

# Using Insights from Interactions Research to Improve Policy and Practice in Early Childhood Education

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## Abstract

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The study of human development and learning in the West has broadened its focus across the twentieth century from a position that largely privileged the individual human subject as separated from the world and effected by its influences, to one where human subjectivity and the world are mutually constitutive; where experience is mediated by cultural tools; and through which over time, we can see the expansion of human learning and activity as interdependent (Bronfenbrenner and Ceci 1994; Rogoff 2003; Vygotsky 1978). It is no longer possible or desirable to view people as separate from culture and to ignore the reciprocal influences of people and culture. This is a major factor in why studies into interactions between children and their worlds are of growing interest to researchers, educators and policy makers alike. In the context of early childhood education in New Zealand for instance, we see this in the view of children as children increasingly capable of and competent to direct their own learning as they draw from and shape what happens in the early childhood service (Ministry of Education 2004/2009). Concurrently, formal learning theories have expanded across the late twentieth century to account more clearly for the ways interactions between people, places, and things within an education setting invite and sustain learning (for example, the shift from individual cognitive constructivism to social-constructivism, and social-situated views of learning and associated theories like for instance, community of practice, (Snyder and Wenger 2010)). From a sociocultural perspective learning experiences lead developmental growth and change; communication between people, in deliberately constructed places, with particular things is of paramount importance to learning. As educators in early childhood education have begun to take up these ideas with more vigour around the world, understanding interactions and the learning that comes from them grows in importance. Hence the critical need for research and scholarship into learning interactions and educational practice.

## Why Study Learning Interactions?

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from culture and to ignore the reciprocal influences of people and culture. This is a major factor in why studies into interactions between children and their worlds are of growing interest to researchers, educators and policy makers alike. In the context of early childhood education in New Zealand for instance, we see this in the view of children as children increasingly capable of and competent to direct their own learning as they draw from and shape what happens in the early childhood service (Ministry of Education 2004/2009). Concurrently, formal learning theories have expanded across the late twentieth century to account more clearly for the ways interactions between people, places, and things within an education setting invite and sustain learning (for example, the shift from individual cognitive constructivism to social-constructivism, and social-situated views of learning and associated theories like for instance, community of practice, (Snyder and Wenger 2010)). From a sociocultural perspective learning experiences lead developmental growth and change; communication between people, in deliberately constructed places, with particular things is of paramount importance to learning. As educators in early childhood education have begun to take up these ideas with more vigour around the world, understanding interactions and the learning that comes from them grows in importance. Hence the critical need for research and scholarship into learning interactions and educational practice.

This chapter looks across this collection of early childhood based studies to consider the phenomenon of interactions in learning within formal early childhood education. It summarises what these studies have to say about learning being prompted and sustained through quality interactions between children, peers, teachers and things; it considers the research methods employed in this body of work as researchers and teachers have strived to perceive, interpret, and reflect upon learning interactions in early childhood education. Implications for both teaching and research practice within early childhood education are explored, and the chapter concludes with a discussion of challenges and opportunities from interactions research for quality early childhood education policy and practice.

Positive learning climates are characterised by the right blend of stimulation, challenge and safety, including emotional safety. We have understood for a long time that there is always an affective element to learning (see for instance Bandura's (1977) self-efficacy research, Maier and Seligman's (1976) work on learned helplessness). Klusemann's chapter (this volume, Chap. 2) has argued strongly that teachers and researchers often overlook the emotional element of learning; it is time to redress this in policy and practice. Interactions serve two functions in shaping the emotional climate for learning. First, interactions with others over time lead to a shared repertoire of past experiences and engagement with cultural symbols that can support the flow of an interaction. Children can learn from others how to indicate and interpret verbal and non-verbal cues as they relate with people's emotional states because spending time with people who are, what Remsperger-Kehm calls "sensitively responsive" (see Chap. 3, this volume) allows interaction partners to make meaning about emotional states and each others' communication styles, and to figure out how to modify their own in response. Second, spending time with others in shared endeavours can support the emergence of a shared mood and emotional engagement – an intersubjective emotional arousal from joint-attention over objectives can emerge. For White and Redder (this volume, Chap. 7), the interaction is genuine when intersubjectivity results. Spending time together in positive interactions not only enlists interaction partners participation in shared activity it shares power between them thus validating children's experience and strengthening their success within the learning interaction.

