Analysing an Early Child Care Physical Literacy Program: A National (Australia) Rugby League Initiative

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Abstract

Early childhood (3 - 5 years) is a critical time for establishing healthy behaviours and attending to early areas of development associated around physical literacy (PL), social and emotional wellbeing (SEWB) and cognitive skills (CS). Alarmingly, recent international research has identified that many young children do not display acceptable and appropriate PL standards. Given that PL, SEWB and CS are intrinsically linked, and with early childhood centres (ECC) ideally placed to foster the development of these important areas of development, it is reasonable to suggest that there is a need to implement PL programs that also focus on these areas of child development programs that go towards developing children's domains. Therefore, the aim of this research was to investigate the effectiveness of the Munchkin Leagues Program (MLP) in promoting children's early years' development. Employing an interpretive qualitative study design (online and semi structured interviews), data were analysed in an attempt to determine the effectiveness of the MLP. Data were sorted using Creswell's (2008) thematic analysis techniques, whilst Leximancer software was further used to develop concepts and cross validate themes. Theorisation of findings was via adopting a lens of PL to further critically examine the suitability and impact of the MLP. A number of common themes were constructed from the study participants' (adults) recorded commentaries that went to support the research aim. Findings indicate that programs, such as the MLP, have a unique potential to deliver quality learning experiences and meet children's early years development within a PL framework.

Key words: early childcare, physical literacy, physical activity, emotional wellbeing

Introduction

The Importance of Physical Literacy in the Early Years

Physical activity engagement, play and sport were once perceived to be a rite of passage for children and youth (Active Health Kids, 2013). However, international research indicates that the normalcy of physical inactivity has coincided with a rise in obesity related health problems and threatens to make the current generation of children the first in history that will not outlive their parents (Whitehead, Maccallum, & Talbot, 2012). On a national scale, Australian research gives rise to concerns that high levels of physical inactivity may be further intensified by poor PL skills in children (Keegan, Keegan, Daley, Ordway, & Edwards, 2013). This is of importance for this study, given that PL skills are established in the early years of education (Parinduri, 2014; Whitehead, 2001), resulting in determining, to a large extent, a child's PA level and motivation which track throughout a lifetime. With this in mind, Whitehead (2010) defines PL as being:

> *"Appropriate to each individual's endowment, physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the life course" (p. 12).*

Recently, the Australian Institute of Sport (AIS) (2016), presented a more encompassing definition for PL, which goes to re-enforce this research undertaking, throughout the four domains, by stating,

> *"Physical literacy is lifelong holistic learning acquired and applied in movement and physical activity contexts. It reflects ongoing changes integrating physical, psychological, cognitive and social capabilities. It is vital in helping us lead healthy and fulfilling lives through movement and physical activity".*

From an Australian standpoint, many ECC promote PL as part of their PA program and the general curriculum (Parinduri, 2014). However, PL and its intrinsic value throughout PA programs is poorly executed, or in a state of decline. Okely, Booth, and Patterson (2001) supported such claims by indicating,

> *"Research goes to reinforce historical accounts which maintain the proportion of children who displayed mastery of each fundamental movement skill (run, vertical jump, catch, strike, kick and overhand throw) did not exceed 40%". (p.1900).*

Physical activity programs, when correctly implemented, promote many of the foundational skills necessary for developing PL amongst children (Whitehead, 2010). Similarly, the AIS (2016) identifies that with well-developed PL skills in early life, children will be more likely to have the confidence and capability to participate and be physically active throughout their lives. Recognising the importance of physical development and its contribution to whole-of-child development means a collaborative practical approach is required to achieve sustainable and impactful outcomes (Keegan et al., 2013). Specifically, it is well supported and documented (both nationally and internationally), that improved levels of PL, within the early years, have many other significant outcomes, such as self-confidence, reduced childhood obesity and heightened academic performance (Fox, 2010; Lander, Eather, Morgan, Salmon, & Barnett, 2016). Examples of existing international programs which address PL have been operating throughout Canada, the UK and the US, with each program operationalize PL as the early development of fundamental motor skills and exposure to sport (Fox, 2010; Ludans et al., 2010). However, Keegan and colleagues (2013) indicate that Australia's PL programs lack the full range of PL components necessary to promote basic fundamental movement skills and the additional children's areas of development

(i.e. physical, psychological, cognitive and social). Given the increasing levels of physical inactivity amongst Australian youth and the intrinsic nexus between PL, PA and children's SEWB and CS, this research project was undertaken to study the experiences within an EEC PL program.

A Holistic Physical Literacy Model

Physical literacy includes as its foundations the physical skills that children need to possess or develop in order to receive the inherent benefits of taking part in PA for lifelong enjoyment and success (Keegan et al., 2013). Importantly, PL is a concept that is becoming a significant springboard from which PA programs may leverage off, and, in its purest sense, is viewed as a vehicle for promoting robust PA throughout all educational settings. Although PL is highly concentrated in the domain of physical attributes, the concept of PL extends beyond physicality (Whitehead, 2001), rather, the concept of PL addresses the development of the individual from the affective, social and cognitive domains (Sheehan & Katz, 2010). Whitehead (2010) describes an individual who is physically literate as one who is able to capture and demonstrate the synergy of attributes of the mind, environment and body. This research includes analysis of a child's areas of development as they relate to the development of PL.

