up to the threshold level.

3 Results

3.1 RQ1. Summer Activity Participation Predicting Vocabulary Scores in 5th Grade

Table 4 provides results from OLS and propensity score matching analysis.[1]

Reading. In both the OLS and propensity score matching (PSM) analyses, children in the high reading exposure groups during fourth or fifth grade summers scored significantly higher on vocabulary tests in fifth grade (OLS: $b = 3.04, p < .01; b = 2.68, p < .01$.; PSM: $b = 3.21, p < .05; b = 2.95, p < .001$).

Library visits. There was a positive significant relationship between library use during the summer of fourth grade and vocabulary in fifth grade in the OLS regression analyses ($b = 1.84, p < .05; b = 1.90, p < .05$.), but this relation was not evident in the propensity score analysis.

Enrichment. There were no significant differences on fifth grade vocabulary tests between children who attended summer enrichment classes during summers before fourth or fifth grade and those who did not.

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1 Children participating in each summer activity were well matched to non-participants after propensity score matching. With few exceptions, bias in matching variables described above was reduced after propensity score matching between children involved in each summer activity versus those not involved in each activity. Comparisons after matching are described in the following section. Significance tests for an interaction between participation in each activity and maternal education were not found to be significant for any of the below analyses and were therefore omitted.

Unsupervised Time with Peers. Children who were unsupervised with peers during the summer before fifth grade displayed significantly lower vocabulary tests in fifth grade in both the OLS regressions ($b = $ -1.87, $p < .05$) and the PSM analysis ($b = $ -2.25, $p < .05$). There were no significant differences in the vocabulary tests of children in the high and low unsupervised groups during the fourth grade summer.

3.2   RQ2. Cumulative Summer Activity Participation Predicting Vocabulary Scores at Age Fifteen

Next, we describe associations between the number of summers that children participated in each activity between fourth through sixth grade summers and their vocabulary test scores at age 15. These results tell us about relationships between summer activities and vocabulary development for students in our sample, and help us establish a threshold for cross-summer activity levels we use in RQ3. Unstandardized coefficients and effects sizes (calculated by dividing the coefficient by the grand vocabulary standard deviation [$SD = 14.8$]) are reported on Table 5.

Reading. Vocabulary tests were estimated for children who had high reading participation for one, two, or three summers (versus zero summers) between fourth through sixth grade. Children who read regularly during at least three summers scored significantly higher on vocabulary tests at age 15 years ($d = 0.41$, $p > .001$) than children who did not regularly read at high levels between fourth through sixth grade.

Library visits. Children who regularly visited the library across all three summers scored higher on vocabulary test scores at age 15 than those who did not regularly visit the library during any summer ($d = 0.22$, $p < .01$).

Enrichment. Children who participated in enrichment courses for three summers demonstrated better vocabulary knowledge at age 15 ($d = .49$, $p < .01$) than those who did not attend enrichment courses regularly during any summer.

Unsupervised Time. Children who were unsupervised for two or three summers between fourth through sixth grade scored lower on vocabulary tests at age fifteen ($d = $ -0.18, $p < .05$ and $d = $ -.37, $p < .001$ respectively) than children who were not regularly unsupervised during any summer between fourth through sixth grade.

3.3   RQ3. Threshold Analysis of Cumulative Summer Activity Participation Predicting Vocabulary Scores at Age Fifteen

RQ3 results illuminate differences between individuals who participated in each activity above and below the threshold number of summers associated with significantly different test scores, as determined in response to RQ2. Unstandardized coefficients and effects sizes for both OLS and propensity score matching analysis are provided on Table 6.

Reading. In our last set of analysis (RQ2) we saw that students who reported high levels of reading for three summers had better age-15 vocabulary scores than students who did not read at high levels during any summer. Therefore, in this set

of analysis (RQ3) we compare students who reported reading at high levels during three summers with those who read at high levels for only two summers or less using OLS and propensity score matching. Both approaches indicate that those who read during at least three summers scored significantly higher on vocabulary tests at age 15 (OLS $d = .27$, $p < .001$; PSM $d = .28$, $p < .001$).

Library visits. Children who regularly visited the library across all three summers scored higher on vocabulary tests at age 15 than those who did not regularly visit the library during the summer. Accordingly, three summers was determined as the threshold for RQ3 analysis. However, although the parameter associated with 3 summers of high levels of library patronage was significant in the OLS analysis (OLS $d = .26$, $p < .001$), it was not in the propensity score matching model.

Enrichment. Three summers was used as the threshold for analyzing the relationship between enrichment attendance and vocabulary. OLS threshold analysis (OLS $d = .46$, $p < .001$) suggests the importance of consistent attendance in enrichment classes. However, after matching, no significant differences in age fifteen vocabulary scores were found between children who did or did not regularly attended enrichment courses for three summers.

Unsupervised Time. In both OLS and propensity score matching models, children who were unsupervised for two summers or more scored significantly lower on vocabulary tests (OLS $d = -0.25$, $p < .001$; PSM d = -0.19, $p < .01$) than children who experienced zero or one summer with an unsupervised period.

4   Discussion

Findings from this study fill gaps in the literature concerning relations between summertime activity involvement and vocabulary knowledge. Specifically, three issues were addressed: (1) whether participation in specific activities during the summers before fourth and fifth grade is related vocabulary test scores in fifth grade; (2) whether cumulative activity participation across summers between fourth and sixth grade predicts vocabulary test scores at age fifteen; and (3) whether there is a threshold number of summers in each activity associated with vocabulary test scores at age 15.

The most consistent finding is that reading is an important predictor of vocabulary knowledge in both the short and long term. Findings indicated that summer reading during fourth and/or fifth grade is positively associated with higher vocabulary scores whereas unsupervised summer time during fifth grade is related to lower PV scores. Three summers of reading between summers before fourth through sixth grade predict higher vocabulary scores at age 15. These findings are consistent with previous research showing that reading during the summer is associated with subsequent positive academic achievement (e.g., Kim, 2004). Current findings add to the literature by revealing that reading during the summer is not only associated with short term academic achievement in grade 5, but is associated with longer term academic achievement in later adolescence as well. Further, the current paper provides evidence that consistent reading across each summer between fourth through sixth is the activity threshold associated with higher vocabulary at age 15. If this finding

holds across future studies, careful attention should be paid to fostering reading opportunities for children across multiple summers.

The finding that unsupervised time with peers during the summer is associated with lower vocabulary scores adds to the literature on unsupervised time during elementary school and during the summers. Unsupervised time has previously been associated with misconduct and problem behaviors. The current findings suggest that at least two summers of unsupervised time are also related to lower vocabulary scores in later adolescence. The lack of research on the relation between unsupervised time during elementary grades and academic achievement may be explained by the fact that at least two summers of unsupervised time are required before significant differences in test scores appear.

The finding that library use and enrichment participation were only associated with significant findings before propensity score matching may suggest that selection differences were controlled through propensity score matching. The magnitude of the effect sizes yielded by summer enrichment activity participation is noteworthy. A review of out-of-school programs indicated that program effect sizes are strongly related to high levels of program implementation and consistency of implementation (Durlak & DuPre, 2008). Specifically, programs that were consistently implemented have yielded effect sizes as high as .50. Because the current study analyzed activity dichotomously, as either at or above previously determined "effective" levels of activity involvement (based on past literature) it makes sense that effect sizes would be similar to effect sizes for "high levels of implementation." The fact that these activities are not significant in the propensity score matching analyses suggest that these classes may be enrolled in by families with other advantages and so selection bias needs to be carefully considered when estimating the impact of these programs.

Limitations and Future Directions

While this study adds to the literature on summer and vocabulary development, several limitations should be noted. First, while the sample was ethnically and economically diverse, the NICHD dataset does not include language minority children because the initial sample was created from a pool of English speaking mothers. A nationally and linguistically representative sample is needed to make broader generalizations about findings.

A second limitation is that this study was not a randomly assigned experiment. However, use of controls and propensity score matching provided a strong test of quasi-experimental research. Importantly, school-year activities that closely matched summer activities of interest were included as control variables in the regular regression analyses and matching variables in the propensity score matching analyses. Inclusion of school-year activities allowed for a more precise measure of the association between activity involvements *during the summer* without confounding participation in the activity during the school year. Future studies can similarly benefit from inclusion of school-year activities as controls if the goal is to isolate effects of summer activities, independent of school year activity participation.

Future research should measure activity quality. This study did not take into account activity quality because this measure was not available. This is a limitation because quality of out-of-school time experiences has been shown to be significantly linked to outcomes (Pierce, Hamm, & Vandell, 1999; Posner & Vandell, 1994; Rosenthal & Vandell, 1996; Vandell et al., 2006). Similarly, the current study was limited by the inability to account for activity content. For example, the relation between library use and test scores may depend on the content of what children do while at the library. As with any activity, the content of the experience (e.g., whether a student completed research in the library or talked to friends) should be considered in studies of summer experiences. For example, the null findings associated with enrichment activities could be related the fact that enrichment activities in this study were measured as a hodgepodge of different sorts activities without knowledge of organization level or quality. Future studies would benefit from looking at whether specific enrichment activities are related to vocabulary scores. Future studies that use more specific measures of summer activities and specific learning processes within the activities would be informative.

Despite limitations, this study begins to fill gaps in the literature concerning the relation between summer experiences (during middle childhood in the summers between fourth through sixth grade) and measures of vocabulary up to age fifteen. The current study's findings that specific elementary summer experiences predict vocabulary at age fifteen provide impetus for further research into understanding potentially effective summer learning opportunities. This study indicates that studying activity involvement cumulatively across summers and over time is important to understanding relationships between activities and outcomes over time. Overall, current findings fit with past literature demonstrating that summer learning during elementary school explains academic achievement into high school (Alexander et al., 2001) and provide more information about what activities are related to a specific measure of vocabulary development.

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Table 1. Distribution of scores along the six point scales of activity involvement

	>1x/ month	≈ 1x/ month	2-3x/ month	≈ 1x/ week	few x/ week	≈ daily	N	Total % in "high" group
Reading								
Grade 4	2%	6%	9%	15%	*29%*	*39%*	957	68%
Grade 5	3%	7%	12%	14%	*28%*	*36%*	987	64%
Grade 6	4%	6%	11%	14%	*27%*	*38%*	949	65%
Library Visits								
Grade 4	37%	23%	*20%*	*16%*	*4%*	*1%*	951	41%
Grade 5	38%	25%	*16%*	*16%*	*4%*	*1%*	975	37%
Grade 6	43%	24%	*15%*	*13%*	*4%*	*1%*	944	32%
Unsupervised Time								
Grade 4	61%	*4%*	*5%*	*7%*	*13%*	*9%*	948	38%
Grade 5	56%	*7%*	*7%*	*8%*	*14%*	*9%*	982	45%
Grade 6	50%	*7%*	*8%*	*11%*	*14%*	*10%*	948	50%
	None	1 day– 1 week	2–3 weeks	4 weeks	5–7 weeks	≥ 8 weeks	N	Total % in "high" group
Enrichment								
Grade 4	74%	*9%*	*8%*	*3%*	*3%*	*2%*	940	26%
Grade 5	74%	*10%*	*9%*	*3%*	*2%*	*2%*	969	26%
Grade 6	77%	*10%*	*7%*	*2%*	*3%*	*2%*	937	23%

Note: The frequencies for each activity align with the frequencies on the parent questionnaire soliciting amount of time their child spent in each activity during the previous summer. Parents were asked to circle a number (1-6) to indicate which category of time their child spent on each activity. For "reading," "library visits,' and "unsupervised time" category options range from "less than once a month" to "almost every day" as indicated in the top columns. For "enrichment" category options ranged from "none" to "8 weeks or more" as indicated by the column headers directly above "enrichment." The numbers in italics represent categories that are part of the "high" activity involvement group for certain analyses, whereas percentages that are not in italics represent activities part of the "low" activity involvement for the given activity.

