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## Young children learning about well-being and environmental education in the early years: a funds of knowledge approach

Susan Edwards<sup>a\*</sup>, Helen Skouteris<sup>b</sup>, Amy Cutter-Mackenzie<sup>c</sup>, Leonie Rutherford<sup>d</sup>, Mandy O’Conner<sup>b</sup>, Ana Mantilla<sup>a</sup>, Heather Morris<sup>b</sup> and Sue Elliot<sup>e</sup>

<sup>a</sup>*Learning Sciences Institute Australia, Australian Catholic University, Melbourne, Australia;*

<sup>b</sup>*Faculty of Health, Deakin University, Melbourne, Australia;* <sup>c</sup>*School of Education, Southern Cross University, Lismore, Australia;* <sup>d</sup>*Faculty of Arts and Education, Deakin University, Melbourne, Australia;* <sup>e</sup>*School of Education, University of New England, Armidale, Australia*

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Early childhood educators currently provide content focused learning opportunities for children in the areas of well-being and environmental education. However, these are usually seen as discrete content areas and educators are challenged with responding to children’s interests in popular-culture inspired food products given these influence their consumption of energy-dense, nutrient-poor and highly packaged food in the early childhood setting. This paper reports preliminary findings from a pilot randomised trial examining the interconnectedness of sustainability, well-being and popular-culture in early childhood education. Planning, assessment documentation and summaries from twenty-four learning experiences implemented by six educators over a six-week period were analysed using a deductive approach. Twenty well-being and environmental education topics were identified and shown to be generated by the educators when considering the children’s ‘funds of knowledge’ on popular-culture inspired food products. We argue that topics derived from children’s engagement with popular-culture may help educators to create an integrated approach to curriculum provision. This may impact child weight and facilitate obesity prevention and environmental sustainability as children create stronger connections between these content areas and their everyday choices and practices.

**Keywords:** environmental education; well-being; popular-culture; early childhood curriculum

### Introduction

How to build on children’s popular-culture interests in the early childhood curriculum has long been a problem for educators. In part, this is because popular-culture has not been readily accepted by the field as promoting interests considered ‘appropriate’ to the provision of play-based learning for young children (Arthur 2001). Popular-culture in the early years is characterised by connotations of over-marketization to young children (Linn 2004), and as fostering a reduction in children’s capacity to engage in imaginative play (Smirnova 2011). The ‘problem’ of popular-culture in the early childhood curriculum also stems from uncertainty regarding the content knowledge to be derived from building on these interests as a basis for learning; this is because while interests and activities such as playing with sand, dramatic play and

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\*Corresponding author. Email: [Suzy.edwards@acu.edu.au](mailto:Suzy.edwards@acu.edu.au)

block building are well understood to foster language and mathematical learning, what exactly may be learned from a child's fascination with Spiderman™ or Frozen™ is not always as clear to educators. In part, the problem of popular-culture integration in the early childhood curriculum has been addressed by research examining the use of popular-culture as a 'fund of knowledge' acquired by children in the home and community settings (Hedges 2011). 'Funds of knowledge' informed research suggests capitalising on the knowledge and skills children have acquired at home as a basis for formal educational provision (Moll et al. 1992). This research suggests that popular-culture interests can be used to generate viable learning experiences for young children, particularly in the areas of literacy and technology education (e.g. Dyson 2003; Marsh 2004).

However, in recent times, the problem of popular-culture interests in the early childhood curriculum has become even more complicated than in the past. This is because the range of technologies commonly available to young children has increased their engagement with multiple forms of digital media, including television programmes, movies, games and apps (Lauricella, Wartella, and Rideout 2015). A consequence of this increased media engagement is young children's exposure to 360° marketing (Schor 2004). 360° marketing is a form of marketing for popular-culture and popular-culture products that surrounds children (particularly in Western minority contexts) in multimodal forms, including through mainstream media engagement such as television, movies, games and apps – but also, through associated and cross-promoted avenues such as magazines, toys, books, food products, clothing, advergames and promotional offers (Cook 2014). The increased multimodality of popular-culture in young children's lives is problematic for early childhood educators because it means that young children's interests in popular-culture characters and narratives manifest in the early childhood setting in multiple ways. This includes: children's interest in role-playing particular characters, wearing clothing associated with a preferred character, trying to bring popular-culture inspired toys into the early childhood setting, and consuming popular-culture inspired food products during snack and lunchtimes (see for example: Zevenbergen 2007). Our own research with educators suggests that while they are committed to recognising young children's popular-culture interests, they do not always know how to respond to these interests in curricula terms – particularly as this pertains to the consumption of popular-culture inspired food products brought to the early childhood setting (Edwards et al. 2013). The latter dilemma is doubly manifested given the malconsumption of such products, alongside the socio-ecological circumstances surrounding their production and distribution worldwide (Hillcoat 2014).

