Australian Early childhood educators and infant feeding: A qualitative analysis using Social Cognitive Theory

Early Childhood Development and Care

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Abstract

Early Childhood Education and Care (ECEC) services are vital in the establishment of optimal infant and young child feeding (IYCF) practices and long-term health. This qualitative study, informed by Social Cognitive Theory, aimed to describe ECEC infant feeding environments.

Nineteen formal long day care and family day care ECEC services and 124 educators in metropolitan and regional Queensland, Australia participated in interviews and professional conversations. Inductive and deductive analysis identified three key themes: ‘agency’, ‘IYCF environment’, and ‘monitoring/surveillance’.

This research has identified the key environmental, behavioural and cognitive factors that contribute to optimal IYCF practices in Australian ECEC. Tensions and negotiation between educators, parents, infants and the regulatory framework operate to develop collective agency. Key recommendations are:

- increasing the visibility of infants in ECEC policy frameworks and
- building educator and parent self-efficacy in supporting infant agency in order to meet shared goals related to optimal infant health and well-being.

Keywords Infant feeding, Early Education and Care, Nutrition, Efficacy, Social Cognitive Theory
Introduction

Protecting, promoting and supporting exclusive breastfeeding and the introduction of nutritionally adequate and safe complementary foods after six months along with continued breastfeeding for up to two years or beyond are documented key factors for optimal health (WHO/UNICEF, 2003). Supporting safe artificial or formula feeding where a child is not breastfeeding is also essential to protect infant development (NHMRC, 2012; Victora et al., 2016). Infant and young child feeding (IYCF) (from birth to two years of age) in early childhood education and care (ECEC) is receiving increased attention due to the number of infants spending time in formal education and care environments, including centre-based long day care and home-based family day care (Petitclerc et al., 2017). In Australia, it is estimated that 32% children under the age of two are spending on average 15-20 hours in formal care settings (Baxter, 2015). ECEC settings are therefore important for optimising feeding practices in infants and for implementing life-long eating and physical activity behaviours that are potentially protective against long and short-term poor health (Costa, Adams, Gonzalez-Nahm, & Benjamin Neelon, 2017; WHO, 2016).

ECEC services are complex and highly regulated environments. In Australia, ECEC services are governed by the National Quality Framework (NQF). The Education and Care Services National Law, Education and Care Services National Regulations, the National Quality Standard and Belonging, Being and Becoming: The Early Years Learning Framework for Australia (EYLF) guide ECEC policies and practices. The NQF is supported by several detailed guides to support implementation in diverse ECEC contexts (ACECQA, 2017; Australian Children's Education & Care Quality Authority [ACECQA], 2017). The obligations of ECEC services and educators to support IYCF are clearly detailed in the WHO/UNICEF Global Strategy for Infant and Young Child Feeding (GSIYCF)
(WHO/UNICEF, 2003). In Australia, best-practice standards for health workers are outlined in the Australian Infant Feeding Guidelines (AIFG). These have been translated for educators in the Healthy Eating and Physical Activity Guidelines (DHA, 2009). However, while the underpinning legislation, national standards and curriculum support IYCF, there is a general lack of specific procedural detail and examples around IYCF to guide educator practice (Davis, Torr, & Degotardi, 2015; McGuire, Gallegos, & Irvine, 2018). For day-to-day practice, this places responsibility for interpreting overarching national and local service policies on ECEC services and educators. Recently it was identified that ECEC policy environments need to explicitly address infants at both national and service level to optimise their health, development, learning and wellbeing, and reduce immediate and longer-term health and safety risks for infants (McGuire et al., 2018).

The NQF promotes the professional work of educators and, in particular, educator autonomy and agency to determine best practice in their local context (DEEWR, 2012). Educators are encouraged to critically reflect on their work with children and families and to exercise their professional judgement to inform service policies, programs and practices. Recognising that families have the greatest influence on child outcomes, the NQF requires educators to work in partnership with parents, facilitating their agency and engagement in their child’s care and education (DEEWR, 2012). Agency is defined in the Early Years Learning Framework (EYLF) as “…being able to make choices and decisions, to influence events and to have an impact on one’s world” (DEEWR, 2009, p. 1). In the case of infants who have little actual control by virtue of their age and development, infants exercise “proxy agency” over others (including parents and educators) thereby influencing others for beneficial outcomes (Bandura, 2000). Despite emerging research highlighting infants and the need for their agency to be further recognised in NQF policies and practice there is little research on how to
conceptualise and support infant agency, particularly for infants under six months of age (Salamon & Harrison, 2015; Sumsion, 2017). Feeding is one notable area in which infants can overtly exercise agency but this is under-explored.