Table 2. Demographic Characteristics of Children and Families

		N	%	Mean	SD	Range
Demographics						
Maternal education				14.23	2.51	7 to 21
Female children		1364	48%			
Ethnicity: white		1364	80%			
Family income/needs		985		4.5	3.88	.07 to 32
Two parent homes		1045	80%			0 to 1
Home Literacy Score		1016		10.31	3.57	1 to 17
Enrichment		1022		.45	.90	0 to 9
Unsupervised Time		1022		1.78	2.37	0 to 12
High levels of summer activity						
Reading	0 Summers	889	12%			
	1 Summer	889	20%			0 to 1
	2 Summers	889	20%			0 to 1
	3 Summers	889	49%			0 to 1
Library	0 Summers	889	20%			
	1 Summer	889	17%			0 to 1
	2 Summers	889	24%			0 to 1
	3 Summers	889	39%			0 to 1
Enrichment	0 Summers	889	51%			
	1 Summer	889	27%			0 to 1
	2 Summers	889	14%			0 to 1
	3 Summers	889	7%			0 to 1
Unsupervised	0 Summers	889	33%			
	1 Summer	889	25%			0 to 1
	2 Summers	889	20%			0 to 1
	3 Summers	889	22%			0 to 1
Vocabulary						
Grade 3		1014		105.47	14.8	34 to 152
Grade 5		992		103.1	14.8	29 to 155
Age 15		889		99.93	14.8	34 to158

Note: Maternal education is measured by years of schools starting in first grade. The mean of 14.23 represents completion of 2.23 years of school after 12th grade. For analysis purposes, ethnicity was collapsed into white versus all other ethnicities. A family income/needs ratio of 0–1 indicates poverty, 1.1–1.9 indicates near poverty, and greater than 1.9 indicates non-poor. Two parent homes is a measure of how many children live with two parents (instead of only one).

Table 3. Correlations between activity involvement during summer (left column) and school year (top row) activities

Summer	School-year		
Activity	Literacy Score	Enrichment	Unsupervised
Reading			
Grade 4	*.30****	.04	-.06
Grade 5	*.29****	.09**	-.05
Grade 6	*.31****	.11***	-.06
Library			
Grade 4	*.22****	.10**	-.08*
Grade 5	*.18****	.07*	-.04
Grade 6	*.14****	.03	-.06
Enrichment			
Grade 4	.17***	*.07**	.05
Grade 5	.14***	*.07**	-.04
Grade 6	.21***	*.09***	.01
Unsupervised			
Grade 4	-.16***	-.06	*.12****
Grade 5	-.21***	-.03	*.10***
Grade 6	-.15***	-.12**	*.12****

Note: The numbers in *italics* represent matched school and summer year variables.

*p < .05; ** p < .01; *** p < .001

Table 4. Regression Coefficients (and Standard Errors) of Summer Activity Involvement and Vocabulary Scores in Grade 5 for OLS and Propensity-Score Matching Analysis

	OLS Regressions	Propensity Score Matching
Reading		
Grade 4	3.04** (.96)	3.21* (.79)
Grade 5	2.68** (.92)	2.95*** (.82)
Library		
Grade 4	1.84* (.90)	-.71 (1.15)
Grade 5	1.90* (.90)	.87 (1.24)
Enrichment		
Grade 4	1.26 (1.02)	.37 (1.51)
Grade 5	1.78 (.99)	2.10 (1.49)
Unsupervised		
Grade 4	-1.32 (.93)	-.12 (1.12)
Grade 5	-1.87* (93)	-2.25* (1.05)

Note. Study members were categorized as involved in each activity at least once per week or not. Controls variables include: 3rd grade vocabulary score; sex; mother's education; family income to needs ratio; whether or not the family is a singly family household; child's race; data collection site; involvement in specific activity during school year. The same variables used as controls were used as matching variables in the propensity score matching analysis.

*p < .05.; ** p < .01; *** p < .001

Table 5. OLS Regression Coefficients (and Standard Errors) of Summer Activity
Involvement during One, Two, or Three Summers compared to
Zero Summers (During 4th–6th Grade)

	Vocabulary Scores	
	OLS Coefficient	Effect Size
Reading		
1 summer	.80 (1.74)	0.05
2 summers	2.85 (1.75)	0.19
3 summers ◊	6.02*** (1.51)	0.41
Library		
1 summer	-.48 (1.19)	-0.03
2 summers	-.26 (1.33)	-0.02
3 summers ◊	3.31* (1.36)	0.22
Enrichment		
1 summer	.78 (1.15)	0.05
2 summers	1.01 (1.39)	0.07
3 summers ◊	7.26** (1.86)	0.49
Unsupervised		
1 summer	-1.80 (1.25)	-0.12
2 summers ◊	-2.66* (1.37)	-0.18
3 summers	-5.44*** (1.35)	-0.37

Note. Controls variables include: either 3rd grade vocabulary score; sex; mother's education; family in-
come to needs ratio; whether or not the family is a singly family household; child's race; data collection
site; involvement in specific activity during school year. The same variables used as controls were used
as matching variables in the propensity score matching.

◊ indicates the "threshold" or least number of summers associated with either significantly higher or
lower test scores than children who did not participate in the activity during any summer measured.

*p < .05.; ** p < .01; *** p < .001

Table 6. OLS and Propensity Score Matching Analysis of Activity Thresholds Predicting Vocabulary Scores at Age 15

	OLS Coefficients	Effect Size	Propensity Score Matching	Effect Size
High Reading	3.93***	0.27	4.07***	0.28
(3 summers vs. 0, 1, 2 summers)	(1.14)		(1.29)	
High Library Patronage	3.92**	0.26	2.97	0.20
(3 summers vs. 0, 1, 2 summers)	(1.38)		(2.07)	
Attending enrichment	6.76***	0.46	4.98	0.34
(3 summers vs. 0, 1, 2 summers)	(1.78)		(3.35)	
Unsupervised time	-3.67***	-0.25	-2.75**	-0.19
(3 & 4 summers vs. 0, 1 & 3 summers)	(.98)		(1.09)	

Note. Controls variables include: either 3rd grade vocabulary score; sex; mother's education; family income to needs ratio; whether or not the family is a singly family household; child's race; data collection site; involvement in specific activity during school year. The same variables used as controls were used as matching variables in the propensity score matching.

*p < .05.; ** p < .01; *** p < .001

Designing "Contexts for Tinkerability[1]" With Undergraduates and Children Within the El Pueblo Mágico Social Design Experiment

Lisa H. Schwartz, Daniela DiGiacomo, and Kris D. Gutiérrez

Abstract: "Making and Tinkering" links science, technology, engineering and mathematics learning (STEM) to the do-it-yourself "maker" movement, where people of all ages "create and share things in both the digital and physical world" (Resnick & Rosenbaum, 2013). This paper examines designing what Resnick and Rosenbaum (2013) call "contexts for tinkerability" within the social design experiment of El Pueblo Mágico (EPM) – a design approach organized around a cultural historical view of learning and development. We argue that this theoretical perspective reorganizes normative approaches to STEM education through a hybrid approach that brings together concepts from cultural historical theory and from Making and Tinkering (M & T) in ways that are important to how theory is enacted in STEM practice.

Keywords: "Making and Tinkering", cultural historical theory, nondominant communities, informal STEM

1   Introduction

"Making and Tinkering" has become popular in informal education circles. The practice links science, technology, engineering and mathematics learning (STEM) to the do-it-yourself "maker" movement, where people of all ages "…create and share things, in both the physical world and the digital world" (Resnick & Rosenbaum, 2013, p. 163). This paper examines how undergraduates, children and researchers drew on the ecology's organizing theoretical framework and worked together to instantiate a cultural historical approach to Making and Tinkering (M & T) at three permutations of *El Pueblo Mágico* (EPM) (see Table 3). This social design experiment joins university students in courses on learning and development, k-8 youth from predominately non-dominant communities and researchers in an after school program oriented toward expansive and consequential learning (Gutiérrez & Vossoughi, 2010).

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1   The term "contexts for tinkerability" derives from the work of Resnick and Rosenbaum (2013) that is discussed in this article.

Transforming the design experiment in what Gutiérrez (2008; Gutiérrez & Vossoughi, 2010; Gutiérrez & Jurow, 2014) discusses as a social design experiment, an overarching goal of the research is to address issues of equity and consequential learning. As in traditional design-based research (Gravemeijer & Cobb, 2006), social design experiments take a theory-based and iterative design approach that aims to understand *and* change practice. To achieve our goals we engage theory in practice to re-organize and circulate power in joint activity – in other words the aim is for undergraduates and youth to collaboratively design the process and objectives of their work. Our approach to M & T activity within EPM engages commonalities across the Maker Movement, as articulated by Resnick & Rosenbaum (2013), and tenets of cultural historical theory that are integral to the designed learning ecology that is the context of our work (see Tables 1 and 2).

In university courses on child and adolescent development and their isomorphically designed EPM site, we engaged undergraduates with M & T through sociocultural theories that present a highly mediated approach for putting theory into practice. In this article, in order to analyze how undergraduates took up theory in practice with youth at EPM, we examined the development of what we call "design discourse" among participants. Throughout our iterative design and analytical processes, we focused on Stone and Gutiérrez's (2007) concept of joint problem articulation – a process in which a shared understanding of the presented problem and the goal of the activity develops toward shared practice. In this way, joint problem articulation represents a negotiated practice and discourse of design that distributes expertise and agency to the teacher and students. In our research specifically, we examined how this concept worked to support children and undergraduates in the development of joint activity where adults guided participation and created contexts where both children and adults contributed to the design of STEM activity.

2   Research Questions

EPM works to leverage and extend youths' everyday activity for consequential learning through the development of shared practices among participants. In this paper, we articulate this aim as the development of a shared design discourse and a joint articulation of the objectives of STEM learning activity among undergraduates and children from nondominant communities. We posit that this work is accomplished through undergraduates' use of theory in M & T practice. To examine this conjecture, we ask two interrelated questions: 1) What theories and practices mediated undergraduates' and children's development of a design discourse in which they jointly negotiated shared practices?, and 2) In what ways did the concept of joint problem articulation bring together theory and practice? To explore these questions, we present representative examples of what we view as effective appropriation of an expansive theoretical approach to learning (Cole & Griffin, 1983; Gutiérrez, Hunter, & Arzubiaga, 2009). Situated in the EPM social design experiment and its activity theoretical perspective, this approach works to re-mediate the normative, top-down social organization of tool use, relationships, distribution of expertise, and

articulation of objectives in STEM activity (Engeström, 1987). In other words, this approach works to distribute responsibility for thinking and acting across teachers and students (Rogoff, 1994).

3   Theoretical Background

A Cultural Historical Approach To Making and Tinkering

Our implementation of M & T at EPM is based on tenets of cultural historical theory taken up in the social design experiments developed by Gutiérrez (2008) (See Table 1).

Table 1. Key cultural historical theoretical constructs

Key Theoretical Term	Definition
Zone of Proximal Development (Vygotsky, 1978)	The concept of the zone of proximal development (ZPD) represents the development of intersubjectivity among participants and tools in activity, through the sharing of expertise and assistance across people and tools, so that tasks are accomplished through joint activity that could not be accomplished by a learner independently. What occurs in the development of the ZPD is a way of stretching the learner's abilities through assistance so that their potential development is engaged and they can act "…a head taller …(Vygoktsky, 1978, p. 102)" than their actual level of development.
Mediation (Vygotsky, 1978)	The concept of mediation posits that the world is not experienced directly but rather through cultural mediation, that is, our understanding is mediated through tools. These tools can be artifacts, people or combinations of the two in interaction.
Community of Learners (Rogoff, 1994)	Rogoff's community of learners (COL) posits that such a community moves away from a solely adult-run or child-run model of interaction. Instead, the concept of the community of learners offers a pedagogical model whereby the teacher retains authority while they work to distribute responsibility for thinking and acting across teachers and learners.
Joint problem articulation / Serial Mediation (Stone & Gutierrez, 2007)	In joint problem articulation, a shared understanding of the presented problem and the goal of the activity develops toward shared practice. Joint problem articulation is discussed in conjunction with the concept of serial mediation. This concept further describes the shared process of problem formation and negotiation of objectives through explaining how responsibility for organizing tasks shifts across participants over time.