Food products are especially challenging in the context of the early childhood curriculum because they are typically energy-dense, nutrient-poor and highly packaged. These aspects of the products are contrary to the well-being and sustainability imperatives of the early childhood curriculum where educators try to engage children in learning about healthy eating behaviours and environmentally sustainable practices. However, the products themselves remain highly attractive to young children because they feature popular-culture characters, and are strongly connected to other multimodal forms in which they are likely to experience that character, such as movies, games, clothing, toys and apps (Edwards 2014). Thus, while the children are interested in the product, educators are concerned that the product does not represent the most appropriate food choice children could make from a nutritional or sustainability perspective. An emerging issue in early childhood education,

therefore, is how to build on young children's popular-culture interests as a basis for learning more about the health and sustainability consequences of consuming such food products.

This paper reports on research conducted with a group of early childhood educators in Victoria, Australia. Our aim in this paper is to consider how educators are able to use children's popular-culture interests to generate topics associated with well-being and environmental education as content areas in the early childhood curriculum (with a specific focus on food products). We report early findings from research we have conducted in the context of a broader project focused on children's understandings about healthy eating and sustainability following participation in well-being and environmental education based on popular-culture interests. Our focus in this paper is not on the children's learning per se – but on the *identification of topics educators generate* when planning well-being and environmental education learning experiences for young children based on children's popular-culture interests. We consider this initial work an important step forward in understanding how educators might engage with the contemporary manifestation of children's popular-culture interests in the early childhood curriculum. This is because to date, little is known about the likely range of topics educators can explore with young children when considering the well-being and sustainability consequences of children's popular-culture interests pertaining to consumption of popular-culture inspired food products. Prior to providing an overview of the pilot project and findings, we consider the literature related to well-being and environmental education in early childhood education. We also further explain the concept of funds of knowledge as the theoretical framework informing the project.

### **Well-being and environmental education in early childhood education**

Well-being and environmental education represent recent areas of content concern and focus in early childhood education. This is not to say that well-being and environmental education do not have a history of provision in the early years as this would be incorrect. Young children's social, emotional and physical health has long been a concern of early education, while nature studies and the provision of outdoor learning experiences have also been highly valued (Klaar and Öhman 2014). However, well-being and environmental education as content areas have taken on a new significance in the early years against a backdrop of concerns regarding environmental sustainability more broadly (see for example: UNESCO 2012, 2014), and the impact of digital media consumption and 360° advertising on young children's health and well-being (Rutherford, Brown, and Bittman 2011). In this paper, we consider 'well-being' in terms of overweight and obesity prevention, and 'sustainability' in terms of environmental education.

### ***Overweight and obesity***

Overweight and obesity in the early years is internationally recognised as a significant health issue for young children. Increased consumption of digital media, exposure to 360° marketing, the ready availability of energy-dense foods and a reduction in physical activity are commonly indicated factors in the high levels of overweight and obesity occurring in the early years (Rutherford, Biron, and Skouteris 2011). It is estimated that 42 million children aged five and under are

overweight across the globe (WHO 2015). Overweight and obesity is a problem in early childhood because early patterns of weight gain tend to be maintained into adulthood. Problems associated with overweight and obesity for children and adults include an increase in non-communicable diseases such as diabetes or cardiovascular ill health, and social-emotional difficulties, such as depression, low self-esteem and anxiety (Jacka et al. 2010).

In early childhood education, attempts at reducing overweight and obesity tend to be conducted as intervention studies. Here, programmes advocating healthy eating, an increase in physical activity and a decrease in sedentary activity associated with digital media consumption are often implemented in early childhood settings in an attempt to increase children's levels of healthy eating and exercise (Hesketh and Campbell 2010; Marco, Zeisel, and Odom 2014; Morris et al. 2015). Often these programmes show improvements in children's behaviour, but the extent to which they are long lasting is not known, and the rate of overweight and obesity in the early childhood years continues to grow. One problem with intervention approaches to well-being is that they are not strongly connected with existing curriculum practices in early childhood education which focus on the co-construction of learning experiences based on children's interests. For example, existing approaches are often top-down, and require early childhood educators to implement healthy eating and exercise programmes developed by experts from beyond the early childhood field. Typically, the programs are developed in the absence of any discussion with educators, and/or without strong connections to children's existing interests. We believe that capitalising on young children's popular-culture interests as they pertain to food products as a basis for engaging children in well-being education represents an alternative to existing top-down approaches to obesity prevention (Skouteris et al. 2010, 2014a). This is because well-being education generated by educators according to young children's interests is potentially more meaningful to children than intervention approaches designed to change children's behaviour without necessarily attending to what they understand about healthy eating and exercise. This approach aligns with literature regarding the understandings primary-school-aged children hold of their own bodies, and their knowledge of healthy eating practices as a basis for intervention (Roos 2002; Hesketh et al. 2010).