Episodes of sustained shared thinking or joint attention have been shown to support positive learning cultures in early childhood education and are considered an aspect of quality early childhood pedagogy (König 2006; Siraj-Blathford et al. 2002; Siraj-Blathford 2009). Described as sustained effective pedagogical interactions (in terms of child outcomes, Siraj-Blathford 2009) that also involve curriculum content, episodes of sustained shared thinking brings children and their teachers into coordinated points of view through which the child learns to understand themselves as projected

by and through their interactions partner. So, interactions through SST may be considered pedagogical because they refer to activity of teachers that supports and engages children's learning (Siraj-Baltchford 2009).

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Citing Viernickel and Stenger (2010, p. 181), Remsperger-Kehm, notes that interactions have been likened to a 'didactic key' within German early childhood education services. Sensitively responsive teachers can facilitate children's continued involvement, interest and emotional engagement in learning; in turn, children can be observed influencing teachers' emotional states. Thus close and positive emotionally responsive interactions are integral to culturally valued learning in early years settings.

Not all interactions can support learning and the extent and range of teachers' interaction styles when teaching have, at times been proven to be limited (as discussed by Wirts, Wertfein & Wildgruber, this volume, Chap. 11 ). On the other hand, teachers, who have had deliberate opportunities to develop a much broader set of communication skills – through for instance, guided professional development, can differentiate their interaction styles with good effect (see Hruska, this volume, Chap. 10 for instance). Differentiated communication skills can enable teachers to respectfully address and support the diversity of children they will encounter across the course of a career in early childhood education. Hruska describes non-verbal aspects of communication as central to learning interactions, and face-to-face interaction as paramount. Arguing that real world interactions between teachers and children help to connect words, sounds, gestures with their underlying meaning, interactions and rituals associated with them (eye-contact, wait time, listening for instance) are essential for language learning and development. As children's capability with verbal and non-verbal language increases over time, they have increasing access to thought; in turn thinking becomes a major driver in children's interests and dispositions to learn. But it is not only adults who can effectively scaffold children's language and thinking through quality learning interactions – as we have seen in this book's research, children's peers have an important role here too.

Children's peers may effectively promote and sustain learning interactions with each other (see for example, Dalli 2003, Gunn, this volume, Chap. 6 ; Kultti, Pramling and Pramling-Samuelsson, this volume, Chap. 5 ; White and Redder, this volume, Chap. 7 ). This is especially so when children who may be more skilled with a given activity or idea encourage others to engage. Even when children do not share a common language or the ability to speak, peer interactions, sustained through external and observable cues are powerful conveyers of meanings. Describing interactions as events of co-being, White and Redder show very young children in learning interactions with peers and teachers, with no verbal speech as a pre-condition to the communication. By participating in socio-historically mediated activity with each other, children develop an understanding of themselves, others and the world. Kultti, Pramling & Pramling Samuelsson argue that a teachers' sensitivity to placement of resources and the organisation of peer groups can help children make the most from their interactions with each other, especially if they do not share a spoken language. Teachers can talk about children's activity as peers play with each other and scaffold the learning. Of course, children are powerful teachers in themselves; as can be observed in the analysis of learning about gender brought to life in Gunn's research. As children take up and mobilise particular gender discourses they provide evidence of how to 'do' or 'be' masculine and feminine within the context of children's kindergarten worlds – despite what adults may value and prefer children to know and learn about. Therefore, learning from and about children's interactions with their peers can provide teachers and researchers with a plethora of opportunities to understand more deeply what is being learned and how. One note of caution however must be raised. Children's conversations, accessible to teachers and researchers through technologies like video cameras and microphones may be uncensored by children because the proximity of the adult to the children is not required in the same way as it would be if paper and pen methods were

being used to record speech. Thus, an important question of what should be *heard* and what might be ignored by the teacher/researcher must be raised. Just because a teacher or research can video and audio record all children's activity does not mean they should; a sensitivity to right to privacy and respect must be maintained.

Interactions with resources and things in an early childhood education environment can be observed to sustain learning interactions too. Material objects, for example toys or play spaces, combine with psychological tools, symbolic systems, non-verbal communication, language et cetera to mediate children's meaning-making. Even where children do not perhaps share the same spoken language or speech as a primary communication tool, teachers can use objects and play things, deliberately within children's play, to focus and develop shared attention between peers and between children and teachers (Tomaselo 2008). They can plan to support non-verbal, object-mediated interactions. Furthermore, when children play with things alone their interactions with those objects can challenge, extend, complexify, and sustain learning. Evidence of how objects supported several children's learning is shown in Bateman, Carr and Gunn's chapter (this volume, Chap. 4 ). There a ball, for instance, constructed as a character in a story about going faster, higher, and longer than a boy (Jacob), acted in response to the forces applied to it by Jacob to extend a storyline and bring a story to an abrupt end. Technological tools like iPads as well as natural resources like shells with pictures stuck onto them provided cues to children and possibilities for creating and expanding stories. Arguably, children's interactions with these more-than-human objects may be thought of as potentially emotionally challenging, when for instance the objects are a surprise or behave unexpectedly as children interact with them. Yet there is a certain degree of safety in the interaction because the sense of what any given response by the object comes to mean rests with the child and her or his interpretation.