Drawing on Rogoff's (1994) "community of learners" (COL) as an organizing feature of the learning context and an emphasis on joint problem articulation, our approach to M & T within the EPM social design experiment re-organizes the division of labor among children and adults in ways that render traditional and polarizing notions of classroom control as constraining. In line with the Next Generation Science

Standards (NGSS)[2], a cultural historical approach to M & T avoids the dichotomizing debates in STEM education in which process and content learning are separate. Within this perspective, then, this paper focuses on the value and work of creating contexts for undergraduates and children to take up scientific habits of mind and processes of shared design central to the acquisition of a particular content area.

This work seeks to re-mediate the functional system of science education for all students (Cole & Griffin, 1983; Gutiérrez, Hunter, & Arzubiaga, 2009), and, in particular, for women and students from non-dominant communities. We do this through foregrounding the joint activity, playful inventiveness, and human ingenuity we see as common threads of theory and practice across social design experiments, maker spaces, and the activity of members of nondominant communities. Table 2 outlines our approach to M & T within our designed learning ecology.

Table 2. Components of A Cultural Historical Approach to M & T at *El Pueblo Mágico*

EPM Social Design Experiment, including El Pueblo Magico and 5507 and 5508 Undergraduate Courses in Child and Adolescent Development	M & T articulated by Resnick and Rosenbaum (2013)
• Play and the imaginary situation as forming zones of proximal development (ZPDs) (Vygotsky, 1978) • Children and families' playful inventiveness (Gutiérrez, 2013; Schwartz & Gutiérrez, 2013)	• Play • Experimental, iterative style of engagement
Joint problem articulation (Stone & Gutiérrez, 2007 – Serial mediation e.g. continual reassessment and re-directing of object-oriented activity (Stone & Gutiérrez, 2007) – Just enough assistance Gutiérrez & Vossoughi (2010) – mediated praxis	– Continual goal reassessment – Continual exploration of new paths and imagining new possibilities – Immediate feedback
Expansive learning (Engeström, 1987) – horizontal / vertical movement (Gutiérrez, 2008) – Growing together everyday and scientific concepts (Gutiérrez, 2014; Vygotsky, 1978)	– Fluid experimentation: easy to dive in, connect and extend – Process over product – Open exploration – Improvisation/adaptation/iteration – Sharing resources – Negotiating access
Community of Leaners (Rogoff, 1994) – Distributed expertise among intergenerational ensembles – Learning as taking on new roles and responsibilities in joint activity (Vygotsky, 1978) – Cultural mediation (through people, tools, ideas)	– Engagement with people and materials
(Gutiérrez et al., 1999) – Hybridity and heterogeneity	– Diverse examples, divergent thinking

Table columns show the two domains we draw from for our approach to M & T; our university courses and Resnick and Rosenbaum's seminal work on M & T. Table rows depict complementary concepts and how our approach connects to and draws new emphases from M & T. Shared across these domains are processes of shared thinking, risk-taking, horizontal movement across activities, and multiple entry points to activity that a cultural historical approach to M & T within EPM upholds as primary components of re-mediating normative STEM activity in academic spaces.

We aim for students to connect to multiple experiences in their lives and to deepen their knowledge about STEM processes as they create new opportunities for understanding within M & T activity (Ito et al, 2013). Importantly, we view successful M & T as a cycle of collaborative, hands-on, reflective, planned and dialogic activity where a variety of strategies and supports are taken up in order for children and adults to jointly articulate the direction of their inquiries. We emphasize what Resnick and Rosenbaum (2013) discuss as "diving into practice" with children and a process of mediated praxis (Gutiérrez & Vossoughi, 2010) whereby novice teachers reflect on practice, and visualize and enact new possibilities for joint activity with children. In these processes, fluid participation structures provide opportunities for the adult to maintain a role that provides guided participation, strategies, and choices for the children to co-determine the presented problem and direction of activity.

We define design discourse as talk among participants that works towards an ethos of shared design and what Resnick and Rosenbaum call "fluid experimentation" that engages both horizontal and vertical movement within STEM activity. From an activity theoretical view, attention to horizontal movement is integral to the designed learning ecology discussed in this article (Engeström, 1987). Horizontal movement refers to movement across a range of practices, activities and discursive domains, and is a critical dimension of learning theorized by Gutiérrez (2008; Gutiérrez & Vossoughi, 2014; Gutiérrez, 2014). Within this focus, children's everyday practices are leveraged toward more expansive forms of learning, in contrast to a singular focus on vertical forms of learning often privileged in school settings[3]. With the examples we share below, we argue that through this widening of possibilities, we support youth who might not initially be interested in certain STEM activities, and garner more effective participation from novice teachers with varying levels of STEM expertise. Through allowing for lateral movement across a range of practices, we have the opportunity to view how students' interests are taken up in STEM activity, and how this broadening of the field of inquiry may support their movement into more focused endeavors, and deeper learning in a particular practice or content area, or the vertical dimension of learning (Engeström, 2003).

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3   Vertical forms of learning generally involve movement from novice to expert, development of domain expertise, etc.

4   Methods: Theory into Practice

In this article, we discuss the work of undergraduates, called *amigos* (friends), and youth in three instantiations of our approach to M & T within the EPM social design experiment. This designed learning ecology is comprised of undergraduate classes on child and adolescent development (EDU 5507 and 5508 respectively) coupled with the EPM after school program. Pseudonyms are used for participants. Table 3 shows information about each research context. These sites are part of a longstanding social design experiment designed by Gutiérrez (Gutiérrez, 2008; Gutiérrez & Vossoughi, 2010). Significantly, EPM is a team effort that involves students, researchers and faculty working in partnership to design and facilitate activity.

Table 3. Three instantiations of the EPM social design experiment

EPM	Participants/Context	Activities
EPM1 Spring 2013	– Child Development course (EDU 5507) – 26 EDU 5507 students at EPM (1 day/per week for 1 semester) – EPM staff (doctoral students) – Children grades 2-5 (~85) at EPM – Researchers/M & T facilitators and EDU 5507 Instructors	– Zoom Zoom (cars) – Scribble machines – Squishy circuits (playdoh batteries and LED lights) – AgentCubes/Sheets (children program their own videogames) – World Maker (create world with recycled materials)
EPM2 May 2013	– Adolescent development course (EDU 5508) – 22 EDU 5508 students at EPM (2 days/per week for 3 weeks) – Children grades 6–7 (18) at EPM – M & T and EPM2 designers/facilitators and EDU 5508 instructors (including the researchers and undergraduate research opportunities (UROP) students)	– Solar Cars, – Solar Theremin – Produce circuits (circuits with lemons and potatoes) – LED/squishy circuits – Sewn circuits – Minecraft circuits (circuits created with in popular sandbox video game Minecraft)
EPM3 May 2014	– Adolescent development course (EDU 5508) – 29 EDU 5508 Undergraduates (2 days/per week for 3 weeks) – Children grades 6–8 (28) at EPM – M & T and EPM3 designers/facilitators and EDU 5508 instructors (including the researchers and UROP students)	– Paper circuits (LEDs, copper tape and paper) – Makey Makey (invention kit for creating computer keyboard controls with conductive materials) – Robot Picaxe (programmable robot) – Rube Goldberg (multistep contraption-invention purposely constructed for complexity)

Data Collection and Analysis

As part of an ongoing social design experiment, data collection and analysis occurred in several stages. Table 4 shows the data collected and analyses performed for the three iterations of EPM.

*Table 4.* Data collected and analyzed at three iterations of EPM

	Data Collected / Analyzed
EPM1	Text analysis of 86 Cognitive Ethnographies (CEs) by 24 students. Close-up analysis of design discourse for 26 CEs by 5 students The CE – a longstanding feature of EPM – engages students in dialogic reflection and mediated praxis (Hutchins, 2003; Gutiérrez & Vossoughi, 2010). It is the key mediating artifact that links EPM to the adolescent and child development courses. The CE is a structured field note about collaborations with children where undergraduates a) document detailed, moment-to-moment learning activity, b) apply theories they are learning to their practice and c) engage in dialogue with instructors about theory and practice. Video data; field notes
EPM2	• Videotaped data from 6 days of EPM2, ~1.5 hours per day • Close-up analysis of three 8–18 minute long video clips of three ensembles; field notes • Student papers, reflective blogs
EPM3	• Text analysis of cognitive Ethnographies (CEs) by 30 students • Design discourse analysis and analysis of joint problem articulation based on criteria that emerged in analysis of EPM1 and 2 • Video taped observations • Artifacts: Game Cards, Challenge Cards, Project Plans

We first conducted an overall analysis of CEs for EPM1 and videotaped data for EPM2 to gain a sense of how undergraduates conceptualized and enacted M & T activity through the lens of the theories taught in the courses. Table 5 outlines how we selected a subset of CEs from EPM1 that referenced M & T and key theoretical constructs. Figure 1 shows the number of key theoretical terms used in these CEs and by undergraduates. We analyzed the use of theoretical terms in CEs to hone in on examples to code further. For EPM2, Table 6 shows how our undergraduate research and instructional team ranked activity in video clips according to a rubric co-created with Schwartz.

Table 5. Number of EPM1 undergraduates referencing M & T and key theories in their CEs

Total CEs that referenced M & T	"M & T" CEs using key theoretical terms from the CU Courses.
86 (65%) of CEs by 24 (92%) undergraduates in the EDU 5507 course	76 (88%) of CEs by 23 (96%) undergraduates in the EDU 5507 course

Figure 1. Concepts used by undergraduates in CEs discussing M & T at EPM1. Top bar: students who used the term in their CEs. Bottom bar: CEs that used the term.
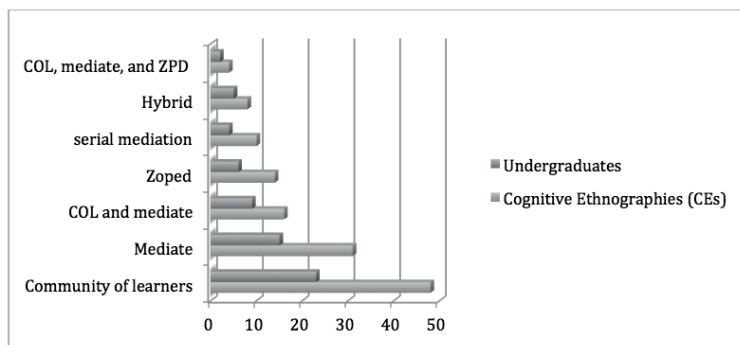
Table 6. Ranking of assistance strategies in 32 instances of interaction at EPM2

Undergraduate Assistance	Instances
1 Good: Undergraduate(s) used targeted and open ended questioning, modeled possibilities without taking over the task, worked in concert with students, shared their own ideas and encouraged students to do the same; supported inquiry through idea sharing across participants	12
2 Adequate: Undergraduate(s) used questioning but questions were mainly generic, e.g. "What do you think" and did not necessarily help push students' understanding. Some modeling and side by side work but less interaction among undergraduate(s) and students, or undergraduate gives too much information and sidetracks or limits student inquiry.	11
3 Poor: Undergraduate(s) disengaged or took over task completely, no use of questioning or only "known answer" questions, no sharing of ideas	9
Peer Support	
1 Good: students modeled activity for each other, shared materials and took turns, shared and built off of each others ideas	10
2 Adequate: some sharing of ideas but much less active shared participation	9
3 Poor: did not share ideas or materials, did not let certain students participate	5

In order to address our research questions, the work of a subset of students (n=8) that demonstrated a range of effectiveness in putting theory into practice was selected for further analysis from EPM1 and 2. We chose twenty-six CEs written by five undergraduates from EPM1 whose CEs used key theoretical terms, and the work of three ensembles at EPM2 that were representative of the range of undergraduate assistance. After selecting these cases we coded data to focus on 1) types of strategic assistance, 2) distributed expertise and roles emerging in activity, and 3) use of key theoretical concepts for mediated praxis. These three areas informed our conceptualization of participants' developing design discourse. We also analyzed data for the development of talk and interaction that both did and did not show shared development of ideas and goals in M & T activity, important criteria for our theorization of

design discourse. Of significance, the concept of joint problem articulation (Stone & Gutierrez, 2007), often articulated through a discussion of "serial mediation", while not the most numerically prevalent in students' CEs, emerged in both CE and video-documented data in EPM1 and 2 as generative for supporting the development of a shared design discourse. Of note, this concept has historically served as a key mediating tool in Gutierrez's social design experiments (Gutierrez & Jurow, 2014).