### ***Environmental education***

Environmental education in early childhood is increasingly recognised as a significant area of content and curriculum provision. This is due in part to the efforts of scholars keen to identify appropriate ways of engaging young children in environmental learning (Duhn 2012; Elliott 2010), combined with developments at a more global level with respect to promoting environmental education across all levels of education (UNESCO 2009, 2012). In early childhood education, the term 'education for sustainable development' is more typically used in Europe, 'education for sustainability' in Australia, while the term 'environmental education' is more frequently used in the USA and Asia (Davis and Elliott 2014). These terms represent philosophical orientations and debate within the field of environmental education more broadly (Jickling and Wals 2007), while Sauve (2005) suggests they are connected with beliefs regarding the extent to which the role of environmental education is to engage learners in critical understandings of their relationship with the world, or conversely, to participate in education that promotes sustainability and sustainable

practices. In this paper, we use the term environmental education with the clear acknowledgement that there are indeed a multitude of perspectives as it concerns the naming and framing of environmental education and sustainability in early childhood education (Cutter-Mackenzie and Edwards 2013).

As recently as six years ago, research into the conduct of environmental education in early childhood was considered so minimal that Davis (2009) described it as ‘black hole’. However, increased interest in engaging children in environmental education in the early years (Hägglund and Pramling Samuelsson 2009), the research advocacy of key scholars in the area (Pramling Samuelsson and Kaga 2008) and the inclusion of environmental education in early years curriculum frameworks have resulted in a rapid increase in research in this area (Siraj-Blatchford 2009). Such work shows that contrary to early concerns that young children are too socially, emotionally and cognitively immature to engage in learning about the environment, they are in fact capable of engaging with these ideas (Elliott and Davis 2009). This is particularly the case where environmental education topics connect strongly with young children’s localised experiences – such as in the areas of growing food, exploring local habitats, waste reduction, recycling and composting. Research also shows that pedagogical approaches to engaging young children in learning about these topics can be developed in ways that align with the use of play-based learning in the early years (Edwards and Cutter-Mackenzie 2013). An under-researched aspect of environmental education in early childhood education is the extent to which young children’s popular-culture interests can be used as a basis for engaging in learning about sustainability practices, such as reducing consumption, recycling and composting. With respect to food products, the extent to which popular-culture interests can also be used to help children learn about the production and consumption of localised food (e.g. growing vegetables) is also under-examined. We suggest that engaging children in their popular-culture interests as a basis for generating environmental education topics provides a meaningful basis for children learning about sustainability practices that connects more strongly with their daily lived experiences than approaches that focus on sustainability in abstracted modes that Sobel (2008) would describe as ‘developmentally inappropriate’. For example, non-localised climate change (e.g. the melting icecaps in Antarctica) is one such abstraction of knowledge in early childhood environmental education (Cutter-Mackenzie, Payne, and Reid 2011). Likewise non-localised malconsumption (e.g. the mass consumption of fossil fuels) is additionally abstracted.

### **Theoretical perspective: ‘funds of knowledge’**

‘Funds of knowledge’ is a concept derived from the anthropological work of Vélez-Ibáñez and Greenberg (1992) who studied the exchange of knowledge and expertise within Mexican-American families in the face of economic deprivation. They suggested that families develop particular ‘funds’ of knowledge or skills that help them in their daily functioning, such as obtaining and cooking food, childcare and earning money. They adapted the notion of ‘funds’ from the work of Eric Wolf, who had previously identified the different types of funds needed to maintain a family on a daily basis, including funds for food and housing, funds for ceremonial activities and funds for replacing family items (Moll and Spear-Ellinwood 2012). Research by Moll et al. (1992) suggested that the ‘funds of knowledge’ concept held implications for the provision of meaningful learning experiences for children in

formal education settings. They argued that if teachers were sensitive to a range of skills, information and knowledge children acquired through their participation in family life that these ‘funds of knowledge’ could be used as a basis for promoting more formal learning. In early childhood education, the concept has been used to foster increased understanding about the range of interests and experiences children are likely to have outside of the early childhood setting. For example, Hedges, Cullen, and Jordan (2011), suggest that children’s outside interests or ‘funds of knowledge’ are often broader than supposed by early childhood educators, and include reference to their experiences of cooking, helping care for siblings, gardening, car care and engagements in popular-culture. Using children’s funds of knowledge as a basis for curriculum provision is argued to increase the relevance of learning experiences for young children and to increase children’s engagement in content learning (Hedges and Cullen 2005). The use of popular-culture in the early years is often argued from a ‘funds of knowledge’ perspective, and has been shown to support young children’s literacy and technological learning (e.g. Barnyak and McNelly 2015; Black 2010). In this paper, we use the ‘funds of knowledge’ concept to also acknowledge children’s interest in popular-culture, but focus on how popular-culture can be used by educators to generate topics associated with well-being and environmental education in the early childhood curriculum with a specific focus on food products.