Educators are strongly supportive of creating healthy food and physical activity environments in ECEC, but in the Australian context may lack the resources (personal and organizational) to identify elements of and promote optimal IYCF (McGuire, 2018). Diversity in educator attitudes towards breastfeeding, variable practical support of breastfeeding practice and a general lack of knowledge and skills around IYCF in ECEC all potentially impact educator self-efficacy to implement national and international IYCF recommendations (Cleland et al., 2018; Smith et al., 2013). These gaps are exacerbated by the lack of visibility of infants and of standardised IYCF terms in ECEC public and service policy, which create further confusion (McGuire, 2018). Therefore, identifying environments that support educator self-efficacy and agency to enable best-practice IYCF is paramount in providing optimal care for infants and their families (Wallace 2017, Koh, 2012).

This research therefore aims to identify the elements of a supportive IYCF environment from birth to two years, and the enablers and challenges in creating these environments.

**Method**

This qualitative study utilised policy analysis (reported elsewhere see (McGuire, 2018), environmental audits, individual interviews with service leaders and professional conversations (Irvine & Price, 2014) with educators to describe, in-depth, infant feeding environments in ECEC. The interviews and professional conversations for this analysis were
conducted from 2013-2016 and contributed, in part, to the LEAPS (Learning, Eating, Active Play and Sleep) professional development and evaluation program (Cleland et al., 2018).

**Theoretical framework**

Social Cognitive Theory (SCT) was used as the theoretical framework informing this research. SCT has been used broadly within health and education research to explore the fluid interactions between behavioural, cognitive and environmental factors impacting on health behaviours and educator actions (Bandura, 2010). It is built on the assumption that individuals are agents who are able ‘…to exert intentional influence over one’s functioning and the course of events by one’s actions’ (Bandura, 2012, p. 11). Human agency is influenced by the central belief in an individual’s capability to perform an action – self-efficacy. Collective efficacy moves beyond the sum of self-efficacies to shared beliefs that involve interactive, coordinated and synergistic transactions. Self-efficacy, collective efficacy, goal setting and outcome expectancies, are identified as key motivators, mediators and enablers of behaviour. People with high self-efficacy will normally have higher outcome expectancies (Bandura, 2000, 2010). These elements enable agentic capability (individual, proxy or collective). Collective agency is the shared belief of a group of individuals in their collective power to produce a desired outcome (Bandura 2000).

**Recruitment and data collection**

The recruitment of ECEC services for this study has been described elsewhere (McGuire et al 2018). LDC and FDC services were collated from MyChild and the Australian Childcare Index in metropolitan and regional areas. Fifty services in Queensland, Australia were initially approached, with 19 (38%) agreeing to participate in the study. Site visits were
undertaken, consisting of semi-structured interviews with service leaders and professional conversations with educators. One regional service participated via teleconference.

Semi-structured interview questions were scaffolded from broad health concepts to more specific questions related to IYCF and addressed elements of SCT including environmental, behavioural and cognitive factors. Questions were also included on working within the NQF, supporting IYCF, confidence with nutrition and IYCF-related questions with peers and parents as well as educator health and well-being. All of these factors impact upon collective self-efficacy (Bandura, 2001; Maurer, Bartsch, & Ebers, 2011).

Illustrative images of a diverse range of women feeding their infants in different ways were used as stimuli in the professional conversations in order to explore IYCF barriers and enablers. Educator demographic data was collected at the beginning of each professional conversation via a survey.

**Data analysis**

Demographic data was analysed via SPSS Statistics for Windows v23.0 (IBM Corp. Released 2015. Armonk, NY: IBM Corp) to describe the characteristics of participants. Service data was collated to indicate socioeconomic status using Socio-Economic Indexes for Areas (SEIFA) and remoteness using the Accessibility/Remoteness Index of Australia (ARIA). The type of service (LDC, FDC); whether they provided food on site and their NQS quality rating were all noted. Analysis of interviews and theme development continued until no new themes emerged and data saturation was reached.

Analysis of data was directed by the seven steps of the Framework Method which allows for both inductive and deductive analysis (Gale, Heath, Cameron, Rashid, & Redwood, 2013; Ritchie, Lewis, Nicholls, & Ormston, 2013). After familiarization, 10% of interview professional conversation transcript were initially coded by three of the four authors.
representing infant feeding, education and nutrition expertise (Braun & Clarke, 2006). Using a constant comparative approach, short phrases or codes were individually identified reflecting the educator’s perceptions regarding IYCF experiences. Authors negotiated emergent themes to develop a working analytical framework (Gale et al., 2013).

The analytical framework was applied and results systematically charted for the final framework stage of interpretation (Grbich, 2007). After inductive analysis, a deductive lens was applied utilizing the core tenets of SCT representing the triadic reciprocal determinism: that is, environmental, personal and behavioural determinants in conjunction with self-efficacy, goal-setting and outcome expectancy constructs (Bandura, 1977, 2000). Analysis of IYCF practices were considered in relation to the NQS requirements and compared to national and international benchmarks using the WHO/UNICEF Global Strategy for IYCF (GSIYCF) and the Australian Dietary Guidelines, Infant Feeding Guidelines (AIFG).