Based on our findings from EPM1 and EPM2 we focused our design of culturally historically grounded M & T activity and analysis of EPM3 specifically on the concept of joint problem articulation. Our aim with the third iteration was to create supports for the development of this theoretically grounded practice within undergraduates' work with children. For EPM3 analysis we selected sections of CEs representative of how students utilized the concept of joint problem articulation, and the artifacts and strategies we introduced in EPM3 to develop a shared design discourse.

5 Findings: Strategies and Concepts for Developing a Discourse of Design

Our analysis focused on how undergraduates and children jointly articulated the objectives of activity through distributing responsibility for thinking, imagining, teaching and learning across members of their ensembles, and through undergraduates' use of cultural historical theory. As seen in Figure 1, undergraduates reflected on their activity and the role of play, motivation and engagement primarily through the concepts of mediation (and related forms, e.g. serial mediation), zone of proximal development and community of learners (see Table 1). They also used terms resonant of M & T, such as "dove into" and "trial and error" in their work. These concepts are elaborated in the examples shared below.

Our analysis revealed that successful strategies for re-organizing roles and responsibilities, or what we term distributing expertise in a community of learners and jointly articulating problems, involved the development of design discourse through strategic questioning. This questioning involved what we designated as "design questions", or questions that focused on specific aspects of the design of artifacts, and "imagination questions" that queried students to think about possibilities for design that worked to expand upon their interests and playful participation. In the examples shared below we illustrate how the development of design discourse drew upon sociocultural theories and supported children to both initially "dive into practice" and subsequently extend their inquiries.

First, we present two examples from EPM1 that show how undergraduates' design discourse supported new participation pathways for children. Ann Smith documented her group's creation of "squishy circuits" with playdoh and LED lights. She explained how she turned thinking over to the students, through idea sharing and questions eliciting their thoughts about design. Smith related how this provided the space for 2nd grader Cecilia to take on a new voice and role in activity:

I asked them if they all remembered how to make the Squishy Circuits and Flor and Cecilia said they did, but Michael told me he had never made them before and asked me how to make it. (OC[4]: This is where I thought that making the other kids the in group the expert instead of me would be a better way of getting the instructions across). Cecilia, who usually doesn't talk much, piped right up and started explaining to Michael how the Playdoh had to be on top of the insulating dough and the Playdoh couldn't touch other Playdoh or it wouldn't work. Then she said that the battery wires had to be touching the Playdoh, but not the insulating dough and that the light had to be plugged into those same Playdoh pieces. (OC: …*it was a nice change to hear her talk more than I had ever heard her talk before. Cecilia also acted as the mediator in this process between the instructions and Michael understanding how to make the circuit.*). Michael looked like he kind of understood what Cecilia had said, but tried to pretend that he understood everything because he dove right into making a mermaid.

Smith's description shows how the interaction privileged distributed expertise, with Cecilia mediating possibilities for her peer's participation. Significantly, Cecilia, a Latina girl and second grader, who Smith related was usually extremely reticent, became the expert teaching an older boy. She gave Michael what Stone & Gutiérrez (2007) call "just enough assistance" for him to dive into making his circuit.

Smith recounted "Their interactions also showed Vygotsky's zoped[5]. Michael was not able to make his lights turn on until Cecilia turned his light the other way. This simple act of assistance showed me that Cecilia understood how the circuits worked and was able to help Michael come to that same understanding." Cecilia provided assistance to Michael until he eventually completed a circuit on his own. The interaction shows how consciously distributing expertise to students and allowing them to take on new responsibilities supported fluid experimentation and the creation of ZPDs that engaged students' potential development. Importantly, activity in Smith's group supported a young Latina girl, a member of two groups (women and Latinos) underrepresented in many scientific fields, in taking on the role of an expert. The following example also demonstrates expanded possibilities for normative gender roles with 3rd grader Maria taking a leading role.

In the next example we supported an undergraduate, Suz Miller, and 3rd grader Maria, on strategies for joint problem articulation. Maria wanted to create squishy circuits but was resisting group work and getting started. Through privileging joint activity among a wider range of participants, her team received assistance with how they might collaborate with a group that was creating a movie. Researcher Schwartz suggested that Maria might contribute to the movie by helping to fabricate set items the group wanted with squishy circuits materials. In her CE, Miller described the learning opportunities that were opened up by moving horizontally across activities and widening the frame of possibility for collaboration:

…Maria used her experiences with the scribbling machine to communicate its function to the group. No one else had done the tinkering activity so they were all novices making her the expert. The children's roles swapped while filming as Maria had a very minimal understanding of that project. Operating in a diverse group promoted the members zone's of proximal development as they acquired the opportunity to apply knowledge across many activities. Problem solving through group trial and error produced unique solutions as the ensemble members exchanged ideas and learned together. The opportunity to revise activities further enhanced critical thinking and the transfer of knowledge. Our problem solving process resembled a reflective collaborative learning model as the undergrads initiated communication and the children expanded on topics / ideas.

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4   OC in CEs stands for Observer Comments.
5   Here the term zoped refers to the ZPD.

Despite Maria's initial reluctance to join the new group, Miller related that the merger was extremely successful primarily through the cross-pollination of ideas, and distribution of expertise and roles among participants. Miller also utilized "design questions" to mediate joint problem articulation:

"Oh, so you think we should lay the propeller flat like this instead of attaching it upright like a wing? What do the rest of you think?" "What feature of the machine do you think needs to change in order to make it fly?" [OC: using open ended questions I guided the children's thought processes and re-structured my questions when they did not seem to grasp what I originally presented]. "It needs to have four spinning things not two, like a helicopter," Maria suggested. "So you think we need more propellers, and Isaiah thinks the propeller needs to be attached differently. Should we try these theories out and see if they work?" [OC: Maria used her understanding of flying objects to construct an analogy that helped her articulate her hypothesis to the group].

Miller's open-ended, yet focused questions about the design of the "flying boots" for the film assisted children in connecting their thinking to prior experiences and to concrete features of the design needed for their current objectives. She specifically asked children what they thought and modeled taking up others' divergent thinking as resources for activity. Miller also used scientific language and practices to suggest to the students to test out their ideas with continued tinkering. Overall, her strategic questions distributed expertise to the children, expanded their activity and drew them into a discourse of design.

In her CE, Miller discussed her question-asking strategy with the concept of mediated serial assistance (Stone & Gutiérrez, 2007), a process of joint problem articulation, where the facilitator helps to organize interaction so children jointly determine the sub-tasks and direction of activity. She wrote "mediated-serial assistance appeared far more often in my group this week…As we worked through the flying machine issue I promoted critical thinking by posing "open-ended" questions to the group. … as the children responded I acknowledged their ideas, reflected on them, and expanded on the question in new ways". Miller's description captures the emergence of a design discourse where the ideas of all parties are considered and particular features of the artifact are debated.

In each of these examples, a focus on design and the imaginary situation engaged children in fluid experimentation whereby they could jump into activity, but also pull back and reflect on the direction of their goals before making additional decisions. Additionally, undergraduates' design discourse provided immediate feedback that did not restrict children's imagination about M & T, but rather helped push them into new perspectives and practices.

5.1   Hands, Control and Distributed Expertise

The examples we share from EPM2 outline the activity of three ensembles representative of interaction that had varying consequences for the development of shared design discourse and problem articulation (See Table 7). In each group, children from non-dominant communities were paired with Anglo youth and undergraduates. In these examples we focus on the movement of participants' hands on materials as they worked on solar cars and circuits, and how this embodied interaction affected

the development of a shared design discourse (see also DiGiacomo & Gutierrez, 2014).

Table 7. The activity of three ensembles at EPM2

	Group 1	Group 2	Group 3
1. Participants	Undergrad: Marnie 3 boys: Merza, Tarik and Tom	Undergrad: Tamara 1 boy and 1 girl: Manuel and Yolanda	Undergrad: Amber 3 boys: Edgar, Bob, and Joe
2. Materials	Produce Circuits: Multiple sets	Solar Cars: One set	Solar Cars: One set
3. "Hands On": Times on turn with materials, and implying manipulation of materials	• Undergraduate, Tarik and Tom: each have their hands on their own materials • Merza observed (he was able to explain the whole process later)	• Undergraduate: 8 • Manuel: 14 • Yolanda: 4 turns (touched materials 15 times) • Undergrad & Girl: 4 • Boy and Girl: 1	• Undergraduate: 10 • Instructor Jim: 5 • Jorge: 8; Bob: 5; Joe: 0 • Adult total =15 Children =13 • Among Instructors: 1 • Undergrad & Boys: 2
4. Primary Undergraduate Discourse Strategies	• Modeled her own thinking (8) • Questioned boys to elicit their thinking (18) • Suggested boys view each other's work (10) • Referred to prior experiences (8)	• Explicit Directives (7) • "Next step" design questions, e.g. ""how will the wheel turn?, "where does this go?" (7)	• Explicit Directives (2) • Yes / No questions (3) • IRE (2) • Next step design questions (9) • Design questions (3)
5. Role of Course Instructor(s)	Bill: Offered strategies and ideas for participants thinking, modeled discourse for Marnie	No course instructor present in interaction	• Bill: Re-mediated top-down approach, design questions • Jim: Modeled, questioned

The most problematic interaction occurred with group three. The exchange below depicts how undergraduate Amber envisioned her students' abilities for the design of the solar car, and how the Instructor Bill intervened:

Bill: Why are your hands all over it?

Amber: I was trying to put the wheel on

Bill: Why are *you* trying to put the wheel on?

Amber: Because they can't do it

Bill: (playful tone) What do you mean they're capable 8th graders with working hands.

Bill: (Moves to put children's hands on car. In playful tone). What do you mean they can't do it, they're capable 8th graders with working hands. Hey, do this guys (gestures upwards)

Boys: (Boys hold up hands)

Bill: Lets show Amber that you have working hands. …Jorge has working hands and he can work on it.

Bill's intervention re-mediated Amber's top-down approach and the boys took control of the car materials. Thinking and acting were turned over to the youth when

Amber initiated two design questions modeled after Bill's, and with his support the group negotiated a shared placement of the car's motor.

Activity in group two was less problematic in terms of children's hands-on participation. However the example below illustrates how undergraduate Tamara also utilized directives and oriented her questions in a way that did little to distribute time on materials or expertise to the girl participant.

Yolanda: (Picks up rubber band and holds toward Manuel. He takes it.) No, we're going to put this on there.

Tamara: We're going to use the rubber band for something else.

Yolanda: No (points to rubber band and solar panel) we put that.

Manuel: (Picks up rubber band and axel gear) we need the rubber band for the motor.

Tamara: Yes (points at Manuel, who then dances happily) we do. But… where's the other part of the rubber band need to go?

Despite the youth having double the amount of time on turn with the materials as undergraduate Tamara, Manuel's time with the materials overshadowed Yolanda's. A more positive aspect of this group was their use of hybrid language practices. In the most interactive sequence they utilized Spanish to discuss shared decision-making.

In group one the movement of people and expertise was more fluid. Merza and Tarik moved constantly, and Marnie followed suit. Marnie referred to the children's prior experience, during the summer program, and more broadly in their lives to assist the creation of "produce" circuits with lemons and potatoes:

Marnie: When it didn't work last time with the play-doh, what did we do to the light?

Tarik: We switched it.

Marnie: We switched it. Do you wanna try to switch that and see what happens?

Tarik: So… (Mumbles. Sticks LED into playdoh, pauses). This is what we did with the playdoh when the light didn't work. (Pulls LED out, turns it around, sticks it back in)

Marnie: hmmm (points, touches LED) What could be wrong? I wanna have you trouble shoot it.

Tom: Maybe the bulb burned out?

Marnie: The bulbs burned out? Okay, lets try a different bulb.

Tom: (Puts a new bulb in the circuit, it works).

Tarik: Ah I knew it worked!

Marnie: Awesome you just made another circuit. Congrats! How can you use that to extend it?