Propositions such as those outlined by Whitehead (2010) and the AIS (2016) are supportive and give legitimacy to this research undertaking. To a large extent such an approach mirrors and addresses the domains identified in this research and throughout the Munchkin's League Program (affective, SEWB, PL, and CS), providing a theoretical lens for the interpretation of results. What is more, given the aforementioned lack of attention and misunderstanding as to the importance of PL, the aim of this research was to evaluate the impact of the MLP and how it could potentially increase children's key areas of development. To address the abovementioned literature concerning the importance of PL, the focus of this research undertaking was to investigate, via an interpretive methods approach, how an ECC PL program addresses these important developmental stages and domains in young children.

The Munchkin League Program (MLP) is a newly designed and recently implemented early childhood development program, specifically designed for 3-5-year-old, which is delivered over 8 x 45-minute sessions positioned within a National Rugby League (NRL) theme. The MLP is designed to introduce children to the learning environment in a fun and interactive way, with a philosophy of 'Learning Through Play'. Learning experiences, such as reading, gross / fine motor skills (PL), communication and problem-solving abilities (CS), have been established throughout the program, with the aim of heightening children's social and emotional growth, fostering independence, self-confidence, self-awareness, respectfulness and socializing.

Method

Theoretical Context and Research Paradigm

A wholly qualitative (interpretive) data collection approach was designed and implemented in order to explore and develop a better understanding of the experiences key stakeholders (adult participants) have whilst witnessing the implementation of the MLP in an ECC. This study will be located within the interpretive paradigm which provides a framework for this research, by way of how the data is (a) collected, (b) analysed, (c) results presented and (d) results interpreted. In conducting a basic interpretive study, the research was designed to capture and analyse the perspectives of the key adult participants (observers) in an attempt to determine the effectiveness of the MLP in promoting key children's early years development (affective, PL, SEWB, and CS).

This analysis was based on developing thematic categories and analysis by using Creswell's (2008) *Visual Model of the Coding Process in Qualitative Research* (Figure 1). Within this study, the collection and analysis of the interview data is what Creswell (2008) describes as 'hand analysis of qualitative data' (p. 246). That is, the researcher read the data obtained from participants' interviews and online comments, marked it by hand, and divided it into parts. Creswell (2008) steps, range from the initial exploring of the data through to the organisation of the data. This process is defined by Creswell (2008) as, "the process of segmenting and labelling text to form descriptions and broad themes in the data" (p. 251).

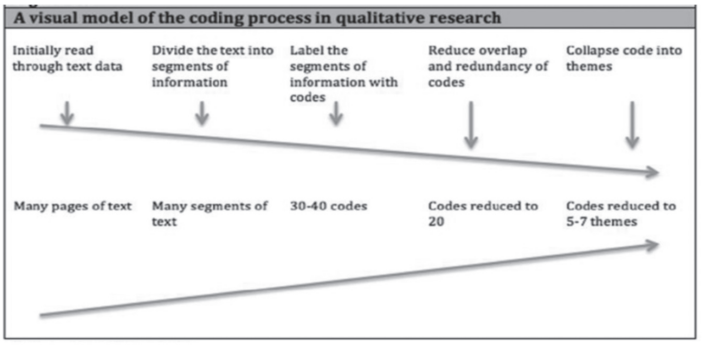

Figure 1: Visual Model of the Coding Process in Qualitative Research (Creswell, 2008)

Following Creswell's (2008) approach, the inquiry of this study was framed by the four domains and their key aspects (see Appendix 1) used to measure the effectiveness of MLP. Subsequently, such an approach addressed the overarching research aim; that is investigating the effectiveness of the MLP in promoting children's early years' development.

Participants

A total of 38 adult participants (observers), who were centre directors, centre staff, program staff, coaching staff and parents, were drawn from across a number of the Gold Coast's (Queensland, Australia) ECC and NRL clubs whose child participated in the MLP. The majority of the participants (adult observers) were female (90%), with the greater part of children who participated in the MLP being male (65%). Among the participants, three (i.e., two childhood centre staff, one other) were parents of the children who participated in the MLP. More than 50% of the participants attended the program at an NRL club, another 32% attended at an ECC, and the remaining 13% went elsewhere. All participants (children and adults) had their anonymity protected. The promotion of the MLP and recruitment of participants were advertised via the development of a 'digital footprint' around various social media

platforms - i.e. Facebook and ECC / NRL websites. Parents were asked to give permission for their child to participate in the MLP program which was implemented to all children. Parents were given the option for not having their child participate, however, there was no child disallowed by parent/s. Such promotional strategies assisted in the professional delivery and communication of the program.