## **Project overview**

### ***Method***

The larger study from which the findings presented in this paper are drawn was conducted as a pilot randomised trial examining the influence of educator provided learning experiences about well-being and environmental education on young children’s understandings about healthy eating and sustainability practices. Two groups of degree qualified educators and children participated. Group A educators ( $n = 6$ ) participated in three professional learning sessions about digital media, popular-culture, well-being and environmental education in early childhood. They then planned and implemented a series of learning experiences with the children ( $n = 128$ ) attending their kindergartens. Group B educators ( $n = 6$ ) participated only in an information session about the project and continued their practice as usual (receiving the professional learning session at a later date). Baseline and post-intervention data were collected regarding the children’s understandings about healthy eating and sustainable practices (a detailed account of the larger project methodology within which this pilot is situated can be found in Skouteris et al. 2014b). In this paper, we narrowed our focus to the group A educators: specifically, the topics they generated about well-being and environmental education based on the children’s interests in popular-culture. Food products were a particular area of interest.

The professional learning sessions provided to the group A educators were derived from previous work we had conducted with children, families and educators on the impact of young children’s media engagement and consequent popular-culture interests on their explorations of well-being and environmental education in early childhood settings. This work showed that while educators were committed to recognising children’s popular-culture interests in the curriculum they did not know how to respond to these when the interests entered the early childhood settings as

highly consumable, packaged and energy-dense food products in young children's lunchboxes (Edwards et al. 2013). They were also unsure about how best to capture popular-culture interests expressed through the children's role play as a basis for learning about well-being and environmental education. In response, we developed a pedagogical statement outlining contemporary research into young children's digital media consumption; their engagement with popular-culture; obesity prevention in early childhood education (e.g. well-being); and environmental education in the early years (Skouteris et al. 2012).

In this pedagogical statement we linked each of these areas of research to the Australian Early Years Learning Framework (EYLF) learning outcomes (DEEWR 2009), and suggested that play-based learning should be central to exploring each of these areas relative to the EYLF outcomes (see Figure 1).

During the first professional learning session, we discussed each of the research areas (digital media, popular-culture, obesity prevention and environmental education) using the pedagogical statement. We also provided educators with case studies featuring young children's interests in digital media and popular-culture, and how these were manifest in the early childhood curriculum, for example, through food products brought to the centre, items of clothing worn by children featuring popular-culture characters and young children's interests in playing out digital media narratives in their socio-dramatic play (see Figure 2). The educators reflected on each of the case studies and identified which content areas (e.g. well-being, environmental education) were evident in the interests of the case study children.

During the second professional learning session, educators were provided with content information related to well-being and environmental education. This included information regarding how to read nutritional food panels, energy expenditure, children's physical exercise and aspects of environmental education associated with sustainability in early childhood, including composting, recycling, waste reduction and growing food. Educators were also introduced to pedagogical models for engaging children in content learning in early childhood education settings, such as



Figure 1. Linking areas of research into environmental education, the prevention of childhood obesity and digital technologies with EYLF learning outcomes (from Skouteris et al. 2012).

On a typical weekday morning, four-year-old Jonathon wakes up wearing his Octonauts pyjamas. His father organises some breakfast for him which he eats from his favourite Spider Man bowl. Next he brushes his teeth using the Wiggles toothpaste his younger sister selected the day before at the supermarket. He gets dressed making sure to put his Ben10 singlet on underneath his kindergarten t-shirt. Now that he is ready, he has some free time which he is allowed to spend using the family iPad. He navigates quickly to the Australian Broadcasting Corporation iView website and downloads an episode of the Octonauts. Meanwhile, his sister sits beside him watching Peppa Pig on the television. When his episode of Octonauts is finished Jonathon grabs his Nintendo 3DS, and swaps his Mario Kart card for his new Octonauts game. Halfway through the game Jonathon is called by his Father to help pack the lunch he will later take to kindergarten. Jonathon gets out his Spider Man lunchbox and drink bottle, goes to the fridge and grabs a Ben10 yoghurt which he adds to the box alongside the sandwich and fruit his Father has already packed. He puts the lunchbox and drink bottle in his Octonauts backpack and quickly stuffs his new Octopod toy in as well because he is hoping to play with this at kindergarten. Two of Jonathon's friends, Emil and Taneesha also enjoy watching the Octonauts. Together the three children spend a lot time at kindergarten discussing episodes they have seen on iView. They often re-play Octonauts episodes using the fort in the outdoor area as their Octopod. Much to Jonathon's envy, Emil has the complete set of the main Octonauts characters, including Barnacles, Kwazii, Peso, Inkling, Tweak, Dashi and Turnip. Jonathon hopes Emil will bring the toy characters to kindergarten so that they can use them in his new Octopod.