Lovatt, Cooper and Hedges (this volume, Chap. 8 ) argue that an important goal of early childhood education is to establish partnerships with parents and children's families that go beyond casual interactions. Their work shows how teachers' understandings of children, their interests and capabilities, can be expanded when relationships with families encompass learning for teachers, about children's daily life at home. Such work connects with Bronfenbrenner's bioecological model of human development (Bronfenbrenner and Ceci 1994), which posited the absolute importance of the mesosystem for children's learning and development. The mesosystem can be thought of as the system of microsystems within which children live their daily lives – settings such as the home, homes of extended family and whānau, the early childhood setting, the marae<sup>1</sup>, for example. The conditions within each of these microsystem settings is important for children's health and wellbeing, but when children are moving between contexts, the interactions between settings can be influential too. The theory posits that when alignment between settings exists, so does an optimal environment for learning and development. This idea brings the concept of learning interactions, which until now has mainly focused on close interpersonal interactions between children and other people, into the meso-systemic contexts of children's lives. We can see that teachers are able to influence learning in positive directions by working effectively in the in-between space involving children's homes and early childhood education settings.

Adult interactions have also been shown to impact on learning when teachers deliberately come together to discuss, observe and negotiate over different forms of curriculum in early childhood education. By having teachers view video examples of divergent forms of early childhood practice, within early childhood settings in Japan and New Zealand, Burke (this volume, Chap. 9 ) argues that interactions as cultural acts can reify and challenge particular truths of early childhood practice established that have become established over time. Where teachers deliberately engage in critical reflection over established forms of practice or in relation to significant values, asking whether those positions might unintentionally act to diminish opportunities for quality early childhood practice,

professional interactions, geared towards improvement can open up dialogue and allow for shared meanings to be negotiated. Burke argues that if we assume particular forms of interaction to be universally good or desired, we risk homogenising pedagogies within early childhood education and potentially marginalising people as a result. We must pay attention to the diversity of forms of interaction a given early childhood community might utilise; build in families' expectations and values; and accept that these will change from setting to setting, and over time. Recognising children's families as powerful sources of curriculum in early childhood education can transform interactions and deepen teachers' knowledge and skills as they teach.

## Methods of Studying Learning Interactions

The studies of learning interactions in early childhood education presented in this volume borrow widely from a diversity of research methods and draw from both quantitative and qualitative methodologies to show how intersubjectivity is achieved and maintained between children and others in advance of learning. Adequate study of social events requires multiple methods and data from a range of sources. Audio recording talk for instance, does not give a researcher access to facial expression and gesture as integral components of that talk. Nor does an audio recording alone represent the context of any talking that may be recorded – and it is widely recognised that context can afford and constrain what it might be possible to say. Furthermore, different scholars' questions have necessitated different approaches to studying the interactions phenomena in early childhood education and for learning. This book includes research utilising structured quantitative methods which has sought to evaluate the quality of interactions between teachers and children; it has also included inductive qualitative work that has pursued deeper insights into the fine-grained nature of communication, verbal and non-verbal, between children, their teachers, their peers, and things in the learning environment. The strength of this collection lies, in part, in the diversity of studies presented and in the way that people working across different epistemic fields are able to speak broadly to the topic. Thus, for the educator, policy maker, or researcher, the cross-fertilisation of ideas and approaches brought together here supports a complex understanding and appreciation of what's involved in producing and sustaining quality early childhood education and productive learning within it.

Necessarily the studies included here are human resource intensive. Many have been smallish in scale, and have involved close observation of children and others (and things) in situ or through post-hoc video analysis. Wherever it is difficult for a single observer to comprehensively describe a complex set of human actions with accuracy, video methods have become useful. This is not to say there are no issues with the use of video; mentioned earlier for instance was the ubiquitous nature of video recording and the way it makes children's worlds more accessible to the teacher or researcher than ever before. However, video may be recorded from simultaneous vantage points, offering up a more holistic view of the interaction and interaction partners' actions and expressions. Analysis may be repeated when video footage is viewed multiple times. The quality of video and audio data able to be produced supports quality analysis and potentially communication of research findings in ways accessible to a diversity of audiences through a range of communication modes. Central to the interaction over and above the content, are the facial expressions, body language, vocal cues, the rhythm and flow of actions and expressions, gaze, silence and the emotional states of interaction partners. It is no surprise that most of the studies presented here make use of video methods. As Klusemann (this volume, Chap. 2 ) argues, if we are to study learning within early childhood education properly, we must be able to examine the ways interactions between children and others (and things) occurs, because the interaction and the achievement of intersubjectivity between interaction partners shapes the child's cognitive orientation. Thus, children can be observed expanding their involvement in their cultural communities as they take up cultural tools, practices and language and many scholars are using established and novel video methods to record interaction data for

analysis.