Ethics approval

Ethics approval was provided by the Queensland University of Technology Human Research Ethics Committee (#1300000625).

Results

The 19 participating services included 15 LDC services each engaging between 11-28 educators and four FDC services, each supporting 20-80 educators providing education and care in their homes. Nineteen directors/co-ordinators were interviewed and 124 educators participated in professional conversations, with group sizes ranging from three to 20 educators.

The participants reflected the current national ECEC workforce demographics; educators were predominantly diploma or certificate III trained and leaders had a diploma, bachelor or
higher degree as per legislative requirements (Social Research Centre, 2017). Over half (55%) of participants had up to 10 years of experience in the sector.

Themes

Table 1 outlines the three intersecting, dynamic themes and accompanying sub-themes.

Table 1 Themes and sub-themes

| Theme                        | Subthemes                                      |
|------------------------------|------------------------------------------------|
| 1. Agency                    | (a) Collective agency                          |
|                              | (b) Tensions: educators and parents            |
|                              | (c) Tensions: educators and regulatory system  |
| 2. Environment               | (a) Leadership                                 |
|                              | (b) Operational context                        |
|                              | (c) Education and care context                 |
| 3. Monitoring and Surveillance| (a) Legislation                                |
|                              | (b) Parent and educator roles                  |
|                              | (c) Risk minimisation                          |

1. Agency

Agency emerged as central to the development of supportive IYCF environments, with a strong focus on adult agency (specifically educator and parent agency). Educators recognised their ability to influence the IYCF environment. However, educator practices linked to their perceptions of parents’ and infants’ abilities. A triad of infant, parent and educator co-constructed agency was underpinned by respective self-efficacies contributing to the building of collective efficacy.

a) Collective agency
Agency in ECEC settings was viewed as a triadic relationship between infants, parents and educators co-constructed within services to meet the established goal of optimising IYCF. Each member of the triad had a role to play in determining the actions that took place around infant feeding. These IYCF practices were influenced by individual cognitive knowledge, behavioural self-efficacy and service policies and norms (environment). There was recognition of the primary role of parents as decision-makers and the potential for partnership or conflict between educators and parents that shaped practice (see also tensions below):

‘…working five days a week and he was with me for 20 hours a day… she was really quite offended when I started suggesting things… we really worked together after that and she really did take on board a lot of what I was saying.’

FDC service 2 – F2

Infants were a central but mostly passive participant in the triadic relationship and wholly reliant on the relationships and communication between educators and parents for the provision of nutrition and the realisation of their agency. Feeding was seen as an opportunity for infants to respond to a variety of psychosocial and physical elements that enabled the development of agency. As educators were assigned responsibility for feeding infants, agency was largely determined by educator knowledge and skills in responding to infant hunger and satiety cues (responsive feeding).

Educators described intuitive approaches to responsive feeding practices. These were most often related to the establishment of a “good routine” that met service needs but not necessarily individual infant needs. That is, routine dictated by the service, rather than flexibility dictated by the infant was the key driving influencer for IYCF. There was evidence of a lack of synergy between service policies and responsive feeding practices:
‘…I’m not quite sure about that…the encouraging of her to finish what’s in the bottle [of EBM]…[infant] just stops drinking when she is full, but what if she’s not full, there is this whole bottle and you have to get all of what’s in that bottle within this amount of time that we need to.’ F1

Individual needs of infants tested the policies in practice due to time and staffing constraints. There was a heavy reliance on the educator, who needed high levels of professional and technical knowledge and self-efficacy to navigate best-practice responsive and safe feeding within this constrained environment:

‘[there are]…always challenges around textures, gagging, choking.’ LDC service 7 – L7

Educators described prioritising parental agency regarding decisions about IYCF, ‘…they know what’s best for their child…’ (F2). However, they also described parental agency in terms of engagement and non-engagement with services, and acknowledged variation in knowledge, cultural beliefs and parental guilt around infant feeding. Educators used their self-efficacy to evaluate these variations, the risk to the child and to build collective efficacy with parents, leading to positive outcomes.

‘I know a child who was presented to me as a physical delay…eight months and not even putting the neck up…we talked about the diet and everything with the parents just on milk or on that formula…tummy time…solids within a month this girl has started to crawl.’ F3

Building educator self-efficacy through training was considered important in the co-construction of individual skills and collective agency. However it was perceived there was a lack of IYCF training offered or accessed outside of large service in-house training portals.
Collective agency was evidenced in service policies, and educators generally endorsed the need to work in partnership with families to inform IYCF practices.