Interview Questions Included in the Qualitative Survey

An interpretive, qualitative research design was implemented. The four domains (affective, PL, SEWB, and CS) were explored by sixteen open ended online questions and one on one interviews. Each question required participants to reflect as to the effectiveness / impact (quality and impact of delivery) of the MLP program. The online survey and researcher asked specific questions to each adult participant, upon which their responses were recorded for coding of themes (as in keeping with Creswell's approach). Questions were designed to specifically measure the participants' experiences concerning the four domains, (a) affective, (b) social emotional wellbeing (SEWB), (c) fine and gross motor skills (PL), and (d) cognitive skills (CS). Prior to interviews, participants were directed / supplied with the four domains and their associated key aspects (Appendix 1). Typical questioning styles were, "*After viewing the information concerning the affective domain and its associated key aspects, what did you observe as the highest level of impact the MLP had on your child's experience in this domain?*" and "*After observing your child undertaking the MLP, how effective do you think the program was in improving aspects of his / her SEWB?*" Further general questions included exploring how adult participants felt the MLP could be improved, by way of reach and impact.

Data Collection

Ethics Committee approved the study before data collection began. Data were collected using an interpretive method, making use of recording the key stakeholders' own lived experiences whilst they observed the implementation of the MLP. The researcher was then responsible for interpreting the adult participants' lived experience of the event under investigation. The researcher also collated participants' online open-ended responses as well as conducting one on one interviews with observers. This interview process provided the opportunity for participants (adult observers) to provide the richest and most relevant data about their experiences with the MLP from which the most relevant themes could emerge. Data were recorded including research notes (of which were transcribed verbatim). The entire data collection lasted over a five-month period from selected ECC and NRL clubs.

Data Analysis

Inductive verse deductive approach. In keeping with Creswell's (2008) approach to data analysis, participants' responses were coded using an inductive approach. It is established that an inductive approach is more aligned with a qualitative framework, as opposed by a deductive approach that is more associated with quantitative data collection and analysis. Therefore, an inductive analysis allowed for themes to emerge from the data, without trying to fit it into a pre-established coding frame, or the researcher's assumptions (Braun & Clarke, 2006). This approach allowed for the researcher to uncover reasons why participants liked or did not like the MLP against the four domains. Inductive reasoning allowed the researcher to move from specific observations, to broader generalizations and theories. The inclusion of an inductive approach allowed for a more rich and detailed thematic development and analysis that was able to capture unique elements of the data, and elements related to the delivery of the MLP.

Generating themes. To obtain a better understanding as to the lived experience of participants (adult observers), this study utilised an interpretive, qualitative approach, consisting of online open-ended questionnaire and one on one interviews to collect data. This data were thematically coded and analysed by using Creswell's (2008) decoding processes and coupled with Leximancer software to develop concepts and to cross reference themes. The ability of thematic analysis to explore large amounts of textual information to discover trends, emergent themes, as well as their relevance to structures and discourses has made this method integral to this study (Grbich, 2007). Transcripts were also imported into Leximancer software to gain further concepts and to cross reference and generate themes. Collected data was analysed using a seven-step process, these being:

1. *Transcribing:* transcripts were recorded verbatim.
2. *Immersion:* written transcripts were read and re-read to identify descriptive codes - explore and organise the data.
3. *Initial coding:* descriptive codes manually extracted and analysed for main central codes - process of segmenting and labelling text.
4. *Theme identification:* central codes were analysed for thematic codes and allocated to the appropriate descriptive code - form descriptions and broad themes in the data.
5. *Defining:* thematic codes were elaborated upon and associated with appropriate central codes - specific themes and associated generated.
6. *Reviewing:* all data was reviewed - themes were recorded, above stages were repeated to ensure no loss of data and eliminate any duplicated data - reduce redundancy.
7. *Refining:* thematic codes were refined and defined - thematic sorting and checking.

Leximancer coding. Leximancer software (Version 4.50.07) was used to further assist in the analysis process and cross validate themes. Leximancer automatically analyses text documents to identify the high-level concepts in text documents, visualising the key ideas and insights. Through this analysis, key concepts associated with the open-ended and interview questions were identified. Specifically, data presentation and analysis linked themes and concepts to the four domains (see Table 1). Such a combined approach to data analysis procedures (i.e., Creswell and Leximancer) provided a detailed and reliable approach to recording, analysing and interpreting the hidden information and build a thematic profile of the stakeholders' expectations and observations. Similarly, data from both approaches identified commonalities across data, resulting in similar categories. The Leximancer concepts and developed themes (gathered from the online and one on one interviews) were in alignment and as such the approach heightened validity of approach and findings. The Leximancer process was not seen as a singular approach but rather

a 'cross reference' framework for the larger interview process.