White & Redder (this volume, Chap. 7 ), for instance, invested in polyphonic video method to record the visual fields of research participants. Infants and teachers wore head-mounted video cameras during play, thus making the perspectives of infants and teachers in a given interaction event available for analysis and discussion. The collective investments of infants, their peers, and teachers were observable in the research, thus a holistic account of the interactions and interaction partners contributions to the whole was made visible. Claiming that seeing is a difficult task for the researcher, the polyphonic video method, in combination with post-video analysis interviews with teachers, made the reciprocal interactions available to the researchers' scrutiny. As mentioned earlier, video data are not without problems, nor are they above manipulation. Their two-dimensional quality makes them secondary, derived, and reduced-in scale when compared with the to three-dimensional real world events they purport to represent (Aries et al. 2011). Yet, if taken as representational data, and handled ethically, video can bring the researcher close to participants for a given time period within a particularly framed view, and allow for close readings of events, interactions, and their effects.

Video data may also act as a powerful provocateur to teachers' professional learning about their work, as studies in this volume show. By being able to analyse one's own professional interactions, for example as in Hruska's work involving video based interaction analysis (this volume, Chap. 10 ), teachers may discover which of their own communication strategies are effective (or not) with particular children, or in specific circumstances. Teachers may then be able to refine their pedagogical strategies and decision-making, thus improving teaching through self-referenced analysis of systematically produced video data. Furthermore, by revisiting interactions with specific children, teachers may re-author their interpretations of children's or their own competence, and different possibilities for curriculum may become possible. By viewing interactions-focused video the reciprocal processes of communication in a busy early childhood environment may be observed. Thus teachers may challenge their own sense of the pedagogical opportunities available to children in their care, and act to change environments for the better.

Watching video of teachers in an early childhood setting in another country proved fruitful for teachers' consideration of their own values and communication preferences and styles in Burke's study (this volume, Chap. 9 ). The comparative analysis that was enabled through the video method helped teachers in New Zealand and Japan challenge their ideas about specific kinds of interactions, thus providing scope for a more nuanced and diversified approach to teaching in each setting. Video of children's play in Bateman, Carr and Gunn's work (this volume, Chaps. 4 & 6 ) made it possible for researchers to consider how peers and things in the early childhood education setting shaped opportunities for learning. In this, the researchers' interpretations were limited to the scope of the event made visible in the video, revealing how powerful the interactions were for what was learned and achieved within that frame, but doing so without a sense of how any arrangement of people and things in the environment, outside of camera shot, impacted on what was possible. Thus the work here reminds us that video data alone are probably insufficient as a means of data gathering to understand the social-situated nature of interactions in early childhood education and how the broader context effects possibilities within close interaction. Narrowly framed video data would ideally be accompanied by simultaneous wide angled data and supplemented by field notes for its adequacy to be assured. Such approaches allow for the kind of multi-layered analysis of interactions made possible by Kultti, Pramling and Pramling-Samuelsson (this volume, Chap. 5 ) whereby individual, interpersonal and institutional views allow for collective and social processes, in combination with individual capacities, to be taken into account when interpreting complex social phenomena like learning interactions.

A range of observational methods, utilising both inductive open-ended and preconfigured deductive