**b) Tensions: educators, parents and structural factors**

Analysis revealed underlying tensions between the privileging of educator versus parent agency based on individual knowledge, beliefs and efficacy. Educators had a strong focus on parent and system deficits that they perceived undermined their ability to support optimal infant feeding practices.

Parent-educator tensions existed in several areas: around the timing of the introduction of complementary foods, the feeding and handling of expressed breastmilk (EBM), pacifier use, bottle cessation for formula, provision of energy-dense - nutrient-poor foods and parental engagement. At the same time, parental self-efficacy and commitment to IYCF by some parents was also acknowledged:

‘… she grows organic food… Her daughter has grown up on morning tea as a piece of steamed broccoli or a piece of steamed sweet potato.’ L8

However, while educators were willing to acknowledge the skills and commitment of some parents, there was acknowledgement of disparate views and beliefs that were contrary to policy and best practice:

‘That zero say up to two and a half is very, very difficult. Because their children’s whole daily routine changes constantly, from day-to-day sometimes, so if you’re looking at a six month old who had been exclusively breastfed or formula fed and who then going into solids, so there’s a change…what they do at home and the little strict routines they might have had…does not work here…we’re taking care of 8 to 10 other children.’ L1
This put the onus on educators to share their knowledge and beliefs with parents in an effort to generate collective agency:

‘…just giving them as much knowledge as you can so they are often the ones that you know want to start giving them solids at four months [sic] and yeah, it is always fun, cow’s milk at only six months…’ L5 However, this was difficult if knowledge was lacking:

‘…we are taught that breastfeeding is better for the baby, so what age do we have to stop it? That’s what the problem is, because we don’t know.’ L3

At the same time however, educators reported a lack of collective efficacy where parents actively subverted educator agency by bringing in foods, beverages and medications that contravened policy or guidelines.

‘…they know the expectations we have set for them, but we can’t control what goes in the lunchbox…That is a big barrier between us and the parents because, “You have to give my child what I put in their lunchbox”…They just think we are there to look after their children, they don’t want to listen to us.’ L3

‘I’ve got a couple of families that bring in a whole lunchbox full of rubbish and I send it home every day. I have been for a year and a half and they never once asked me what she ate…I don’t think she’s ever had a piece of fruit until she came to me.’ F1

Managing conflict between educator and parent agency depended on educator self-efficacy, experience and support; communication with parents was identified as an essential skill:

‘Usually, we try to promote and do that in a non-threatening, supportive kind of way. Educators usually have a pretty in place relationship(s) with families but families
don't always take it. At times they think that you're passing a judgement on their skills as a parent…You have a duty of care to that child, you have to advocate for the child and you need to respect the parents. How do you come to a happy medium?’ F1

In addition to parents, educators’ interface with the regulatory system was another source of tension that simultaneously contributed to and undermined self-efficacy, collective efficacy and collective agency. The lack of infant-specific policy and examples combined with lack of time, mentoring and substantial paperwork, constrained educator agency, believing they had little control over the process leading to assessment ratings. This resulted in high stress, performance anxiety and lower self-efficacy.

‘…I can’t even think of the words, what am I supposed to say…Yeah, give me a hand…It’s not that kind of relationship.’ F1

Positively, the Quality Improvement Plan developed by services as part of the NQS assessment and rating process was considered beneficial in developing and articulating shared goals despite perceived documentation and interpretation difficulties.

2. IYCF Environment

The second dominant theme to emerge was the IYCF environment incorporating three subthemes: leadership; operational context; and c) the education and care context.

a) Leadership

Leadership provided by directors/coordinators as well as individual educators was key to nurturing collective efficacy and agency and was driven by a core belief to promote optimal infant health and well-being. Providing leadership was highly complex and involved navigating and working in partnership with the service provider, parents and regulatory
authorities, as well as interpreting and operationalising national and local policies. However, despite this complexity the needs and agency of the child remained a priority:

‘...we work with the families however, when the children are in a setting, our policy is to promote health and food and nutrition for children…but there's really that tricky balance…children are our client. So, when you're hearing a child screaming all day because I don't have a dummy or they haven't had a bottle…’ F1

Service norms and interpretation of nutrition policy by service leaders, through goal setting and expectations, were influential in assisting educators in a range of IYCF practices. These included: supporting breastfeeding, bottle refusal, using bottles to assist the sleep process, prolonged bottle use, parental demand for inappropriate types and timing of complementary foods, and food refusal.