Marnie's questions asked Tarik to draw on his prior experience and to troubleshoot in order to design his circuit. The tone of interaction remained playful despite initial lack of success, and Tarik is encouraged to make choices and take risks. When the LED did not light up, it was recognized that the issue might be with the materials and not the user. This interaction literally ignited Tarik's confidence. He took up Marnie's invitation to extend his tinkering, exclaiming "Ooo!" when Marnie obtained more batteries for him to use.

5.2   Tinkering With Our Design

We saw in EPM1 and 2 that successful design discourse engaged students in thinking both about the technical aspects of their work and the purpose and meaning of their project. For example, in the "flying boots" example discussed above, the technical aspects of the design were negotiated among participants because of their connection to the narrative element of the movie. We also saw that individual children often initially connected more to either the technical or narrative aspects of design. In addition, ensembles that were the most successful tinkerers distributed expertise and decision- making across students and instructors through questioning and discourse that engaged students' interests, abilities and leadership.

For EMP3, due to our observations in EPM1 and 2, we designed mediational tools to explicitly offer participants both "technical" and "narrative" challenges as entry points for an activity, e.g. suggesting features of design such as creating a switch, and offering framing questions such as "what is something you believe in?" (see Table 8). Use of narrative and technical game cards was intended to support participants on specific features of design when they had little or no prior experience with the task. Importantly, cards were also meant to guide students and teachers in developing joint goals through "playing" their individual cards together in a way that captured a range of expertise and interests.

Table 8. Mediational tools for joint problem articulation and design discourse

Tool and Function
Tool: Game Cards Focused attention on particular aspects of design. Suggested and presented elements of design discourse. Supported participants in connecting prior knowledge to new activity. Provided opportunities and constraints for joint problem articulation. Turned responsibility over to undergraduates when they created cards.
Tool: Challenge Game Cards Turned responsibility over to children who created challenges for other groups. Offered groups a chance to "spy" on each other to gain ideas and learn about each other's inquiries. Stretched thinking and challenged students to extend their inquiries.
Tool: "Challenge Plan" Planning Document utilized after groups gained experience with the activities that could be combined for the Rube Goldberg (paper circuits, makey makey, robot picaxe) and a chance to experiment with Rube Goldberg design. Presented a concrete sequence of tasks for combining individual group member's goals into an overall goal for the group's Rube Goldberg. Mediated undergraduates understanding and implementation of joint problem articulation and design discourse.
Tool: Rube Goldberg incorporating three previous activities Built upon participants' experiences and deepened their growing expertise. Modeled a way to connect activities horizontally. Provided an activity with clear design goals but no one right way to achieve them.

An excerpt from Bridget Marsh's CE shares how she and 7th grader Ginger used the game cards to support joint problem articulation in the design of a paper circuit

made with card stock, copper tape, LED lights, and coin batteries that focused on the child's self-representation:

Ginger didn't have any ideas on how she wanted to make her circuit at first, so we looked at the cards she was given for ideas. Her narrative card was "what you want to be when you grow up" and her technical card was "2 different color LED's", so I encouraged her to come up with a shape that reflected what she wanted to be when she grew up…Ginger said she wanted to be "someone who works with computers" when she grows up, but couldn't think of a shape that could represent this. I helped her brainstorm and we decided on making a lap top computer. (O.C. the idea that in a Community of Learners, "learning is a process of transforming participation in shared sociocultural endeavors" and that the real learning comes from collaboration really resonated with me and I had no problem stepping back into more of an authority role here and helping her come up with suggestions.) Once I explained to her how the circuit boards work, she got really into the activity, and really took control of the process and figured out how the LED's work with the battery on her own, and was really engaged (CE1).

Marsh explained how she used the card to help Ginger, a young Latina, share in the initial design of the circuit, and how this card mediated both her own ability to offer suggestions and Ginger's ability to form a connection with the task. In this example, the narrative aspect of the process facilitated entry for both the undergraduate and middle school student's discussion of the technical elements of circuit design. Subsequently, Ginger, who had no prior experience with the activity, took responsibility for figuring out the circuit design on her own. Significantly, she shared a desire to work with computers as an adult, and here, the circuit building activities helped to support her in connecting this goal to content area learning.

5.3   Shifting Responsibilities in Design

In line with Rogoff's (1994) articulation of learning as shifts in responsibility over time, we also used the game cards to support the movement of framing possibilities for design from the instructors to the undergraduates and to the middle school students. First, we offered game cards that focused in on specific elements of design (see Table 8). Next, we asked undergraduates to design game cards for ensembles of 4–5 undergraduates and middle school students for the culminating Rube Goldberg project that would connect to technical aspects of design, previous M &T activities and students' goals. Middle school students were asked to create "challenge game cards" that required the students to "spy" on other groups and create challenges for them. Challenge cards turned responsibility over to the children for thinking about how to design and structure activity for their peers. (See Figure 2).

Figure 2
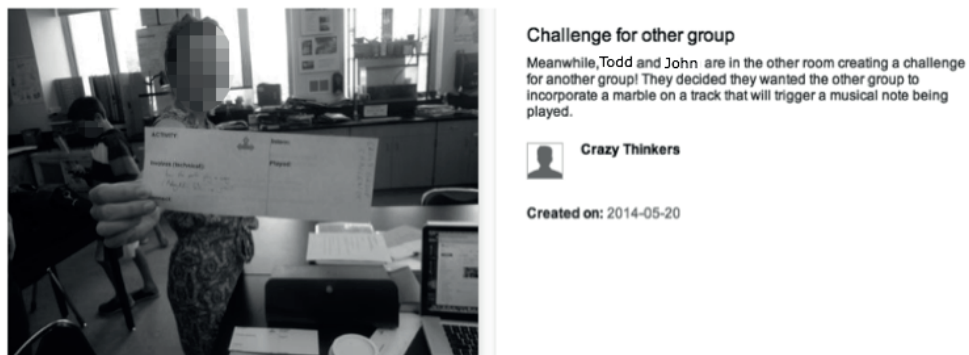
Undergraduates' CEs indicated how the challenge cards mediated playful engagement and created ways to push students' abilities and shared decision making in design activity. Sara Marin's CE discussed how the challenge card kept student Lucas interested during less hands-on planning, and how this playful activity served as a meditational tool to address his initial lack of attention. Jim Carter's CE related how, in his words, the ZPD was created *"through the challenge card and the aspect of play it brought to the table".* He related that after a challenge from another group, his group struggled, but instead of each student working individually on their Rube Goldberg:

…the entire group came together to solve the problem of how we would get our marble to trigger the makey-makey to make music. After a fairly long period of trying different ideas and those failing, Nik came up with the idea to line a track with copper tape that the marble would roll down. This idea led to the rest of the group to add on to this idea and we eventually came up with a system that worked. (CE2)

In this example, joint problem articulation came about through the playful interaction mediated by the challenge card. Students had to come together to accomplish their design, and in the process they deepened their knowledge of how to create circuits.

"Challenge plans" were also used as meditational tools for shifting responsibility to the participants, and as a way to make visible the process of joint problem articulation. We introduced challenge plans for the Rube Goldberg project after participants first experimented with the activity. Sara Marin's CE illustrated the process of joint problem articulation that occurred in planning the design of the Rube Goldberg:

Dom said, "Well, we could turn on a circuit switch." Then Ed jumped in …, "Yea, Lily and I worked on a circuit last time, we couldn't get it to work but I think we could!" I said, "Okay, that is a great idea! Do you all agree that our overall goal should be turning on a switch?" They agreed. Then I said, "Okay so now we have to come up with different sub-goals that are going to get us to our over all goal. That's like what we did last time when Dom worked on a marble track and Lucas connected the tubes, those would all be sub-goals. Do you have any ideas for what you want your sub-goal to be?" (OC: Rogoff explains the COL as a shifting of responsibility between authority and students. I felt that we were constantly shifting responsibility between the students and the UG's through out our planning process.) The students began stating different ideas; Lucas wanted to use tubes, Ed wanted to incorporate the pulley, Lily was interested in using dominoes and Dom wanted to create a marble track. Then we began a discussion on how we could connect all of these ideas. The students offered suggestions and so did we…. asking questions like, "What is going to be the very first thing that happens?" "How will that connect to the next step?" James suggested that we could get the pulley to work by connecting it to the robot and

eventually our entire plan was complete. (OC: Here we used mediated joint problem articulation to find a solution to our larger problem, which was to create a plan for the Rube Goldberg.) (CE3)

As seen in the example, individual students created goals based on their interests. This step fed into the development of an overall group goal for their Rube Goldberg. Once a team goal was decided, the team decided on sub-goals for their project through discussing each individual's aim and how it fit with the team objective. An important component of negotiating the team's plan was sharing each members' interests, goals and experiences. As Marin notes, the task of joint problem articulation centered upon how students could connect their objectives. She supported the process through questions that asked about specific features of the students' design. Solutions emerged from participants' design discourse that addressed the technical aspects of connecting each person's work as well as their desired goals.

Overall, the design of activities and meditational tools in EPM3 appeared to successfully implement a more focused framework for the "dance" between diving into activity and creating structured ways of extending students' inquiries and content area knowledge.

6   Discussion: Problems of Practice and Tenets of Design

Our work began with the goal of designing a context for tinkerability within the EPM social design experiment. We aimed to bring together the main sociocultural concepts undergirding the EPM social design experiment with aspects of M & T pedagogy as articulated by Resnick and Rosenbaum, as well as our understandings of children's innovative practices. With this approach we sought to re-mediate normative academic STEM practices in order to address longstanding problems of practice: a) lack of participation in STEM fields for women and members of nondominant communities, b) problematic discursive and pedagogical practices in STEM education, and c) the need for learners to view their everyday practices as linked to academic STEM learning.

Through the three iterations of M & T within our designed learning ecology, we saw that ensembles were successful at jointly articulating the goals of their work and in extending their everyday knowledge when undergraduates used questions that focused children's attention on particular features of design, while also querying children to put forth their own ideas and objectives for specific tasks. We use the term design discourse to refer to the features of such interaction. Other critical features of design discourse supported students in moving horizontally across a range of activities to expand their STEM repertoires, and in developing narratives that framed and oriented their work on multiple dimensions. For example, in EPM3 we used game cards to support undergraduates in asking the kinds of specific design questions that we saw were generative in EPM1 and 2. These cards helped to support both undergraduates and children dive into new STEM practices through leveraging their everyday knowledge and interests.

The EPM social design experiment afforded the opportunity to engage and extend the abilities of undergraduates who come to the program with little background in STEM activity as mediators of children's STEM learning. However, we acknowledge that there are limits to how deep students may be able to dive in, as well as to our assessment of STEM content learning, within the time and space context of our designed learning ecology. What we observed across the instantiations of EPM is how theoretical concepts, in particular that of "joint problem articulation" captured the imagination of undergraduates. This concept supported undergraduates in distributing expertise and agency to members of their intergenerational ensembles as they collaboratively constructed a shared understanding and objectives for their work. We argue that shared problem articulation worked to re-mediate normative classroom structures where the teacher is positioned as the primary knowledge holder "delivering content" and where initiation recitation and elicitation (IRE) scripts that have been shown to alienate children from the scientific inquiry process prevail (Lemke, 1990).

7   Conclusion

We propose that an expansive, cultural historical activity theoretical approach to learning and pedagogy in the creation of contexts for tinkerability paves the way for acquisition of STEM knowledge situated in content and in practice. Our work supports educators in both formal and informal contexts in thinking about how to design for putting theory into practice. It calls attention to the importance of developing both horizontal and vertical forms of expertise and their distribution across participants and practice (Gutiérrez, 2014). We shared examples that depicted a range of success in terms of undergraduates jointly articulating problems, objectives and the direction of activity with students – practices that are central to expansive and equitable forms of learning. The concept of joint problem articulation supported undergraduates in framing their participation with students so that they developed a design discourse that guided activity through questions and through leveraging students' own interests and expertise. As Marin wrote in her final CE:

The students were learning how to plan out a Rube Goldberg machine and so were the UG's. We were all contributing to a goal and although the UG's held the authority, we never held the power. The power was distributed evenly among all of us. We were a community. (CE3)

We argue that the sharing of power Marin references is critical for supporting all students in STEM learning that is personally meaningful and academically consequential. We plan to continue to analyze participation across the permutations of EPM we discussed in this article, as well as in future design work, in ways that will contribute to the development of robust and equitable learning environments for children and novice teachers.