Trustworthiness

Achieving trustworthiness consists of processes that support such aspects of research related to: (a) credibility, (b) transferability, (c) dependability, and (d) confirmability. A continuous 'peer review' process (including experts and ethics committee members) was undertaken prior, during and whilst the instrument was implemented within the field of research. Credibility has been achieved by providing detailed processes to record, analyse and present commentaries, whilst transferability was heightened by implementing concise and rigours methods for collecting and analysing data, describing the research context and the assumptions that were central to the research. In addressing dependability, an attempt to demonstrate that a true picture of the phenomenon under scrutiny has been presented, this dependability was achieved by detailing the nature and aim of the study, coupled with specific guidelines for its implementation and question/s design. Dependability was also gained by the use of peer debriefs. Lastly, confirmability was maintained by implementing a method and interpretive framework that ensure that data presentation was not affected by the researcher's personal view point / stance. Furthermore, the researcher compiled his/her own biases, so the reader can determine for him/herself the confirmability and reliability of the data. The researcher documented the procedures for checking and rechecking the data throughout this study, as outlined in the seven steps to data analysis.

Positionality of the Researcher

Since bias remains a naturally occurring human characteristic, positionality is often used in the context of the inductive approach to social science inquiry as an exploration of the investigator's reflection on one's own placement within the many contexts, layers, power structures, identities, and subjectivities of the viewpoint (England, 1994). In relation to this study, an understanding of the nature of and identification / appreciation for the subjectivity of the researcher is a vital and needed processes for self-reflection and a determination of self within the social constructs under investigation. Whilst the researcher had a vested interest in exploring physical literacy in the early years of children development, there was no opportunity for the researcher to influence interview protocols. Such an approach allowed for the collection of true data associated with the phenomenon under investigation. The collection and interpretation of data was assisted through the implementation of the aforementioned steps undertaken to heighten trustworthiness.

Results

From the initial data coding, as set out by Creswell (2008) and above identified seven steps, a number of main common themes and specific related associated themes were constructed from the participants' recorded commentaries. These identified themes were then aligned with the four domains. Following analysis of the data collected from all phases of the study, four main themes and fifteen associated themes emerged that could be considered as representing the participants' experiences concerning the impact of the MLP and the four domains. Each theme emerged in different context and within different narratives - recounted in various ways and applied to different experiences. The analysis of the data identified a number of main themes and associated themes, with these being:

A. **Affective -**

- Main theme - *Increased enjoyment*
- Associated themes - (a) child involved, (b) increased confidence, (c) sense of achievement (d) highly engaged.

B. **Social and Emotional Wellbeing -**

- Main theme - *Heightened interaction*
- Associated themes - (a) more interaction, (b) helped learn, (c) sense of self, (d) increased friendships.

C. **Fine and Gross Motor Skills -**

- Main theme - *Improved physical activity*
- Associated themes - (a) physical skills improved, (b) running improved, (c) increased motor development, (d) improved body movement and coordination.

D. **Cognitive Skills -**

- Main theme - *Improved cognitive skills*
- Associated themes - (a) identified shapes, (b) better numeracy, (c) colour identification.

The following discussion section will report on these themes that constitute the effectiveness and impact of the MLP, as well as their relationship to PL and the physical, social, emotional and cognitive benefits from such a program. Embedded within a play-based approach, the MLP was found to promote the following four domains.

Leximancer Text

Leximancer (Version 4.50.07) analysed four files containing from the online open-ended survey, related to the four domains - affective, SEWB, PL, CS, plus general feedback. Based on preliminary analyses, concepts with semantically similar meanings (e.g., children and kids) were merged, and concepts that did not come up in analysis frequently were excluded. As indicated in Figure 2, participants were most likely to use concepts such as children, skills, and program. They were less likely to use concepts such as running, helped, or numeracy.

The Leximancer concepts went to reinforce the thematic categorisation (interviews) of participants' commentaries. Through this analysis, key and associated concepts linked with selected questions in the survey were identified. This type of analysis revealed the concepts that were associated with selected questions. For example, one of the questions selected was, "After viewing the information concerning the affective domain and its associated key aspects, what did you observe as the highest level of impact the MLP had on your child's experience in this domain?" The process assisted in understanding some of the main and associated concepts associated with this particular question(s). One of the principal aims of using Leximancer was to quantify the relationships between concepts (i.e. the co-occurrence of concepts), and to represent this information in a useful manner in a concept map (Figure 3) that could be used for exploring the content of the data. The concept map can be thought of as a bird's eye view of the data, illustrating the main features (i.e. concepts) and how they interrelate.

Name-Like	Count	Relevance
Munchkin	16	40%

Word-Like	Count	Relevance
children	40	100%
skills	33	82%
program	28	70%
son	23	57%
league	17	42%
activities	15	38%
shapes	13	32%
child	11	28%
improved	11	28%
confidence	10	25%
interact	9	22%
motor	9	22%
different	9	22%
sense	9	22%
colour	9	22%
learnt	9	22%
enjoyed	8	20%
numeracy	8	20%
helped	7	18%
running	7	18%

Figure 2: Ranked list of concepts

As illustrated in Figure 3, with 100% of concepts visible, theme size set at 50% and the figure rotated 38%, intermediate level concepts include 1) children, 2) skills and 3) son. Given that the majority of children were male, it was expected that the words of child and son would be interchangeable throughout the data. Theme sizes were set to only identify the most relevant associations between each concept.