Service leaders agreed that their personal goal-setting in addition to service goals and strategies impacted upon their work as leaders and were confident in facilitating training or guidance in IYCF while acknowledging environmental limitations (e.g., physical resources or time) and the need for creative solutions:

‘…you have to be creative to get the girls motivated also to give them ideas of what they can do differently…’ L10

The leader’s position in facilitating staff communication and sharing direction for curricula and policy as well as providing access to training was instrumental in developing social capital. Leadership contributed greatly to the other themes of agency, and monitoring and surveillance.

b) Operational context for building collective agency

One of the key elements identified as contributing to a supportive IYCF environment was building social capital, a component of collective agency (Bandura, 2000).
Social capital represents relationships and contacts based on trust within or outside an organisation (Maurer et al., 2011). Social capital required service leadership to develop teamwork, camaraderie, trust, reciprocity, accountability and effective, timely communication on both professional and personal issues. Positive social capital encompassed staff supporting each other by sharing responsibilities, thereby reducing stress and contributing to well-being. Positive, trusting relationships between staff and parents aided the daily flow of information about IYCF and required technological and person-to-person or group communication for sustainability:

‘Nursery and toddlers would probably be the hardest on the stress levels, especially if they are all crying. Sometimes if I hear an excessive amount of crying I’ll go to check if they’re [educators] alright.’ L8

Social capital was further enhanced through technology via social media, social networks and service portals for the articulation of collective goals, agency and ethos. Within the operational context there were also tangible and intangible barriers and/or enablers for IYCF, these are summarised in Table 2.

**Table 2: Operational barriers/enablers for infant feeding environments**

| Operational barrier/enabler | Examples from services |
|-----------------------------|------------------------|
| Time, paperwork             | ‘…quite a few children…[with] around two educators…the demand on their time may be difficult to prioritize…who am I going to feed first…’ L9 |
|                             | ‘…paperwork like we update our things today and then one month later, again everything changes…it’s hard…to do the research…documentation as well…time management…so many roles.’ F3 |
| Location, infrastructure, space | ‘…the owner is our biggest competition’ too hot, no airflow, heavy wet season, tiny infant room, no room for a kitchen to provide food.’ L3 |
|                             | ‘I don’t have enough space to do an awful lot…’ F1 |
| Provide food/parents | ‘…a lot of them think they can’t afford [healthy meals] and they don’t know how to prepare some meals.’ |
|----------------------|--------------------------------------------------------------------------------------------------|
| provide food; cost of providing healthy food choices | ‘I used to work for the service providing [food]…the stuff they gave out was like slop, it was disgusting…’ |
| Funding: barrier to training, collaboration, staffing | ‘…we’re here 7 until 6, 5 days a week, the only days are night or weekends and we’ve all got families too…you’re paying the training and the relief and their annual wages …where’s the stewardship there, you have got to choose very wisely with what learning you’re using their hard-earned money for…’ |
| Educator health | ‘…a 9 pound baby is normal now…takes a physical toll on your body just by lifting 100s of them. It kills you.’ |
| Infant age, number and type of feeding; returning to work, leave and proximity | ‘…the process of getting them used to bottles…that’s our biggest challenge…’ |
| | ‘…they have worked in the organisation behind us and they are in close proximity [to breastfeed].’ |
| Culturally appropriate parent resources | ‘Language barriers, given the cultural thing…’ |
| IYCF policies: absent, restrictive or inadequate | ‘…a breastfeeding policy? No, not at the moment…as we go along we are adding the policies.’ |
| | ‘We don’t sterilise bottles inside…parents need to bring as many bottles as they [require].’ |
| Lack of value for long-term breastfeeding, mothers with poor diets and breast exposure | ‘Some parents need to be a little bit more discreet about it [breastfeeding] …my problem is, is that she lets [the baby] put his hand down her top and flop [her breast] out…And are they still eating a good healthy diet to provide that healthy milk?’ |

**c) Education and care context**

Practice interpretations of the EYLF pedagogical principles were important influencers on the IYCF environment. A focus on individualised teaching, learning and responsive IYCF (e.g., feeding cues) were identified as core benchmarks for quality IYCF practices. This required educator agency to balance responsive IYCF, family preferences and continuity in health, religious or cultural needs.
‘…for babies specifically, the routine is a big part of the interview…to do those routines that child is following at home so that the same can be replicated in care…there’s a consistency and the child is not confused…’ F3

The EYLF promotes mealtimes as opportunities for learning, with educators playing an active role by modelling healthy eating. Collective agency was enhanced through reciprocal peer-to-peer, service leader-to-educator, and educator-to-parent modelling of healthy practices.

‘…your role is also to model that and so parents can see how to take care of their kids and then parents go, “oh geez, yeah that’s true…” ’ F2

The education and care context was also underpinned by a number of norms that shaped IYCF pedagogy and practice, and facilitated collective agency (Table 3).