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Children's Voices in Australian School Age Care: What do They Think About Afterschool Care?

Kym Simoncini, Jennifer Cartmel, and Amy Young

Abstract: Participation in after school care in Australia has more than doubled since the 1980s with hundreds of thousands of children attending every day. Historically this form of care has been regarded as a service for parents rather than an opportunity for children. There is a paucity of Australian research for school age care (SAC). This study investigated children's perceptions and experiences of afterschool care. 164 children in Prep/kindergarten to Year 7 across 14 services in Canberra and Logan participated in the research. Five questions were used to survey the children. Their responses supported the notion that SAC settings are important contexts of childhood and development. Afterschool care affords children opportunities to develop skills and competencies, make new friends as well as promoting and protecting play. Areas of health and safety, staffing, relationships with children were revealed as ways afterschool care could improve.

Keywords: school age care, afterschool care, out of school hours care, children's voices

1 Introduction

School age care (SAC) is the fastest growing sector of childcare services in Australia and has the greatest proportion of children attending services (DEEWR, 2013). SAC also referred to as outside school hours care includes before school care, afterschool care and vacation care and provides school-aged children (5–12 years) with supervised and planned recreational activities in a safe environment (DEEWR, 2011) while their parents are working or studying. The numbers of children attending SAC services has been steadily climbing since the mid 1990s and show no signs of declining. The number of children using approved outside school hours care in the 2012 September increased by 80,000 from September quarter 2004. The number of families using SAC has increased four-fold during the same time frame (DEEWR, 2013). SAC services are critical to the children and families who use them (Hand & Baxter, 2013; Simoncini, Caltabiano & Lasen, 2012; Winefield, Piteo, Kettler, Roberts, Taylor, Tuckey, … et al., 2011). Despite the large and increasing numbers of children and families who access SAC, there is a paucity of research about SAC in Australia (Cartmel & Grieshaber, 2014; Mullan, 2012; Winefield et al, 2011).

The purpose of this study was to investigate children's perceptions and experiences at after school care. Bronfenbrenner's Ecological Systems Theory (1979) or

Bioecological model (1995) posits that children's development occurs within social, cultural and historical contexts. Children are viewed as active participants in their relationships and in creating their environments, and both biological dispositions and environmental forces are thought to shape development. The interactions between these relationships and environments explain differences in child development. According to Bronfenbrenner (1979) development is phenomenological, that is, what matters is how children perceive their environments rather than how they may exist objectively. Depending on family structure, proximity to other children, home resources as well as personality traits, children vary in how they perceive and experience SAC. For example an only child who has no children living in close proximity to their house may enjoy the contact with friends at afterschool care, while a ten-year old child may feel too old to attend afterschool care and wish to have more freedom. We hoped that illuminating children's experiences and perceptions of afterschool care might raise the profile of SAC as an important context for development rather than a service for parents. Using two diverse research sites we sought to explore children's perceptions and experiences of afterschool care and examine variables of age, gender, location and attendance patterns.

2   Review of the Literature

Afterschool care programs have been running in Australia since the 1900s (Brennan, 1999; Elliot, 1998; Finlason, 2004). Initially they began as recreational programs for children operating in community playgrounds. The programs later moved to community halls and school sites and were coordinated by arts or recreational organisations. These recreational programs continued until after the 1970s when the demand for services that provided "care" rather than recreation emerged (Moyle, Meyer, & Evans, 1996). During the early 1980s there was a rapid expansion of SAC services as women's participation in the workforce increased (Brennan, 1996; Elliot, 1998; OECD, 2001). Since then there has been a shift of focus from children's needs to parents' needs (Brennan, 1994; Finlason, 2004). Today SAC services are intended to provide children with a place to engage in a range of play and leisure experiences that allow them to feel happy, safe and relaxed (DEEWR, 2011). Academic enrichment or remediation is not offered beyond children being able to complete their homework while at afterschool care.

The strategic direction of Australian SAC services and schools has been a topic of discussion, but of low priority (Arnold, 2002). The majority of SAC services are located on school sites; however, government policy makers and legislators view SAC as separate from the day-to-day operations of their venue hosts. One might consider SAC services as invisible additions to school sites (Cartmel, 2007). Despite being located on school sites there is great diversity in the provenance and organisational structures of SAC services. Providers of afterschool care include schools and/or their Parents and Citizens organisations, local councils, church bodies, long day centres, not-for-profit community groups and for-profit organisations. Fewer and fewer schools manage their own SAC service.

SAC has a much lower profile than other types of childcare and school. SAC has been considered the "poor relative" in child care (Department of Health and Family Services, 1997) and the "Cinderella of services" (Gammage, 2003). Early childhood services are considered to offer both care and education for young children, whereas school age children are thought to be educated at school, and cared for at SAC until their parents collect them (Department of Family and Community Services (FaCS), 2005; Elliot, 1998). The perception that OSHC has limited operational hours has contributed to the low standing of this type of care (Cartmel, 2007). Over the course of the school years, the time spent in SAC has the potential to make up a sizable portion of children's lives and as such must influence their development. The continued use of "care" perpetuates the low opinion of SAC.

The development of Australian SAC services has been in tandem with the growth of services internationally in New Zealand, Britain, Europe, United States and Canada. A diverse range of services mushroomed in response to community need and prompted a growth of services. Services have reported some similar features to Australian SAC (Cartmel, 2007). The Nordic countries have a long history in SAC programs and research. SAC programs for the Nordic countries promote children's right to meaningful leisure time (Palsdottir, 2012). In the US, SAC is referred to as after school programs (ASP) – care has been replaced by program and immediately conjures another representation of children's time after school.

Traditionally in Australia SAC has not been regarded as making any instructional, developmental or social capital contributions to a child. Rather it is viewed as child-minding, fulfilling a parental need and not a child need. This is in direct contrast to the United States, where the hours out of school are recognised as a context for social, cognitive and physical development (Mahoney, Parente & Zigler, 2010; Vandell & Posner, 1999). Researchers, policy makers and governments in the US have become increasingly interested in how out-of-school time can be used as an opportunity for children and adolescents to learn and develop competencies (Mahoney, Vandell, Simpkins & Zarrett, 2009). The SAC *My Time Our Place: Framework for School Age Care in Australia* (DEEWR, 2011) recognises the capacity of and advocates SAC to nurture children's well-being and competencies. Community perceptions have yet to catch up to this vision of SAC.

SAC settings are important contexts of childhood constituting the main locations outside of school where children play and socialise together (Bell, 2013). SAC enables contexts for friendships to develop. This is important as making friends relies on context rather than children's individual skills and personality (Peters, 2003). Friendships give children the opportunity to practise and enhance their social, emotional, communication and language skills through their engagement in conversations, cooperative and pretend play, conflict, and the sharing of feelings and experiences (Dunn, Cutting & Fisher, 2002; Newcomb & Bagwell, 1996).

SAC also protects and promotes children's play by affording children time, space and resources to play. This is important given that the time children spend playing has decreased considerably over the last two and a half decades. The reasons for this decline include more time spent on screen entertainment; competing extra-curricular activities; parental fears about children's safety; parents' lack of awareness about the benefits of unstructured activity and play and the shortage of quality play

spaces near children's homes (Singer, Singer, D'Agostino & DeLong, 2008; Witherspoon & Manning, 2012). Play is critical to nurturing children's wellbeing and resilience (Lester & Russell, 2008). Play is acknowledged to foster children's social, emotional, cognitive, physical development (Ginsburg, 2007; Singer et al, 2008) as well as affording children opportunities to learn about themselves, the world around them, life skills, creativity and imagination (Witherspoon & Manning, 2012). *My Time, Our Place* recognises the roles of play in children's well-being, learning and development (DEEWR, 2011) and is guided by the principles laid out in the United Nations Convention on the Rights of the Child (1989) where all children have the right to relax and play, and to join in a wide range of cultural, artistic and other recreational activities. Again community perceptions have yet to catch up to the Framework in regarding SAC as a play safe haven and play as essential to children's optimal development.

Our study supports a central tenant of the framework, which is the need for children to be able to make choices and become involved in problem solving and decision making while contributing to their SAC community. The study aligns with other social research that includes children's voices to gain "richer, first-hand data from children's experiences and perspectives" (Tay-Lim & Lim, 2013, p. 66). It also reflects MacNaughton, Smith and Davis (2007) reference to the United Nations Convention on the Rights of the Child (1989) that states that children have the right to express their views on all matters affecting them and for their views to be taken seriously (Article 12). The United Nations General Comment (No. 7) on Implementing child rights in early childhood further asserts that young children's right to express their views and feelings should be taken into account in "the development of policies and services, including through research and consultations" (Office of the High Commissioner of Human Rights, 2005, p. 7). Our research investigates children's experiences and perceptions of afterschool care with the intention of their responses adding to the literature, as well as bringing about change to current practices to better suit their wants and needs in SAC.

In Australia there has been scant research exploring children's perceptions of SAC. In an early study (Elliot, 1998) children asked about their perceptions of programming during one-on-one interviews, while mother's were asked about perceived benefits and program quality through a written survey. Elliot found that both children and parents had positive experiences with afterschool care but that it was a necessity rather than an optional activity. Younger children were more satisfied with afterschool care, while older children would have preferred more time at home to watch television and play with friends. In England however, there is a small body of literature about children's perceptions. The English government commissioned a range of research projects about SAC services. In particular, *The impact of out of school care: A qualitative study examining the views of children, families and playworkers*, (Barker, Smith, Morrow, Weller, Hey & Harwin, 2003) investigated the perspectives of parents, staff and children utilising school age child care. Key findings included increased opportunities to play and develop friendships, as well as increasing children's self-confidence and social skills through social interactions and new activities. In their review of the literature Barker and colleagues cite other English research where children had named spending time with friends, activities

both indoor and outdoor and excursions as positive outcomes of attending after-school care.

3　　　Research Question

We asked the question What are children's experiences and perceptions of after-school care? The research was exploratory, as only one other early study has examined children's experiences (Elliot, 1998) in Australia. The variables we examined were location (different states), age (younger 5–8 years and older 9–12 years), gender and attendance patterns (full-time versus part-time). As an exploratory study no hypotheses were put forward beyond expecting age differences based on Elliot's study. We did however; expect common themes of play and friends to be present in children's responses based on findings from the English study (Barker, 2003). We also anticipated great diversity in children's perceptions based on Bronfenbrenner's theories (1979, 1995). Just as no two children's development is the same, we expected children's experiences and perceptions of their experiences to be different from each other.

4　　　Method

4.1　　Research Sites

Two diverse sites were used to better generalise findings. Canberra is the nation's capital city and is located in the Australian Capital Territory, with a population of 368,000. Canberra has a low unemployment rate of 3.6%. Nearly two thirds of the population (64.5%) above 15 years has a post school qualification and 44.3% of the working population is employed as managers or professionals. In contrast, Logan is situated between Brisbane and the Gold Coast in Queensland with a population of 48,000 people. Logan has a high unemployment rate of 6.2%. Nearly half of the population (48.6%) above 15 years have a post school qualification and only 19.5% of the working population are employed as managers or professionals (ABS, 2013).

Convenience sampling was used, however, the six services in Canberra and eight services in Logan (total of 14 services) represented the three school sectors and a variety of service providers. In total there were seven government schools, three Catholic schools and four independent schools. The service providers included community service organisations and two schools.

4.2   Sample

A total of 164 children participated in the study. There were slightly more males 88 (53.7%) than females. Table 1 details the number and percentage of children in each year level. Nearly 60% of the children attended afterschool care in the ACT compared to 40.9% in Queensland. The proportion of children who attended afterschool care everyday or full-time compared to part-time was just over half (51.9%, n= 84).