Figure 2. Sample case-study provided to educators during the first professional learning workshop.

using open-ended, modelled and purposefully framed play (Cutter-Mackenzie et al. 2014; Trawick-Smith 2012; Wood 2013). Prior to attending the third professional learning session, the educators developed draft plans for implementing well-being and environmental education learning experiences with the children. They researched children's existing popular-culture interests (through group discussions, observations and questioning) and used these as a basis for their initial sets of planning. The planned learning experiences were further workshopped during the third professional learning session. Following completion of the third workshop, the educators implemented the planned learning experiences with children over a 6-week period during the third term of the kindergarten year. All planning and implementation was recorded by the educators using their usual planning and assessment procedures. A 'summary of implementation' sheet was also completed by educators in which they recorded the time, date, use of materials, topic and use of pedagogical strategies informing each learning experience. At the conclusion of the implementation period, the educators attended a focus group interview. The focus group interview facilitator invited educators to reflect on the interests they had identified for children; that is, how they had planned for learning in relation to these interests and their thoughts regarding children's learning about well-being and environmental education as a result of the planned learning experiences.

### ***Participants and recruitment***

This project was completed with ethical approval from all three of the participating universities, and the Victorian Department of Education and Early Childhood Development. Participant recruitment occurred through the managing body of a cluster management service in Melbourne, Victoria (Australia). In keeping with ethical protocol, educators were invited to participate in the study, and attended an initial information session after which they could indicate their willingness to participate. All educators worked in a low-mid socio-economic region of Western Melbourne

providing education to children aged 4–5 years in funded four-year-old kindergarten programmes. All educators held Bachelor degrees in early childhood education (minimum of a three year degree). Years of teaching experience ranged from 2 to 15.

### ***Data analysis***

As noted above, we focus here on the data represented by the educators' planning and assessment documentation and the completed 'summary of implementation' sheets. Each educator developed at least four planned learning experiences each. This meant we had up to 24 sets of planning, assessment documentation and completed summary sheets. The data were analysed collectively. This was because our unit of analysis was the well-being and environmental education topics generated by educators as content areas of the early childhood curriculum (with a specific focus on food products) (Baxter and Jack 2008). Collective analysis of the data required that the planning, assessment documentation and completed summary sheets for all six educators were collated. A specific unit of analysis supported a deductive approach to analysing the collated data. Deductive approaches to qualitative data analysis use 'sensitising concepts' to establish categories to which data can be assigned (Auerbach and Silverstein 2003). Our two main categories were well-being and environmental education. All the data were read through and topics associated with either well-being or environmental education identified. On a second reading, all data assigned to a topic were accorded a frequency count and located in a table as either a 'well-being' or 'environmental education' topic. Through this process, the topics generated by educators associated with well-being and environmental education as content areas of the curriculum in relation to children's popular-culture interests were identified. For each identified topic, we recorded a typical planned learning experience to illustrate what that topic was likely to look like in practice. Following the initial identification of the topics, the planning documentation and completed summary sheets for each educator were then analysed to chart the pattern of occurrence for each topic over the 6-week period of implementation. Charted topics were overlaid to develop an overall conceptual summary of educator generated topics specific to well-being and environmental education in the early childhood curriculum when planning from children's observed popular-culture interests with a specific focus on food products.

### **Findings**

Educators generated 20 main topics associated with well-being and environmental education as content areas of the early childhood curriculum. These topics were derived from identified popular-culture interests held by the children with a specific focus on food products. Six of the topics were associated with well-being education; 12 were associated with environmental education; and the remaining two topics connected well-being and environmental education. Table 1 lists the identified topics for each content area, and provides a typical planned learning experience to illustrate the implementation of the topic in practice.