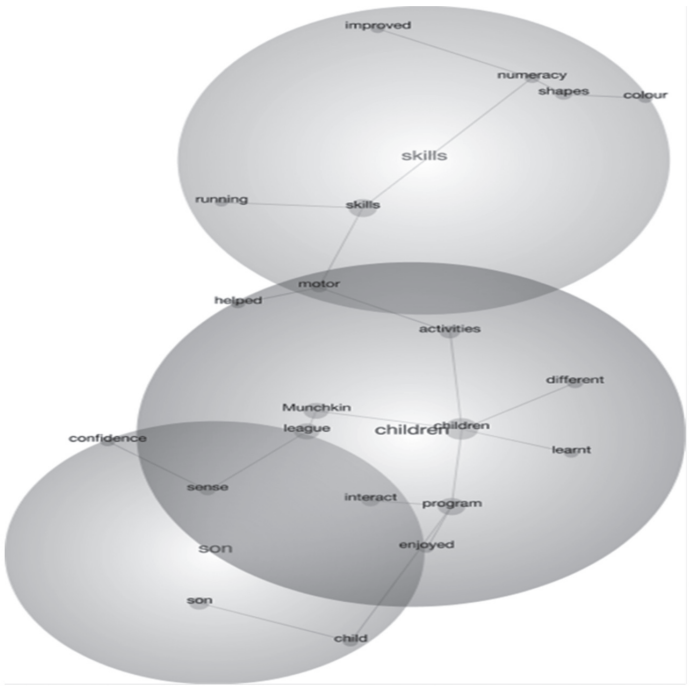

Figure 3: Concept map with intermediary level thematic concepts

As indicated, participant responses were most readily summarised in terms of the concepts of the program and effects of the program on their children. It is identified that the associated concepts go to support the positive relationship between the MLP program and various aspects of a child's development.

Main concept: Children

Associated concepts: children, program, league, Munchkin, activities, interact, different, enjoyed, helped, learnt, confidence, etc.

Main concept: Skills

Associated concepts: skills, shapes, motor, numeracy, colour, improved, running

Synopsis of Associations - Themes and Concepts

Based on the identified, ranked themes and concepts, a combination of specific key stakeholders' commentaries is presented in Table 1. The number of times (hits) that a concept was indicated were also recorded. The data are presented to address each of the four domains, linking each theme / concept and associated comment. Table 1 captures the data and presents patterns of associations across the identified main themes, concepts and the four domains. Such an approach allows for the combined presentation of themes (generated by Creswell approach) and concepts (generated by Leximancer software).

Table 1: *Associations between Domains and Thematic / Concept Categories*

		Themes / Concepts	Participant comment (ID#)
FOUR DOMAINS	**Affective (hits > 58)**	***Increased enjoyment*** ***Son*** * sense, * child, * confidence * involved, * confidence, * sense of achievement, engaged, * sense of belonging	Munchkin is a great activity to help children feel involved in a fun and an enjoyable learning environment and giving my son the confidence and feeling part of a team is very special. Helping them work together with other children and giving them sense of achievement in a non-competitive way is great. (31) From what I saw, all the children were engaged and enjoyed the activities. The children were highly engaged in this program and it was clear that their confidence was increased. The program allowed all students to be included and allowed them to achieve set goals - this created a high level of achievement and a sense of being involved and appreciated. (13) My son enjoyed the Munchkin league because it gives him a sense of belonging after always watching his big brother play sports he feels he now has his team. It has given him confidence with ball sports and really helped his coordination and motor skills. (10)
	Social & Emotional Wellbeing (hits > 35)	***Heightened interaction*** ***Children*** * program * interact * different * enjoyed	When observing the children who are participating in the Munchkin league I have noticed that the children are encouraged to work together and interact during different parts of the program. I have also seen lots of encouragement between the teachers and the children, which assists in building a child's sense of self. (29) Children learnt to share, wait turns and interact mostly with others. Children really enjoyed the program. They encouraged one another and developed new friendships. Such social aspects of the program were great to see, as the social wellbeing is just as important as the physical wellbeing of children. (17)