Table 3: Directional principles (norms)

| Directional principle (norms)                  | Exemplar quote                                                                 |
|-----------------------------------------------|--------------------------------------------------------------------------------|
| Valuing parents as decision-makers            | ‘…mother is a fantastic woman…[child with intolerances] you need to do a whole degree just on food and nutrition…’ F2 |
| Quality care over business, cost or pedagogy  | ‘The EYLF is not parent friendly…My parents look at it and say…I don’t care a shit about this stuff, as long as he’s happy and he’s healthy and he’s safe and he’s loved and he loves you.’ F2 |
| Health as a community effort                  | ‘…Elders from our local community come and have afternoon tea…they always do fruits…and have discussions… [a local supermarket]…donate [fruit]…’ L5 |
| Respect for parent’s IYCF choice              | ‘I don’t think that it would be [my role to encourage breastfeeding]. That’s a personal decision for the parents… supporting families who make that choice…a lot of parents who can’t breastfeed feel very attacked.’ ‘If the child is exclusively breastfed it’s that challenge around, “Oh my god, the child is awake and ready to feed now, and mum is 20 minutes away”…it’s about
3. Monitoring and surveillance

As a highly regulated environment, daily monitoring and surveillance in ECEC services covers a variety of feeding practices, including; handling of EBM, provision of formula and complementary foods, nutritional intake, parental provision of nutrition, hygiene practices and timing of individual IYCF within group care contexts. This theme includes three sub-themes: legislative requirements, which incorporates external monitoring and compliance of the NQF; parent and educator roles (internal service autonomy/compliance); and risk minimisation.

a) Legislation

Most of the monitoring undertaken within the ECEC services was based on compliance with the regulatory frameworks. The NQF and associated quality assessment-rating process had, from the educators’ perspective, both positive and negative aspects. However, it was predominantly represented in an adversarial manner, being referred to as “the system”. There was often fear over the assessment-rating process and outcome; and educators had varied knowledge, experience and/or confidence to exercise professional judgement.

Educators expressed the need for a more collaborative approach with regulatory authorities to mentor them through the compliance model. They felt less respected by “the system” despite hard work:
‘…every single thing has paperwork. It’s the reports, medical conditions, rostering, cleaning, programming…’ L10

Stress was associated with the perceived bias of assessment and compliance attributed to familiarity or lack thereof with the service, limited assessor time in services, limited feedback time, assessor demeanour and lack of mentoring/communication.

‘…[the previous] practice was a lot fairer than the current one…there’s no bias of any community connections…In terms of the person who is the authorised officer doing it and their experience and their whole demeanour in a way, the fairness and all of those things, all their training…’ L9

Some educators expressed difficulty in how to respond to compliance and at the same time maintain a caring environment:

‘…the support and collaboration between services and authorised officers…it’s more of compliance issues now, there’s no more collaboration of what you’re getting away with and how you’re doing it…So how do we as a service…react to what are expectations are now, whilst caring for kids’ quality, in a quality way whilst meeting all compliance issues?’ F2

However, other services expressed a laissez-faire attitude when they received a lower quality rating despite hard work and “happy” families.

‘…at the end of the day, if the children aren’t happy, then the parents aren’t happy. And if the parents aren’t happy, we don’t have a job. I think our focus and our priority is always relationships with the children.’ L7

(b) Parent and educator roles (internal service autonomy/compliance)
Based on the NQF, educators are required to work in partnership with families. However tensions developed as educators attempted to honour the autonomy and independence of parents and the decisions they made, while at the same time comply with the external requirements of the regulations and curricula. This constant negotiation and renegotiation between educators and parents was made overt via artefacts that travelled between home and the service. These artefacts were mainly around food: bottles (formula/EBM) or lunchboxes. The primary trigger for negotiation was compliance with service policy, predominantly around parental provision of energy-dense nutrient-poor foods, or on the progression of an infant through food textures and when to introduce complementary foods.

Compliance with the intent of the NQF and monitoring on a day-to-day basis of all aspects of IYCF relied on the self and collective efficacy of educators and parents:

‘I think the main issue would be the heating of milk. Our policy is, heated in a bottle warmer or in warm water…I hope that educators are following that…I’m not there all the time to see it…Most of the cases that the educator might say to me, you know, mum said that it’s okay. So, why do you have an issue with it if the mum says that it’s okay?’ F1

(c) Risk minimisation

The analysis highlighted that many of the IYCF behaviours and processes were designed for risk minimisation to ensure short-term infant health and well-being. Risk minimisation underpinned compliance with the regulatory framework and informed much of the monitoring and surveillance as described by a service leader:
‘Whenever we go out on a visit [to home-based educators] we take one of the policies with us...so that it can be revised on each visit...daily checks, the weekly checks, the monthly checks, the quarterly checks and the yearly...’ F3

Risk minimisation influenced the IYCF environment in several ways; through educators deferring to parents on food introduction, arranging for parents to bring in pre-prepared formula and to sterilise bottles, and procedural notices to remind parents and educators of IYCF standards.