Table 1. Frequency distribution of number of children according to year level

Year level	N	%
Kindergarten	23	14.0
1	26	15.9
2	27	16.5
3	27	16.5
4	34	20.7
5	16	9.8
6	9	5.5
7	2	1.2
Total	164	100.0

4.3   Materials

Five survey questions were used for this study. The questions were adapted from the English study, The impact of out of school care: A qualitative study examining the views of children, families and playworkers (Barker et al, 2003). We chose questions from their children's group discussion interview schedule including experiences "What is the best thing about afterschool care?", quality "How could we make afterschool care better?", social skills and friendships "Have you made any new friends at afterschool care?" and new opportunities "Is there anything you get to do at afterschool care that you don't get to do anywhere else?" We decided to also ask children "What is the worst thing about afterschool care?" to allow them to voice things they were not happy or satisfied with. A single A4 page was used to survey the children. The page was divided into six parts - one line down the middle of the page with three sections on each side. The questions were written at the top of each box with space below for children's written or pictorial responses.

4.4   Procedure

Ethics approval was granted by the University of Canberra. Six services were approached to join the study in Canberra and all agreed to be part of the study. In Logan, seventeen services were approached and ten agreed to be part of the research.

The researchers visited the SAC services and told the children about the study and how they could participate by answering questions through drawing, writing or

telling the researcher. During the afternoon the researcher approached children individually and/or in groups. The majority of the children chose to answer the questions by telling the researcher who wrote down their answers. The researcher read out loud the responses of those children who drew or wrote their answers to check the researcher understood.

4.5   Data analysis

A thematic approach was used to analyse the data. That is, key themes emerged from the data and served as analytical categories (Fereday & Muir-Cochrane, 2006). Processes were multi-iterative and non-linear, involving Cresswell's (2009) strategies of organising data, reading through data, beginning coding, generating categories and/or themes based on coding, deciding how themes will be presented and interpreting the data. The analysis of data engendered two broad organising themes:

 i. Developmental opportunities afforded by afterschool care
ii. Ways to move afterschool care services forward and further enhance developmental opportunities

We decided to use the National Quality Standard, a central component of the National Quality Framework that sets a national benchmark for early childhood care and education and SAC (Australian Children's Education and Care Quality Authority, 2014) to code responses in the second area of moving afterschool care forward. The National Quality Standard has established quality areas and was intended to promote continuous improvement by early childhood and SAC services. It is linked to *My Time Our Place* framework and was designed to provide accountability and transparency. Services are rated on seven quality areas comprising

1. Educational program and practice
2. Children's health and safety
3. Physical environment
4. Staffing arrangements
5. Relationships with children
6. Collaborative partnerships with families and communities
7. Leadership and service management

The last two quality areas were not deemed relevant to children's responses. We decided to use *Relationships with children* to code children's relationships with other children and *Staffing arrangements* to code children's relationships with staff.

The Statistics Program for Social Sciences (SPSS) version 22 was used to analyse the data. Inferential statistics (Mann-Whitney tests) were used to analyse differences between gender, age, state and attendance patterns where numbers were large (n = >40).

5   Results

5.1   Wellbeing and Developmental Opportunities for Children Afforded by Afterschool Care

Children's responses to what is *the best thing about afterschool care* and *is there anything that you only get to do at afterschool care* focused on holistic developmental opportunities afforded by afterschool. More than half the children surveyed in the study nominated activities as the best thing about afterschool care (52.4%). Activities were those things planned by staff for children to do during the afternoon. Approximately one third of the children reported play as the best thing (34.1%). Play was considered separate from activities based on the definition of play being unstructured and child initiated. Games included both board games and physical games. Games were considered different from play due to the presence of predetermined rules. While it is possible that children included play, games or craft as activities there were enough of the different responses to separate them. Table 2 details children's responses for the best thing about afterschool care. Responses that were categorised as "Other" included staff members, helping out, getting lollies, not having siblings around and the quiet area and the senior's room (a designated area for older children only). Such responses generally occurred once and consequently were grouped together.

Table 2. Frequency distribution of children's responses to "What is the best thing about afterschool care?"

Children's responses	N	%
Activities	86	52.4
Play	56	34.1
Other	35	21.3
Friends	31	18.9
Craft	27	16.5
Games	24	14.6
Computers	19	11.6
Sports	13	7.9

* Percentages total more than 100 as children could give multiple answers

There was a statistical significant difference at a 0.05 level in children reporting activities according to where they lived. Children in the ACT (Mean Rank = 103.75, n = 97) were significantly more likely to nominate activities than children from Queensland (Mean Rank = 51.74, n = 67) (U = 10063.5, z = -7.970, pa = .000, two tailed). The effect can be considered large (r = -0.62) (Cohen, 1988). There were no differences according to gender, age or attendance patterns. There were no differences between children's responses about play according to any of the variables.

The majority of children reported that afterschool care afforded them opportunities that were unavailable to them anywhere else (84.1%). The most commonly reported

activity was games with 21.2% nominating them. The opportunity to play with friends was reported by 14.7% of the children. Responses that were coded as "other" included feeding the chickens, dramatic play, science activities, magic and digging for dinosaurs (in the sandpit). Table 3 details the frequencies of the children's responses.

Table 3. Frequency distribution of children's responses to "Are there any activities that you do here that you don't get to do anywhere else?"

Children's responses	n	%
Games	36	21.2
Other	28	16.5
Nothing	27	15.9
Friends	25	14.7
Play	15	8.8
Craft	12	7.1
Computers	11	6.5

As mentioned previously, making new friends is a developmental opportunity afforded by afterschool care. Nearly half the children (43.9%) had made new friends. There were no significant differences between children's responses according to age or older or attendance patterns. There were however significant differences children's responses according to gender and where children lived. Mann-Whitney U tests showed girls (Mean Rank = 89.32, n = 76) were significantly more likely to report having made friends at afterschool care than boys (Mean Rank = 76.32, n = 76) (U = 2800.000, z = -2.087, p = .037, two tailed). This is a small effect size (r = -.16). Children from Queensland (Mean Rank = 107.69, n = 67) were also more likely to report making new friends than children from the ACT (Mean Rank = 65.10, n = 97) (U = 1561.5, z = -6.569, p = .000, two tailed). This is a large effect size (r = -.51). The findings are interpreted in the discussion section.

5.2 Ways to Move Afterschool Care Services Forward and Further Enhance Developmental Opportunities

While afterschool care affords children multiple developmental opportunities, there are still ways in which services can move forward and further enhance children's opportunity for learning and development. The great majority of children had definite ideas on what was wrong with afterschool care and how it could be improved. Only 18.3% of children thought there was nothing that could be improved at afterschool care.

As noted in the methodology, the National Quality Standards were used to analyse children's responses related to service improvement. Children's responses about activities were coded as Programming. Responses about food, eating procedures, general rules and routines comprising group time were coded as Health and Safety. Group time is when children come from school and are expected to sit and wait for other children to arrive and then be told the activities and menu for the afternoon. Responses related to the afterschool care service equipment, resources and space

were coded as Physical environment. As mentioned in the methodology children's relationships with other children were coded as Relationships with children, while children's relationships with staff were coded as Staffing.

Programming was the area children most frequently nominated as the worst thing about afterschool care (28.7%). Nothing was the next most frequently reported response (23.2%) followed by Health and Safety (19.5%) and Physical Environment (15.9%). Table 4 shows the frequencies of children's responses according to the different quality areas.

Table 4. Frequency distribution of children's responses to Question "What is the worst thing about afterschool care?"

Children's responses	N	%
Programming	47	28.7
Nothing	38	23.2
Health and safety	32	19.5
Physical environment	26	15.9
Relationships with children	25	15.2
Staffing	22	13.4

There were no differences in children's responses of programming according to gender, age, state or attendance patterns.

Responses coded as Health and Safety were the most frequent reported as ways afterschool care could be improved (29.3%). This was followed by Staffing (25%) and Nothing (18.3%). Table 5 details children's responses to how afterschool care could be improved.

Table 5. Frequency distribution of children's responses to Question "How could we make afterschool care better?"

Children's responses	N	%
Health and safety	48	29.3
Staffing	41	25.0
Nothing	30	18.3
Relationships with children	29	17.7
Programming	26	15.9
Physical environment	17	10.4

There were no significant differences between children's responses of Health and Safety according to gender, age or state. There was a difference according to attendance patterns with children who attended part-time (Mean Rank = 90.73, n = 78) more likely to report Health and Safety than children who attended full (Mean Rank = 72.93, n = 84) (U = 2556.000, z = -3.052, p = .002, two tailed). This is a small effect size (r = -.24).

There were no significant differences between children's responses of Staffing according to gender, age or attendance patterns. There was a difference according to state with children from Queensland (Mean Rank = 100.01, n = 67) more likely to report Staffing than children from the ACT (Mean Rank = 70.40, 67) (U= 2076.000, z = -5.229, p =.000, two tailed). This is a medium effect size (r = -.41).

6   Discussion

The children who participated in the survey were very willing to share their ideas about afterschool care. Their responses were well considered and their suggestions for improving afterschool care were for the most part actionable. The children appeared gratified to have someone ask their opinions. Perhaps the most important finding was that children did not consider SAC a filler activity between school and home or somewhere they were "cared for." Children regarded SAC as a time and place for playing, making friends and doing activities. Their responses show SAC as a context for development where they were building skills and competencies.

Based on Bronfenbrenner's theory of development (1979, 1995) we expected children's responses to the survey questions to be diverse. The responses reflected the different lives, relationships, experiences and interests of the children. Despite these differences there were common themes emerging particularly play, friendship, craft, screen time and games suggesting that there are commonalities in children's experiences of afterschool care in Australia and some generalisations could be made from the findings.

More than half of the children reported activities as the best thing about afterschool care. This is not surprising as services program a variety of activities everyday for the children to engage with. Usually services try to vary the types of activities over time. Activities could include many of the categories we used to analyse the data (craft, games, computers, sports). This may account for more children in the ACT responding this way. In Queensland children may have specified exactly what activities they enjoyed while in Canberra their response was more generalised. It seems unlikely that Canberra services offer better or different activities than Queensland services. Our finding aligns with the English study results where children and their parents reported that children enjoyed experiencing new activities at SAC (Barker et al, 2003). Greater discussion of the types of activities follows the section on play.

Play was the second most common response children gave when asked *What is the best thing about afterschool care?* SAC both promotes and protects children's play. Children can engage in play every day at afterschool care. The only interruption to their play is group time and eating where children are required to come together as a group. Services offer a range of toys, outside equipment and other resources for play that may not be available to children in their homes. Children can engage in longer periods of play than is offered at school during lunch breaks and they have variety of peers to play with who may or may not be the same age. Our finding resonates with results from the English study (Barker et al, 2003). According to Barker and colleagues, SAC provides dedicated and uninterrupted play spaces for children with time and resources for play often more plentiful than those available at home or school. Provision of play opportunities is critical to the overall wellbeing of children.

Craft, friends and games were the next most popular responses given by children as the best thing about afterschool care. In general, craft activities are offered everyday at all afterschool care services. Over time children can experience a wide range of artistic pursuits and craft activities that may not be available anywhere else. For

example most homes do not have clay and finger knitting materials. Children may have some opportunity to engage in these activities at school but they would not be offered as often as they are at afterschool care. The combination of a crowded curriculum and priority given to literacy and numeracy, means there is limited time for art in primary schools (Power & Klopper, 2011).

Just as afterschool protects and promotes play, it also supports and enables children's friendships. Afterschool care allows children to socialise with children outside of school and of all different ages, something that may not occur in schools where children in different year levels are assigned different play areas. Approximately 20 percent of children reported friends as the best thing about afterschool care while 44% said they had made new friends at afterschool care. This finding corresponds with results from the National English SAC study where one of the most significant impacts of SAC was that children were able to spend more time with existing friends and 85% of parents reported that the afterschool care club enabled their children to make new friends (Barker et al, 2003). The finding that more girls than boys reported making new friends is supported by the literature. In their review of sex differences in peer relationship processes, Rose and Rudolph (2006) report that boys are more likely to play in large groups and have integrated social networks than girls. In the context of afterschool care boys are more likely to already know each other through playing in large groups and their friends are more likely to be friends with one another. Similarly, that more children in Logan reported making new friends than children in Canberra can be explained by the size of the schools in each location. Schools in Queensland are much larger than schools in the Australian Capital Territory. The likelihood of Queensland children knowing all the children in their year level or school is much smaller than children in the ACT.