observation type measures, have also been employed in the studies of interactions included in this volume. Standardised assessment tools, such as Classroom Assessment Scoring System (CLASS Pre-K, Wirts, Wertfein and Wildgruber, this volume, Chap. 11 ) and Remsberger-Kehm's Sensitive Responsiveness scales (this volume, Chap. 3 ) feature for instance. The tools have been tested, refined, and adapted for use across a range of populations and settings and for their larger scale purposes, are considered sufficiently robust to be able to be systematically applied and interpreted. Of course sensitivity to the circumstances of any given tool's use, the researcher's background, and the linguistic diversity of those looking through and being viewed by any single instrument must be considered when using and interpreting standardised assessments. In parallel to the high level of reflexivity needed to achieve trustworthy small-scale qualitative inquiry, cultural issues related to research instrument interpretation and use cannot be ignored. However, when well deployed in a context where the affordances and limitations of any given tool are recognised, issues of misinterpretation, any uninvited imposition of cultural values upon others, and homogenization of groups can be addressed, and work at scale may be considered useful to the mix. To understand the phenomenon of learning interactions comprehensively we need both small scale and larger scale perspectives. Standardised quantitative methods may allow us to ask questions of how early childhood quality might be achieved over whole communities, regions, and countries systematically and over time. Combined with small scale, qualitative work we may be able to understand the nuanced perspectives of why. Thus, when attention is paid to the critical and culturally situated uses of larger scale standardised tools, the research may support teachers, researchers, and policy makers understandings of questions around early childhood education and the way learning interactions are supported or not.

## Where to Next?

An aim of this volume has been to bring together research about learning interactions in early childhood education from across Europe, Japan, Australia and New Zealand, so that teachers, policy makers and researchers may gain a sense of why and how studies of learning interactions are critical for the development of quality early childhood education and care. In our respective countries the care and education of children outside the home has become almost taken-for-granted by governments, communities and families in the twentieth century. We know that high quality early childhood education is critical and related to wellbeing and success (Dalli et al. 2011; Carroll-Lind and Angus 2011) and that conditions in early childhood settings have a direct effect on quality, because they influence the sensitivity and responsiveness of teachers towards children (Dalli et al. 2011; Mitchell et al. 2008; Smith 2015). Sensitive and responsive teachers support children's learning capacity (Shonkoff and Phillips 2000); in fact the essence of quality in early childhood education is embodied in the expertise and skills of the staff and in their capacity to build positive relationships with young children (National Scientific Council on the Developing Child 2007). When children participate in poor or mediocre quality early childhood education, the impacts are negative, particularly for children from low-income backgrounds (Smith 2015). On the other hand, when encouraged to think and explore with sensitive teachers in the context of warm and respectful relationships, children have good outcomes for early childhood education. We must therefore continue with our attempts to understand how interactions between children, their peers, teachers and things in the early childhood environment are shaping learning opportunities – examining the issues from the broader structural and environmental/policy perspective as well as through close observation of reciprocal interactions between children and things/people in their worlds together. Only then can an holistic and nuanced view of the social-situated nature of learning become visible and available to teachers for development.

The gaze or field of view within interactions research must remain broad and expansive. If teachers, policy makers and researchers are to comprehend the socially-situated nature of learning interactions in early childhood education then they must look at fine-grained and setting/system-wide features

together if they are to make good sense of the interactions being observed. Certainly, close analysis of the minutia of factors like reciprocal speech, facial expressions, tone of voice, pace of exchange, and observable emotional states within a specific interaction can tell us a great deal about how an interaction between a child and an other is sustained, expanded, constricted and shaped. But interaction partners in an early childhood environment are situated within a place, amongst other people, and with things that also contribute to what's possible at a given moment. Therefore what's observed must be simultaneously close and wide framed for the fullest effect. We have seen scholars in this book do this by combining methods, by employing multiple measures of the same event, and by interrogating a given data set in multiple ways. The effect is to keep the understandings of the learning interactions appropriately complex and situated. As argued earlier, it is the complex and wide ranging approaches, perspectives and methods used for studies in this volume that allows us to perceive learning interactions broadly. Ongoing development of interactions research must keep to such a broad view for it to lead to development within the fields of research and of early childhood education.

The learning interactions research in this book has been concerned with aspects of structural and process quality in early childhood education and how this can support the attainment of intersubjectivity between interaction partners. As people negotiate and reach mutual understandings of the situations they find themselves in together, and synchronicity of interactions arises, the emotional and coordinated efforts of interaction partners' impact on what can be and is learned. Understanding this process is key to operationalising sociocultural teaching and learning theory in contemporary early childhood education. The studies have also invited consideration of the ways children's interpretations of non-human elements of the early childhood environment (toys and equipment) may be interpreted by the child in her or his play between her or himself and things. In this way, teachers and policy makers can make deliberate decisions about the types of resources and things they want to include in the early childhood environment to provoke and sustain learning interactions there. Thus a renewed appreciation of the place and resources in the early childhood setting, and how these afford and constrain learning, become possible. Through interactions research in the context of early childhood education, the mutually constitutive relationships between children and their worlds is visible.

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<sup>1</sup> Marae are places of communal cultural and social significance within Māori society encompassing a physical place (land) with buildings that belong to specific iwi or hapū (tribe or sub-tribe).