	* helped learn, * encouraged, * sense of self, * friendship.	As a parent of a child that was participating in the program I enjoyed watching my child interact with different children and follow the simple directions that were given. Being happier with themselves and having friends does flow into their academic work and helps them learn. However, I feel that having the program run for set weeks was difficult and my child missed out on quite a few classes because he was away. (2) Munchkin league has been great for my son as he is a quiet and shy boy and often only parallel plays this program has not only gave my son the confidence to interact with other child and feel a sense of belonging but has also allowed him to make some strong friendships. Instructors are fantastic at their job and make all families feel welcome. (15) The children came away from the program with greater self-awareness due to a high level of interaction with mates and peers. They want to join a Rugby League club. (11)
Fine & Gross Motor Skills (PL) (hits > 48)	**Improved physical activity** **<u>Skills</u>** * skills improved, * running, * motor learning * body movement, * coordination.	During my observations of the Munchkin league program I have watched as the children use their large muscles in running exercises and their fine motor skills and body awareness in other drills they are participating in. A lot of the activities being undertaken by the children assist with their developing coordination. (9) My son has gained a better idea of what his body is capable of doing and what he can achieve. He was more co-ordinated after the program and had more confidence to participate in sport. In general, his whole body and movement became more co-ordinated as a result of the MLP. (12) My daughter has improved her running and movement. She can pass and move around objects better and as a result her general sporting skill have improved (18) The children improved in his game play and his ability to run with the ball and do other related activities. (23)
Cognitive Skills (hits > 29)	**Improved cognitive skills** **<u>Skills</u>** * shapes, * numeracy, * colour	I don't think it has assisted broadly with literacy and numeracy but shape and colour familiarisation were improved. (16) Basic colour and shape and numeracy skills. The skills they did allowed children to work and understand these important concepts (22) It has improved shape familiarisation and basic numeracy skills. (34) Colour and shapes yes, but not so much literacy and numeracy. Lots of different shaped and colour objects at which you work with. (35) My son's colour familiarisation, basic colour, shape and numbers have greatly improved since participating in Munchkin League. (30)

Discussion

From the data, there were four main themes that emerged, with these being, (a) increased enjoyment, (b) heightened interaction, (c) improved physical activity, and (d) improved cognitive skills. In the proceeding discussion section, these themes will be further elaborated upon and connection provided to the overall aim of the research investigation.

Increased Enjoyment

The most prominent theme, across all domains, but especially in the affective domain, was that the MLP increased enjoyment. Throughout the analysis, the main theme was broken into associated themes of (a) child involved, (b) increased confidence, (c) sense of achievement, and (d) highly engaged. Research focused on the concept of enjoyment, with respect to basic needs satisfaction, has variously suggested that fun and enjoyment is more proximal to certain basic needs (Cox, Smith, & Williams, 2008; Deci & Ryan, 2000; Sollerher, Apitzsch, Rastam, & Ejlertsson, 2006). Similarly, in a recent study, children cite 'enjoyment' as the primary reason for participation in organized PA and its absence as the number one reason for youth sport attrition (Visek, Achrati, Mannix, McDonnell, Harris, & DiPietro, 2015). Specifically, in terms of the multiple motives for children participation in PA, it is suggested that PL programs focus on fun, social interaction, fitness, skill development, and play. It is further understood, that young children engage in an activity in order to experience stimulating sensations (e.g., sensory pleasure, aesthetic experiences, as well as fun and excitement) derived from one's engagement in the activity. Children who participate in PA are more inclined to continue participation in order to live enjoyable experiences. Data indicated a significant relationship between the enjoyment and children's MLP experience. There is an abundant amount of literature that supports the approach to increasing / sustaining children's participation in PA through heightening fun and enjoyment throughout PL programs (Colley, Garriguat, Jansson, Craig, Clarke, & Tremblay, 2011). Similarly, Côté and Hancock (2014) maintains that early year design play and PA that focus on fun and short-term rewards, offers a better chance of motivating children to uptake long term involvement in PA. Enjoyment was conceptualized in this study, by participants conveying that 'enjoyment' was achieved through the involvement in the MLP as,

> "*From what I saw, all the children were engaged and enjoyed the activities. The children were highly engaged in this program and it was clear that their confidence was increased*" (participant 31).

Heightened Interaction

The overall theme of 'interaction' was identified by many of the participants as an observation. Throughout the present analysis, the overall theme of 'interaction' was broken into associated themes of (a) more interaction, (b) helped learn, (c) sense of self, and (d) increased friendships. Promoting social connectedness and interaction amongst peers is an important element of PA programs (Côté & Hancock, 2014). One of the greatest benefits of playing is to assist with the development of social competence (DEEWR, 2009). Children can build relationships, learn to resolve conflicts, negotiate and regulate their behaviours. In play, children usually have increased feelings of success and optimism as they act as their own agents and make their own choices. Playing is a known stress release; it is often linked to child wellbeing (DEEWR, 2009). One of the most important ways children make sense of their social worlds is through playing with others. Social play helps children to develop a sense of belonging in a group as they interact with others and learn how to negotiate rules for positive social interactions (DEEWR, 2009). Such heightened interaction goes

to promote a positive SEWB experience for early year children, where the MLP promotes opportunities for participating children to develop friendships and peer interaction that otherwise may not be occurring in other educational contexts and settings. Interaction was conceptualized in this study by participants conveying that interaction was achieved through the involvement in the MLP as,

> "*As a parent of a child that was participating in the program I enjoyed watching my child interact with different children and follow the simple directions that were given. Being happier with themselves and having friends does flow into their academic work and helps them learn*" (participant 2).