Many children reported games as the best thing about afterschool care. Board games are standard resources in many afterschool care services. Board games are well suited to afterschool care. Children can play games with a variety of peers and educators rather than just parents or siblings who may not always have time or the inclination to play (think monopoly). There is a wider choice of games than maybe available in home environments. Likewise, afterschool care services generally play games everyday. Again children have the opportunity to play these games with a large group of peers and educators.

Over 10% of children reported computers as the best thing about afterschool care. In most instances children use the school computer labs to play on the computers. This means large numbers of children can play at one time and they can interact with each other while playing. This is different from playing computers at home where children usually play alone or perhaps with one other person (Orr Vered, 2006).

A small number of children named sport as the best thing about afterschool care. While the numbers were too small to carry out any statistical analyses there may have been differences in children's responses according to where they lived. Children in the ACT also have the highest rates of participation in an organised sport in Australia at 73% while Queensland has the second lowest rate in the country with 57% (ABS, 2012). The Department of Education in Queensland has given priority to literacy and numeracy in Queensland schools resulting in fewer opportunities for

games and sports in schools (Department of Education, Training and Employment, Queensland, 2014).

Interestingly there were variations in what children perceived as the worst thing about afterschool care and how afterschool care could be improved. It would be reasonable to assume that children's responses would align, that is what they most dislike about afterschool care, they would want to change. However, this was not the case. Children perceived Programming, Health and Safety and Physical Environment as the worst things about afterschool care but would like to change areas of Health and Safety, Staffing and Relationships with children.

These findings suggest that children are pragmatic. Whether intentional or not they have nominated areas for improvement that can be changed. Children realise that it is more difficult to change the physical environment but see that food, rules and people (both staff and other children) could change. Anecdotally fewer than 5 children asked for things like painting the centre a rainbow or having pony rides or bringing their pets to afterschool care as ways of making afterschool care better. Children's responses were reasonable and more importantly actionable by staff. There was a difference in who reported Health and Safety as a way to improve afterschool care. Children who attended part-time suggested more often Health and Safety than children who attended every day. It may be that children who attend everyday are so used to the rules and routines that they don't think to question them or see alternatives.

Similarly interesting was that activities were reported as the best thing about afterschool care, yet they were also the worst thing, as activities constitute the main component of programming. A possible explanation is that children like activities but sometimes the activities on offer are not ones they like or think are appropriate. For example, children commented that "*the games in the hall were for boys*" or that *"there isn't enough boy's toys"* when reporting the worst thing about afterschool care. This explains why they nominated activities as the worst thing but did not nominate them in the same way as to how afterschool care could be improved. Children may accept that activities may not always be to their liking and that many children's wishes need to be accommodated.

6.1   Moving Forward

Children nominated Health and Safety as the number one thing that would improve afterschool care. Health and Safety was also rated as the second worst thing about afterschool care. It was the only quality area that appeared in the top three for both categories. Clearly this is an area that services could review. Services could question whether all the rules and procedures are absolutely necessary or appropriate? Certainly, there is no real need for group time. Children have already spent the day at school sitting and listening. There are better ways for children to sign in and go out to play. They can see the activities on offer and if they want to know what will be on offer for afternoon tea, they can look or ask a staff member. While many children are fussy eaters, services could ask children and parents what foods they could serve. Our results show that children are able to give sensible suggestions. In terms

of safety rules, staff could shift to risk-benefit rather than risk-aversion. The benefits of practicing cartwheels on the grass under supervision far outweigh the very small risk that they will break their arm.

Similarly staff may need to look at themselves and how they interact with children. Nearly 14% of children reported staff as the worst thing about afterschool care (5th on list) and a quarter of the children named staff as how afterschool care could be improved (2nd on list). These numbers are more than just a few disgruntled children who are not allowed to do as they please.

The high number (15.2%) of students reporting other children as the worst thing is concerning. This response may simply refer to children having to interact with children they do not like or who they perceive as "mean." It is possible that sometimes children are not included in games and activities that they would like to be included in. Social skills training may be needed in some services so that children can develop better social skills enabling them to have more positive interactions with their peers. Lack of good role modelling or failing to intervene or support children in building or repairing peer relationships by staff can also undermine children's social skills or escalate problems.

These three areas (Health and Safety, Staffing and Relationships with children) are affected by the skill or quality of staff members. The *low skill-low pay cycle* and limited working hours mean that services are not always able to recruit staff members with the desired skill set of working with children. Only the educational leader (coordinator or supervisor) is required to have a qualification in working in SAC. Educators (carers or people working on the floor) are not required to have any qualifications. Professional development of staff in the areas of Health and Safety and relationships with children would benefit staff personally and improve children's satisfaction of afterschool care.

6.2   Limitations and Future Directions

As with any study there were limitations. The response rate across all services was low. As a result it is possible that the sample was biased. It is worth noting that some of the services in Canberra requested that we survey all the children to help them improve their service. We did not include this data in our study; however, it was not statistically different from the study data. This suggests that our results may be generalisable. The services in our sample were not totally representative of the sector. While the services were located across the three school systems, the majority of service providers were not-for-profit community organisations. We did not have any for-profit service providers or services that were not located at schools. Similarly, the services were both located in cities. Different results may have been found in regional and remote areas where there may be fewer recreational opportunities. Finally, we were not able to compare our findings with the National Quality Standard assessments from the Australian Children's Education and Care Quality Authority. The majority of the services were yet to undertake their assessment. It would be interesting to see if children's perceptions matched those of adult assessors.

Further research is required to explore whether our results are reflective of children's experiences and perceptions of SAC across Australia. The differences according to where children lived were somewhat unexpected and it would be interesting to discover whether further differences exist across other states and territories. Future studies should include services located in remote and regional centres, services located in very high and low socio-economic status areas and the full range of service providers including for-profit and child-care centres. Developmental outcomes of attending SAC also should be explored. Only two Australian studies have investigated developmental outcome of attending SAC. Given the large numbers of children attending SAC, comprehensive data should be available to parents and policy makers alike.

The hours after school are an important context for development and as such SAC should not be dismissed as a filler between school and home. The time children spend in SAC across the weeks, months and years contribute to their well-being and shape their physical, social, emotional and cognitive development. It is time for parents and community perceptions to shift. Rather than a service for parents that provides care for children in a safe environment, SAC should be viewed as an opportunity where children can develop and learn new skills and competences, establish and maintain relationships with peers and adults and generate a sense of belonging and well-being. SAC deserves that same status given to other forms of children's services such as early childhood education and care and school given how it contributes to children's holistic development. Children as stakeholders have pragmatic ideas how to enhance the quality of the experiences at afterschool. For services to further improve, it is important for them to engage with children and heed their insights.

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Authors

Prof. Dr. *Lena Boström*, Associate professor and Vice Dean for Teacher Education at Mid Sweden University. Main research interests: general didactics, learning and teaching strategies, class room management, diversity & inclusion, learning environments. Email: Lena Boström, lena.bostrom@miun.se

Dr. *Jennifer Cartmel*, School of Human Services and Social Work, Griffith University, Logan, Queensland, Australia. Main research interests: outside hours school care, Work Integrated Learning and the preparation of practitioners for children's services and policy, curriculum and practice in children's services. Email:j.cartmel@griffith.edu.au

Ph.D. Candidate *Jesica Siham Fernández*, University of California Santa Cruz, Department of Psychology. Main research interests: social constructions of citizenship, civic engagement and cultural citizenship, Participatory Action Research (PAR), youth studies, and Latino communities in the United states. Address: 1156 High Street, UC Santa Cruz, Social Sciences 2, Santa Cruz CA 95064; Email: jsfernan@ucsc.edu

Marie Frykland, Junior Lecturer, Program coordinator for Primary School Teacher Education, specialization Leisure Time centers at Mid Sweden University. Main research interests: pedagogical aspects of Leisure time centers. Email: Marie Frykland marie.frykland@miun.se

Daniela DiGiacomo, University of Colorado at Boulder. Main research interests: the study of adult-youth relationships in informal learning environments. Address: University of Colorado at Boulder, School of Education, 249 UCB, Boulder, Colorado, 80309-0249 USA; daniela.digiacomo@colorado.edu

Prof. Dr. *Kris D. Gutiérrez*, University of California, Berkeley and Distinguished Professor Learning Sciences and Literacy, School of Education, University of Colorado at Boulder. Main research interests: learning in designed environments that seeks to leverage students' everyday concepts and practices to ratchet up expansive forms of learning. Address: University of California, Berkeley, Graduate School of Education, 1501 Tolman Hall, Berkeley, CA 94720-1670 USA; gutierrkd@berkeley.edu

Assistant Prof. Dr. *Briana Hinga*, University of Southern California, Rossier School of Education. Main research interests: community-school-university partnerships; preparation, design, and evaluation for/of learning environments that foster possibility

and social justice; and research methods. Address: 3470 Trousdale Parkway, Waite Phillips Hall 602, Los Angeles, CA 90089. Email: bhinga@gmail.com

Assar Hörnell, Junior Lecturer, Program coordinator for Primary School Teacher Education, specialization Leisure Time centers at Mid Sweden University. Main research interests: special needs in Leisure time centers and Pedagogical aspects of Leisure time centers. Email: Assar Hörnell assar.hornell@miun.se

Associate Professor, Ph.D. *Lars Holm*, University of Aarhus, Department of Education. Main research interests: literacy practices in multilingual schools and pre-schools; language and literacy testing in multilingual contexts, practices and understandings of all-day schools. Address: Department of Education (DPU), Tuborgvej 164, 2900 Copenhagen NV, Denmark; Email: larsh@edu.au.dk

Prof. Dr. *Fuyuko Kanefuji*, Bunkyo University, Department of Human Sciences. Main research interests: program development and evaluation for extended education, and effectiveness of education through the cooperation of school, family and community. Email: kanefuji@koshigaya.bunkyo.ac.jp

Prof. Dr. *Regina Day Langhout*, University of California at Santa Cruz, Psychology Department. Main research interests: concientización; empowerment; how race, ethnicity, social class, age, and gender influence subjective experience. Address: UC Santa Cruz, Psychology Department, 1156 High Street, Santa Cruz, CA, USA 95064; Email: langhout@ucsc.edu

Assistant Prof. Dr. *Joshua Lawrence*, University of California - Irvine, School of Education. Main research interests: understanding and improving literacy development and educational outcomes of students at risk, including language minority students. Address: School of Education, University of California, Irvine, 401 East Peltason, Irvine, CA 92697, USA; Email: jflawren@uci.edu

Prof. Dr. *Joseph L. Mahoney*, Elizabethtown College, Department of Education. Main research interests: child/adolescent social development, out-of-school time, and social/educational interventions and policies. Address: Department of Psychology, Elizabethtown College, 260G Esbenshade, Elizabethtown, PA 17022-2298, USA; Email: mahoneyj@etown.edu

Doctoral student *Angela Nguyen*, University of California at Santa Cruz, Psychology Department. Main research interests: migration and refugee studies, Southeast Asian communities in the United States, critical pedagogy, social constructions of children and childhood, and Participatory Action Research. Address: UC Santa Cruz, Psychology Department, 1156 High Street, Santa Cruz, CA, USA 95064; Email: angelanguyen@ucsc.edu

Dr. *Lisa H. Schwartz*, Postdoctoral Researcher, University of Colorado at Boulder. Main research interests: the study and co-design of STEM and new media learning ecologies with youth, families and educators. Address: University of Colorado at

Boulder, School of Education, 249 UCB, Boulder, Colorado, 80309-0249 USA; lisa.h.schwartz@colorado.edu

Dr. *Kym Simoncini*, Faculty of Education, Science, Technology and Mathematics, University of Canberra. Main research interests: school age care, extra-curricular activities, professional conversations. Address: University of Canberra, Bruce, Australian Capital Territory. Email: kym.simoncini@canberra.edu.au

Prof. Dr. *Deborah Lowe Vandell*, University of California - Irvine, School of Education. Main research interests: identification of short- and long-term effects of out-of-school time (after school programs, summer learning, self-care, paid employment) on child developmental outcomes, studies of the short and long term effects of early education and care on child developmental outcomes. Address: School of Education, University of California, Irvine, 401 East Peltason, Irvine, CA 92697, USA; Email:dvandell@uci.edu

Amy Young, School of Human Services and Social Work, Griffith University, Logan. Email:a.young@griffith.edu.au