The findings also produced an overall conceptual summary of educator generated topics specific to well-being and environmental education in the early childhood curriculum when planning from children's observed popular-culture interests with a

Table 1. Identified topics for well-being and environmental education as content areas with sample planned learning experiences.

| Content Area            | Topic                       | Typical Planned Learning Experiences                                                                                                                                                                                                                                                                                                                                       |
|-------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Well-being              | Incentives                  | <i>Discussing</i><br>Why do we like toys in 'meal deals?'<br><i>Role Playing</i><br>Offering toy incentives with meals in a pretend MacDonald's established in the home corner                                                                                                                                                                                             |
|                         | Nutritional value panels    | <i>Discussing</i><br>What does this information on the package tell us about the food?                                                                                                                                                                                                                                                                                     |
|                         | Sugar content of food       | <i>Doing</i><br>How many teaspoons of sugar are in this food?<br><i>Comparing/Contrasting</i><br>How many teaspoons of sugar are there in a can of Coke, a banana or a tub of yoghurt?                                                                                                                                                                                     |
|                         | Exercise/energy expenditure | <i>Doing</i><br>Feel how our heart beats faster when we sit still, walk, run, jump. Which activities make our heart beat faster?<br><i>Discussing</i><br>Heart beats mean our bodies are working and using energy. Energy is in our food as sugar. How many heart beats do we need to use the different teaspoons of sugar in a can of Coke, a banana or a tub of yoghurt? |
|                         | Sometimes foods             | <i>Identifying</i><br>What 'sometimes' foods do we have in our lunchboxes?<br><i>Charting</i><br>How many 'sometimes' foods do we bring in our lunchboxes each day?                                                                                                                                                                                                        |
|                         | Food groups/pyramid         | <i>Reading</i><br>What does this food group chart/pyramid say about which foods are 'everyday' foods and which foods are 'sometimes' foods?<br><i>Role Playing</i><br>Empty plates and cut out images of food in the home corner. Creating 'food group charts' when serving 'meals'                                                                                        |
|                         | Organic foods               | <i>Identifying</i><br>Which foods in our lunchboxes are not packaged (e.g. fruits, vegetables, sandwiches?)<br><i>Charting</i><br>How many compostable foods (i.e. from organic food sources) do we bring in our lunchboxes each day?                                                                                                                                      |
|                         | Packaged foods              | <i>Doing</i><br>How much packaging is there on the packaged food-products we bring in our lunchboxes over the course of a week?<br><i>Role Play</i><br>What packaging do we need for food purchased in a pretend MacDonald's established in the home corner?                                                                                                               |
| Environmental education | Recycling                   | <i>Doing</i><br>Establish recycling bins in the centre. Encourage the recycling of all packaged food waste<br><i>Role Play</i>                                                                                                                                                                                                                                             |

(Continued)

Table 1. (Continued).

| Content Area | Topic             | Typical Planned Learning Experiences                                                                                                                                                                                                                    |
|--------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | Rubbish           | Recycling bins in a pretend McDonalds established in the home corner<br><i>Identifying</i><br>Which items from our lunchboxes cannot be recycled or put in the compost?<br><i>Charting</i><br>How much unrecyclable rubbish do we generate in one week? |
|              | Food scraps       | <i>Identifying</i><br>Which items from our lunchboxes are compostable?                                                                                                                                                                                  |
|              | Decomposition     | <i>Identifying</i><br>What happens to different items (an apple core, banana skin, plastic doll, plastic packet) when we bury them and dig them up them up again a week later?                                                                          |
|              | Reduce/reuse      | <i>Identifying</i><br>What strategies can we implement to reduce/reuse packaging on food items and the number of toy incentives?                                                                                                                        |
|              | Compost           | <i>Doing</i><br>Establishing a compost and regularly composting waste food items                                                                                                                                                                        |
|              | Worms             | <i>Doing</i><br>Turning over compost and looking at worms<br><i>Discussing</i><br>What are worms doing in the compost?                                                                                                                                  |
|              | Living things     | <i>Doing</i><br>Examining living things in the compost<br><i>Identifying</i><br>What are the characteristics of living things                                                                                                                           |
|              | Non-living things | <i>Identifying</i><br>What are the characteristics of non-living things                                                                                                                                                                                 |
|              | Growing food      | <i>Doing</i><br>Planting vegetable seeds and growing food; using compost on vegetables<br><i>Reading</i><br>How does compost help vegetables grow?                                                                                                      |
|              | Toys              | <i>Discussing</i><br>What are toy incentives? Why do we like toy incentives? What happens to toy incentives when we have finished playing with them?                                                                                                    |
|              | Everyday foods    | <i>Doing</i><br>Growing vegetables and eating vegetables as ‘everyday’ foods                                                                                                                                                                            |
|              |                   |                                                                                                                                                                                                                                                         |
|              |                   |                                                                                                                                                                                                                                                         |