Improved Physical Activity

The theme of 'improved physical activity' was consistent throughout the analysis. This overall theme was broken into associated themes of (a) physical skills improved, (b) running improved, (c) increased motor development, (d) improved body movement and coordination. Australia's PA guidelines indicate that early years should undertake at least 30 min of moderate to vigorous PA every day, with a maximum of 1 hr screen-based activity for entertainment/non-educational purposes a day (Keegan et al., 2013). Keegan and associates (2013) go on to argue that physically active children are healthier, happier and more socially connected than those who have more sedentary lifestyles. With exercise habits commencing early in life and development of healthy lifestyle behaviours among children translating into reduced risks in adulthood, quality PA commenced at a young age is vital (Jenkinson & Benson, 2010). The recent global trend of an increasing prevalence of overweight and obesity in young children is well document with Australia being no exception (Keegan et al., 2013). The government's growing concern about childhood physical inactivity and obesity has helped to create greater interest and discourse around PA and its contribution to children's health (Dwyer, Allison, Barrera, Hansen, Goldenberg, & Boutilier, 2003). Such an approach, as the MLP, has demonstrated an ideal platform for increasing PA levels and promoting PL amongst ECC and young children. Improved physical activity was conceptualized in this study, by participants conveying that 'improved physical activity' was achieved through the involvement in the MLP as,

> "*My daughter has improved her running and movement. She can pass and move around objects better and as a result, her general sporting skills have improved*" (participant 18).

Improved Cognitive Skills

The theme of 'improved cognitive skills' was also consistent throughout the analysis. This overall theme was broken into associated themes: (a) identified shapes, (b) better numeracy, and (c) colour identification. A central aim of the MLP was to connect learning through play. Play based learning is a well-established goal to ECC curriculum and education approaches. Play is associated with the development of intellectual skills and understandings. In play experiences children integrate emotions, thinking and motivation that establish neural connections critical to effective brain functioning (Lester & Russell, 2008). The MLP approach supports the notions of belonging, being and becoming for early years development. The development of a play-based learning environments for young children, are critical for early years' cognitive development, as this is seen to promote learning because there are no wrong or right ways to do things. The MLP provided an opportunity to promote numeracy and literacy experiences within the context of a PL, play based program. Improved cognitive skills was conceptualized in this study, by participants conveying that 'improved cognitive skills' was achieved through the involvement in the MLP as,

> "*Basic colour and shape and numeracy skills. The skills they did allowed children to work and understand these important concepts*" (participant 22).

Links to Physical Literacy

The MLP has many unique program qualities that go to reinforce / support children's affective, PL, SEWB and CS development. In particular the MLP mirrors many of the fundamental principles associated with developing a physically literate child. Physical literacy is linked with many important outcomes, such as self-concept, reduced childhood obesity, healthy aging and supporting disabled people (Hay & Macdonald, 2009). It is expected that PL programs delivered in ECC should be designed to cater and re-enforce fundamental motor skill development and exposure to sport. However, there is scope for Australia to design programs which better reflect the full range of PL components, and therefore generate more of the associated benefits for Australian children (Active Healthy Kids Canada, 2013; Keegan et al., 2013; Larsson & Quennerstedt, 2012).

Significantly, it is evident throughout the MLP's aims, design and implementation phases, that there is a wide range of physical, social and cognitive learning experiences that are appropriate for children in the early years. The MLP has situations / learning experiences that go to support the development of a PL child, with specific and clear evidence, from this research undertaking, that the MLP enables / encourages children to: (a) read the situation, predict and/or anticipate what is likely to happen next as the situation unfolds, and then be able to react through movement in an appropriate manner; (b) develop the knowledge, skills, attitude, and motivation to fully use their capacity and potential for movement; (c) establish a sense of their physical self: that they feel 'at home' in their body, and comfortable with their physicality; (d) develop a high level of self confidence and self-esteem that comes from confidence in their body and its abilities; (e) experience a wide range of physically challenging situations; and (f) encourages children to move with poise and grace, with economy of movement, and with confidence (Whitehead, 2010).

Of most significance, data generated from study participants (observations) identify that the MLP creates an environment where children's early experiences in PL and PA programs are highly valued and encouraged. Participants identified with such themes as generally increasing, (a) enjoyment, (b) social interaction, (c) PA levels, and (d) cognitive aspects. It is well established that if children's early experiences of being physically active are enjoyable and build basic movement capacities, then children will be more likely to try, enjoy, and succeed in their future physical challenges (CEECD, 2011; Jones & Okely, 2011). Importantly, the breadth and depth of the MLP aims go to reinforce the important foundational concepts associated with developing a physically literate child as set out in Whitehead's (2010) *Physical Literacy*

Model, whereupon the environment, body and mind impact on a child's PA engagement and enjoyment levels.

It is well established that children must be supported in developing the ability to move proficiently, the confidence and willingness to try new activities, and an awareness of the importance of physical activity for health and academic performance (Parinduri, 2014). Specifically, the MLP aim was seen to align with the contemporary Australian Curriculum Assessment Reporting Authority (ACARA) priorities within the subject area of Health and Physical Education (there is scope for cross curricular connections in subject areas - health & physical education, numeracy and literacy) (ACARA, 2016).