‘...so that there is no error in terms of how much formula goes to water, obviously having 8 different children with 8 different formulas, everyone is slightly different and how much, three scoops to 150ml for this one...5 scoops for 150ml...again the nutritional value starts degrading over time...’ L5

Deferring to parent’s preferences and choices for their child regarding IYCF was a method of building relationships and developing collective agency, but could also be perceived as shifting responsibility to parents as a form of risk minimisation.

There was a strong educator emphasis on compliance with policies and procedures that related to risks that were perceived to be present on a day-to-day basis, such as choking hazards, EBM handling and storage (occupational health and safety), and sleep hazards. These risks were, in part, related to the fears of parents or educators:

‘...sometimes [parents are] unsure as to when to change over to more solid food or pureed... they’re scared they’ll choke.’ L2

Educator fear over contact with bodily fluids with EBM was the impetus for glove usage for both preparation and feeding, despite not being a requirement in international
recommendations in ECEC (NHMRC, 2012; WHO/UNICEF, 2003). This is another example of a lack of synergy with guidelines and the creation of confusion:

‘They always put on the gloves, especially with the breastfed children you need to wear gloves just because of the body fluid thing [sic]… I’m like, ‘Gloves, gloves!!!’ I’m really OCD with bodily fluids, I’m like, ‘Eww I’m in the nursery.’”

Discussion

This research has identified the key environmental, behavioural and cognitive factors that contribute to optimal IYCF practices in Australian ECEC. The use of SCT has highlighted the importance of understanding the agency of individuals and their perceived control over internal and external influences (Bandura, 2012). These personal agencies coalesce with shared beliefs for collective ability to enact change, to form an emergent collective agency that is used to negotiate and re-negotiate actions (Bandura, 2000). In this case it is related to IYCF in order to optimise care. In this highly regulated setting, the navigation of the external regulatory framework, internal service and individual educator norms and procedures are another important consideration. As such, two elements emerged as key barriers and enablers to optimal IYCF in ECEC: collective agency and the regulatory environment (Bandura, 2018).

Collective agency

In SCT, collective agency is seen as a process where individuals’ knowledge, skills, resources and interactive dynamics are combined to achieve shared goals (Bandura, 2010). There is a shared belief that working together will enable the achievement of goals and responsible action (Bandura, 1977). In the ECEC context, collective agency is critical to the implementation of optimal IYCF environments. Collective agency cannot be imposed, for
example, by the regulatory framework or by service leaders but rather emerges through a learning process (Pelenc, Lompo, Ballet, & Dubois, 2013). It involves a process of perceived influence or dynamic power sharing between children, families, educators, service providers and “the system”. In these ECEC services, collective agency was developed via the socially-mediated triadic relationship, (infant, educator-educator, parent) in order to optimise IYCF. IYCF outcomes are also determined by the knowledge, self-efficacy and experience of both educators and parents combined with feedback from the infant. The tensions created between the triad, and between the triad and the environment, were often the catalyst for testing and regenerating collective efficacy. Positive effects led to the resolution of differences, while negative impacts resulted in agentic clashes. These clashes potentially undermined collective agency, leaving educators in no-win situations, and often resulted in falling back to adhere to policy, procedures and service norms designed to minimise risk.

The key elements of collective agency include mutual trust, transparent communication, and social capital (Shariff, 2018). These are premised on individual self-efficacy, and service norms that are informed by evidence-based practice and team dynamics to achieve their shared beliefs in expected outcomes (Bandura, 2000). The absence of any one of these factors will result in sub-optimal IYCF. As proxy agents, educators and parents must have an understanding of the infant, their feeding/satiety cues, and verbal/non-verbal affirmations, in addition to the knowledge of foods and technical aspects of safe IYCF to support infant development. There is an element of trust in the infant as they exercise their agency in determining their feeding needs (Daniels et al., 2009). Educators also provide proxy agency for parents, emphasising the importance of knowledge of IYCF guidelines and responsive feeding practices supporting infant agency. In this context, parents trust educators as the protectors of parental choice: this is emphasised with the support for the parental wishes particularly for young infant routines and introduction of complementary foods. As the infant
grows and becomes more autonomous, the proxy pendulum is weighted more in the favour of the infant over the parent.