specific focus on food products. This summary suggested that educators would commence by identifying children’s popular-culture interests (through discussion, observation and questioning), before using interests to establish food products as the springboard for generating the well-being and environmental education topics. In this study, two main identified interests, were popular-culture characters (e.g. Dora the Explorer, Frozen, Spiderman, Ben10, Ninja Turtles), and children’s participation in a fast-food shop role play (going to MacDonalds). Five main topics were generated in response to these interests, including compostable foods, packaged

foods, recycling, rubbish and nutritional value panels. Identified topics tended to lead educators to consideration of an additional topic. For example, considering the packaging associated with food products led to consideration of the role of incentives when purchasing foods. Examining incentives established ‘toys’ as a topic which suggested potential for learning about how to ‘reduce and reuse’ products. Figure 3 presents an overall conceptual summary of the educator-generated topics. This figure also illustrates the point at which two topics were noted as connecting well-being and environmental education. These occurred where: (1) ‘toys’ as incentives for buying food products connected with learning about ‘reduce and reuse’ as an environmental topic; and, (2) ‘growing food’ as an activity supported by the composting connected with eating fresh produce as an ‘everyday food’.

## Discussion

The findings suggest that educators are able to consider young children’s popular-culture interests as a basis for generating viable topics for content learning associated with well-being and environmental education in the early childhood curriculum. In this project, 20 topics were generated by educators in response to children’s interests in popular-culture characters, and in role-playing ‘going to McDonalds’. Of interest to this study is how the educators generated these topics in response to the range of food products associated with children’s interests to foster an extensive

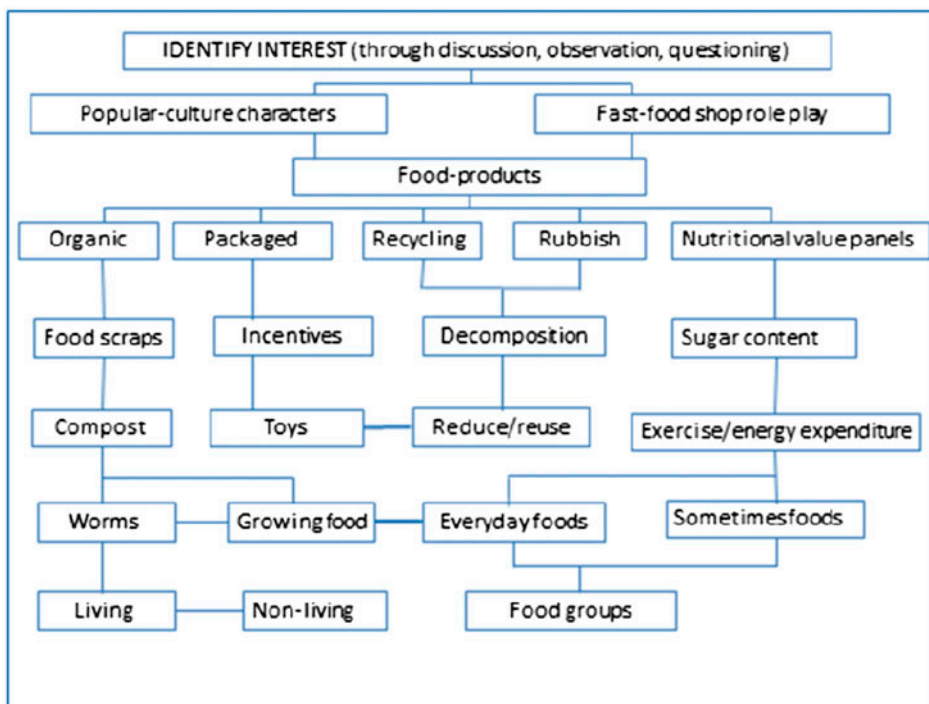


Figure 3. Conceptual summary of educator generated topics specific to well-being and environmental education in the early childhood curriculum when planning from children’s observed popular-culture interests with a specific focus on food-products.

programme promoting children's learning about well-being and environmental education. Here, well-being involved understanding the role of incentives in purchasing energy-dense and nutrient-poor foods, learning to 'read' nutritional panels on packaged food, conceptualising sugar content as 'teaspoons' and relating the number of teaspoons of sugar in different foods to various amounts of exercise. These topics revealed further potential for educators to consider alternative food choices with children, and so led to consideration of 'sometimes' and 'everyday' foods. Here, the initial popular-culture interest capitalised on children's existing funds of knowledge with respect to their engagement with popular-culture inspired food products, and continued to build on these funds as the topics also connected with the children's everyday practices, such as considering which 'sometimes' foods they had in their lunchboxes, and how many of these foods were brought to the centre on a weekly basis. We suggest that this approach to well-being education provides a stronger connection to children's daily lives than intervention approaches to healthy eating and exercise imposed on children and educators with messages about what they 'should' eat or how they should exercise (Hesketh and Campbell 2010; Marco, Zeisel, and Odom 2014). This is because the topics generated by the educators connected directly with the children's existing interests. The topics also continued to build on the children's funds of knowledge in terms of their daily experiences and practices as they explored over the 6-week implementation period. It is well known in early childhood education that creating strong connections between children's interests and existing knowledge promotes learning (see for example, Bertram and Pascal 2002; Gmitrova, Podhajecká, and Gmitrov 2009; Siraj-Blatchford et al. 2002).