Implications for Practitioners and Future Research

Findings from this research go to legitimize the ongoing resource support (financial / administration / staff / marketing) for future development and wider implementation of the MLP. Recommendations from this research are taken from the analysis of data, however, it is generally viewed that the below recommendations are aimed to improve the reach of the MLP program for future implementation. This is based on the MLP being well received by adult participants (observers) and are summarised as being: (a) aligning the aims of the MLP to identify the benefits of PL for early years' development; (b) expanding the reach of the MLP across all Australian ECC, with an aim to further refine the program to increase the benefits for the development of children in early years; (c) creating measures that would serve as indicators of child development in the four thematic areas; (d) establishing a more comprehensive link that would improve the MLP aim of developing and supporting early year experiences in numeracy and literacy; (e) establishing closer links to establish how the MLP may go to support the Australian National Curriculum (ACARA) in such areas as - health and physical education, numeracy and literacy for early years and lower primary; (f) designing educational booklets that would allow teachers / parent / coaches to further reinforce the MLP via activities that link practical to theory - educational material for pre / post MLP classroom implementation; (g) developing a more strategies 'digital footprint' and marketing campaign associated with the advertising and recruitment of potential participants in MLP; and (h) aligning the aims of the MLP so as to demonstrate a stronger association and support for achieving the fundamental principles of developing a physically literate child within the early years of education.

Limitations

The study had a few identified limitations, with these primarily being associated with the recruitment of adult participants, obtaining the data (one on one interviews), and differing ECC. Despite having 38 adult participants, from across a number of ECC, a larger cross section of adult participants and ECC may have given a more in-depth data representation. However, this is only speculative and given the high level of trustworthiness, such an approach may not have produced any significant differences. There was an expressed issue with gaining adult participants who had the time to complete the survey and participat in the one on one interviews. Further thought to how to make the data collection method more streamlined would need consideration.

Conclusion

It is important for future recommendations and implementation strategies to note the findings from the analyse of the MLP to improve PL amongst early years. Given that the most prominent themes, across all domains, were associated with the MLP, (a) increasing enjoyment, (b) heightening interaction, (c) improving physical activity, and (d) improved cognitive skills amongst children in ECC, it can be reasonably concluded that the analysis has indicated a PL program that has achieved its aim, in terms of the parental observations, that is 'to determine the effectiveness of the MLP in promoting key children's early years development (affective, PL, SEWB and CS)'. It was further identified that by aligning the outcomes within a PL framework, the success of the MLP was further significant, by way of adult observations being positive towards the aim of the program. It was noted that data saturation was evident across the associated themes, with a commonality of participants' comments identifying a positive result.

It is envisaged that findings from this research will provide a map of the situation as it currently stands and allow for the identification of the most appropriate ways to proceed in attempting to encourage the future implementation of the MLP (and similar programs) across both international and national contexts. Importantly, data analysis and subsequent finding can be applied to identify and tailor practical measures which could be implemented to match the identified levels of key stakeholders' observations. In so doing, it would be possible to substantially improve the program's implementation. Such research process has also identified which actions would be deemed more appropriate to undertake and would facilitate a greater awareness and confidence in individual stakeholders and ultimately allow for a more effective and efficient engagement with ECC, parents and NRL grass roots clubs.

Given the increasing importance being placed on this field of investigation, it is becoming more difficult to ignore the implications poor PL levels have on the wider SEWB of children in the early years of education. Therefore, this research undertaking was the first of its type and was unique, as it aimed to determine the impact of the MLP to address a number of child developmental domains.

Lastly, primary prevention campaigns and strategies (such as the MLP) should be aimed to assist early years (grassroots) children to improve in their PL skills. Moreover, results from this study, have been found to reflect a program reach that is well supported, accepted and encouraged - outlining its potential for future sustainable growth and program reach. The results and recommendations, presented throughout this project, are an opportunity for the NRL and ECC, both internationally and nationally, to develop and implement future effective and collaborative health promoting strategies and campaigns such as the MLP - Learning Through Play.

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Appendix A

Adult participants were required to comment (open ended online survey) on as many of the below questions that were associated with the four domains. The four domains and their associated key aspects are listed as being:

Affective

The program is fun and creative in its delivery.

The program allows children to learn through play

I personally enjoyed my child being involved in the program.

The children enjoyed participating in the program.

Social and Emotional Wellbeing

Improves the children's confidence and self – identities.

Encourages children to interact with others with care, empathy and respect.

Helps children develop a sense of belonging to groups and how to participate.

Assists children to become stronger in their social and emotional

wellbeing.

Fine and Gross Motor Skills (PL)

Improves children's Fine Motor Skills - (hand use, carry objects, hold equipment etc).

Improves children's Gross Motor Skills - (run, jump, throw, skip, hit etc.).

Increases children's Body Awareness – (more co-ordinated in physical movement).

Increases children's Spatial Awareness – (move more effectively around objects).

Incorporates learning opportunities that will improve children's basic numeracy skills.

Cognitive

Incorporates learning opportunities that will improve children's basic literacy skills.

Learning opportunities that will improve children's basic colour familiarisation.

Learning opportunities that will improve children's basic shape familiarisation. ■