Self-efficacy in the IYCF area requires in-depth knowledge, understanding and skills related to best practice guidelines. Lack of IYCF knowledge and negative attitudes towards EBM can lead to policies and practices which potentially represent unlawful discrimination against breastfeeding mothers and their children (Smith et al., 2013). This adds legal weight to the call for further training for educators, in addition to in-depth education and updating of ECEC resources for IYCF (Gonzalez-Nahm, Grossman, Frost, & Benjamin-Neelon, 2017; Koh et al., 2012). Where there is evidence of poor IYCF beliefs, knowledge, self-efficacy or communication between parents and educators, infants are at increased health and safety risk and positive co-construction of agency and collective efficacy are potentially affected (Bandura, 1977). Collective agency would be further enhanced by supporting educator and parent knowledge regarding the introduction of complementary foods and cow’s milk, water intake, pacifier use, handling, storage and heating of formula, handling of EBM, feeding/satiety cues, food neophobia and timing of feeds. Access to education and resources for both parents and educators could potentially lead to a reduced focus on risk minimisation and the shifting of IYCF responsibility between educators and parents.

*The regulatory environment*

The regulatory framework encouraged services to undertake collective goal-setting towards ongoing quality improvement. However, it was also seen to have a negative role with a lack of alignment between the expectations of service providers, educators and regulatory processes. It has been suggested this is further exacerbated by excessive regulation in multiple areas, contributing to confusion (Peterson, Goodell, Hegde, & Stage, 2017). The lack of service policy usage, inadequate or absent IYCF policies added to this confusion.
around best practice in a legislative environment that is not explicit in addressing infants (Davis et al., 2015; McGuire et al., 2018). Standards are important for services to be able to measure performance and are essential for evaluating educator capabilities (Bandura, 2012). Consequently, overt IYCF policy and visibility of infants within the regulatory frameworks is essential (McGuire et al., 2018).

Educator roles are complex and rely on personal agency and the ECEC environment (resources/time) in order to ensure alignment with multiple policies and regulations, business/organization protocols and internal checks. The output of effort is not always rewarded in terms of professional recognition and renumeration for long hours of complex work (Irvine, Thorpe, McDonald, Lunn, & Sumsion, 2016). Further social support of educators is warranted to ensure their mental and physical well-being (Corr, Cook, LaMontagne, Waters, & Davis, 2015). Such support for educator health, particularly in high-stress infant rooms, is an important strategy for increasing self-efficacy (Bandura, 2010).

The regulatory environment combined with strong leadership within the service can provide external and internal scaffolding for optimal IYCF. This can assist with monitoring and fostering of beliefs for health and goal setting. It can also provide motivating factors and impetus to develop approaches that will promote collective agency. Service norms based on accurate guidelines allows consistency in information, the development of positive relationships and flexibility, to enhance the infant’s developing agency. There is consensus that the development of relationship-based infant education and care and continuity of interactions between home and ECEC is pivotal for optimal development (Chazan-Cohen et al., 2017; Pessanha et al., 2017; Recchia, Lee, & Shin, 2015). However, this study highlights strong environmental barriers linked to lack of time and feeding routines, despite
acknowledgement that infants and educators need to have time to develop meaningful relationships.

**Recommendations**

Based on the findings from this research a number of key recommendations can be made supported by SCT that would have the potential to improve IYCF environments in ECEC.

1. Building educator and parent self-efficacy

   Educator and parent self-efficacy needs to be built concurrently otherwise any discordance has the potential to generate more rather than less conflict. Increasing IYCF content and challenging prevailing cultural norms in educator training, including building competencies and confidence in mandatory professional experience, will be essential (Garvis & Lemon, 2015).

2. Increasing the visibility of infants in regulatory frameworks and policy

   Amending the ECEC policy so that infants are more visible in quality standards and infant agency is more fully conceptualised will add to the professionalisation of the educator role in partnership with parents. Additionally, while educators are actively modelling healthy eating for older children, further examples of supporting infant agency need to be conceptualised in early years curriculum (Chazan-Cohen et al., 2017; McGuire et al., 2018).

3. Mentoring ECEC and educators regarding the assessment and rating process.

   Collective training to assist educators and service leaders to work within the assessment process with assessors will increase self-efficacy and decrease negatively moderated physical responses through regulation of self in cognitive, motivational, and selection processes (Bandura, 2010).

4. Improving support and conditions for educators
Ensuring appropriate educator-to-infant ratios acknowledges the complexity and time demands of caring for infants. These resources will allow for more fluidity between flexibility and routine as infants exercise their agency.

**Conclusions**

This research has found that optimal IYCF in ECEC is reliant on the development of collective agency which requires a combination of environment, educator and parent self-efficacy and interaction with the regulatory framework. There is an opportunity to build collective agency by: increasing the visibility of infants in legislation and quality standards; and by providing up-to-date information and skills on the realisation of infant agency through responsive feeding practice for both educators and parents. There is an opportunity to work with regulatory processes and parents to reduce agentic clashes, further enhancing the shared goal of optimising IYCF and contributing to infant immediate and long term health.

**Declarations**

No declarations

**Availability of data and materials**

Data is held by Queensland University of Technology under data storage guidelines.

**Competing Interests**

No competing interests.

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