Likewise, commencing with children's popular-culture interests allowed educators to generate a series of topics associated with environmental education. These topics were slightly more extensive than the well-being topics, including consideration of the packaging issues associated with popular-culture inspired food products and how these compared with more readily compostable products. Here, educators focused on topics such as recycling, rubbish, food scraps, decomposition, compost, worms and growing food. These topics, while typical of these canvassed in early childhood environmental education, have not previously been identified in relation to children's interests in popular-culture, particularly as these pertain to food products. Rather, such environmental education topics in early childhood education tend to form a programme of activity, or response to the issues of environmental sustainability in the early years. We believe that generating these topics from young children's popular-culture interests has the potential to increase children's critical engagement with a range of sustainability practices, because children may be able to create stronger connections between their decisions and the likely environmental consequences of these decisions (e.g. consuming a highly packaged food item and needing to recycle the packaging).

Interestingly, the results of our study indicate two points at which well-being and environmental education topics connect with each other. These include 'incentives' as a well-being topic paired with the environmental topic 'reduce/reuse'; and 'growing food' as an environmental topic paired with 'everyday food' as a well-being topic. Here educators focused on the extent to which children liked toy incentives, and the consequent relationship of toy incentives with children's desire to consume energy-dense food. Educators and children then considered whether or not toy incentives could be reused, or the consumption of toy incentives reduced by rejecting

them altogether. Likewise, growing food was an environmental topic connected with everyday foods. Here, the idea of growing food was a topic followed by educator consideration of composting. The foods grown by educators and children were vegetable-based and so readily connected with the topic of eating ‘everyday’ foods. The topic of ‘everyday foods’ was in turn considered in relation to the ‘sometimes’ foods represented by energy-dense food products. These two connections suggest potential for understanding well-being and environmental education in early childhood as more closely related than perhaps previously thought.

Thus, the problem of how best to respond to children’s interests in popular-culture and the impact of 360° marketing on their food choices may in fact lie in an integrated approach to curriculum provision. Integrated curriculum formation is acknowledged pedagogical approach in early childhood education used to build young children’s content knowledge (Arthur et al. 2015). Researchers outside early childhood education have acknowledged potential for well-being and environmental education to be integrated (Jensen 2004; Mogensen 1997), yet what this looks like in the context of early years provision has not been clearly identified and is therefore not well understood. In our study, toy incentives, reduce/reuse, growing food and everyday foods suggest topics for integrating these content areas in early childhood education.

## Conclusion

How to build on young children’s popular-culture interests in the early childhood curriculum has long been a problem for educators. This is because children’s popular-culture interests are not always recognised as viable informants for content generation. This problem has increased in recent years as children’s engagements with popular-culture have become complicated by their exposure to 360° marketing and participation in multimodal environments. Popular-culture inspired food products comprise a significant aspect of this marketing and multimodal experience. This means children are often interested in consuming food products that are energy-dense, nutrient-poor and highly packaged. This interest can contrast with educators’ curriculum imperatives in terms of fostering young children’s healthy eating patterns and engagement in sustainability practices. However, little is known about the range topics associated with healthy eating and environmental education that educators can generate from children’s popular-culture interests as these pertain to food products. In this paper, we have identified up to 20 such topics generated by educators seeking to build on children’s popular-culture interests from a funds of knowledge perspective. These findings suggest potential for increasing the relevance of both well-being and environmental education for young children in early childhood settings by connecting with their existing interests and knowledge base with respect to popular-culture and their daily food practices. In addition, our results also suggest that an integrated approach to well-being and environmental education may be possible where topics associated with each content area crossover. This indicates that the issue of popular-culture inspired food products in the early childhood setting does not have to be a problem for educators in so much as it may represent a significant opportunity for content learning in two areas of contemporary importance to young children – that of healthy weight maintenance/obesity prevention and sustainability. Further research should now focus on the range of pedagogical strategies (e.g. learning experiences) developed and implemented by early childhood educators

when engaging young children, and the extent to which these strategies align with existing play-based approaches in early childhood curricula.

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