



Please cite this paper as follows:

Hoyte, F. (2021). Appraisal in young children's friendship conversations: How young friends establish common ground, negotiate relationships, and maintain play. *Journal of Research in Applied Linguistics*, 12(2), 37-51. <https://doi.org/10.22055/RALS.2021.17008>

## Research Paper

# Appraisal in Young Children's Friendship Conversations: How Young Friends Establish Common Ground, Negotiate Relationships, and Maintain Play

Frances Hoyte

School of Education and Professional Studies, Griffith University, Australia; [f.hoyte@griffith.edu.au](mailto:f.hoyte@griffith.edu.au)

Received: 01/04/2021

Accepted: 04/07/2021

## Abstract

Children's first years at school are critical for their language development, academic progress, and social learning. Hopefully, children make friends when they start school because friendships support children's learning and well-being. Friendships need to be developed and maintained, and interpersonal language resources like evaluative language provide linguistic tools that contribute to this relationship work. Appraisal theory (Martin & White, 2005) provides a comprehensive framework for analyzing evaluative language. This research applies the appraisal framework to explore evaluative language in the conversations of 2 pairs of 5-to-6-year-old friends. Children in each dyad identified each other as 'very best friends,' and their conversations were recorded as they played together. They used appraisal resources to negotiate and build common ground, to encourage responses from their friends, and to enrich their play. This research applies Martin and White's (2005) framework in a new context and brings a new tool to the study of children's peer conversations.

**Keywords:** Appraisal Theory; Young Children; Friendship; Evaluative Language; Peer Conversation; Systemic Functional Linguistics (SFL)

## 1. Introduction

The study of children's use of evaluative language is a timely and important pursuit. Evaluative language is a subset of interpersonal resources implicated in the establishment and maintenance of relationships (Halliday & Matthiessen, 2004). Children start to use these resources in infancy, as they talk with their caregivers and develop shared understandings about how to evaluate their experiences (Painter, 2003). As children move into their school years, they need to be able to develop peer relationships and to do so independently of adult help. The ability to engage successfully with their peers contributes to children's well-being and success in school (e.g., Theobald, Danby, Thompson, & Thorpe, 2014). Children interact with each other through talk and play, both of which require children to negotiate shared understandings or 'common ground' (de Haan & Singer, 2001). This research investigates how young children use evaluative language as they talk and play together.

Positive relationships are important for children's social-emotional development. Friendships are a subset of relationships, typically viewed as supportive, which contribute to the well-being of children who enjoy them (Brogaard-Clausen & Robson, 2019; Carter, 2021; Vincent, Neal, & Iqbal, 2016). Friendships facilitate children's ability to manage life's challenges, like transitions to school (Danby, Thompson, Theobald & Thorpe, 2012; Theobald et al., 2014) and help children weather distressing experiences (Howes, 1996; Bulotsky-Shearer et al., 2012). Friendships also support children's school success (e.g., Ladd, Kochenderfer & Coleman, 1996). Lillemyr (2007) suggests that one reason that friendships in the early years contribute to school success is that they facilitate children's access to successful play experiences. Engagement in play is known to support children's language and literacy development (Smith & Pellegrini, 2013). Another suggestion is that friendship skills, like cooperation, may also maximize learning in experiences such as group work (Coelho, Torres, Fernandes, & Santos, 2017; Coplan & Arbeau, 2009). Supportive relationships have also been shown to facilitate both first and second language acquisition (Degotardi & Torr, 2007; Painter, 2003; Sadri &



Tahririan, 2018). Because friendships do contribute so positively to children's lives, it is important to extend our understanding of the way children employ language as they develop these relationships.

In Australia, as elsewhere, children in communities facing various social and economic difficulties, are particularly at risk of suffering educational disadvantage (Heimans, Singh, & Barnes, 2020) as schools respond to pressure to focus on academic outcomes at the expense of other aspects of children's development. Bernstein (2000) argued that social inclusion is a pedagogic right (along with personal enhancement and political participation) that students should be able to claim when entering a democratic school system. To access all three pedagogic rights, including social inclusion, children need appropriate support which may not always be forthcoming. Vincent et al. (2016), studying friendship in schools in the United Kingdom, noted that whereas the teachers wanted to support children's friendships, a performance agenda and misconceptions about the children's friendships interfered with the teachers being able to ask deep questions, explore new ideas and institute changes to support children's friendships. If, as Bernstein (2000) suggests, a democratic education should promote children's social inclusion, then research that teases out how children form and keep friendships is an important agenda.

Evaluative language has been identified as an important set of language resources which facilitate young children's successful communication in a range of contexts, from storytelling (Drijbooms, Groen, & Verhoeven, 2015; Shiro, 2003), to persuasive writing and argumentation (Thomas, Thomas, & Moltow, 2015). While the ability to interact effectively with each other maximizes children's continued engagement in talk and learning together, the premise of this study, is that children's friendships are valuable and worthy of study irrespective of the support they may offer for academic learning.

The appraisal theory (Martin & White, 2005) provides a comprehensive framework for analysing the evaluative language resources people use to develop relationships and negotiate points of view. They comment that evaluative language is used to 'reveal speaker's ... feelings and values'; establish 'status and authority'; and 'construct relations of alignment and rapport' between speakers and listeners (Martin & White, 2005, p. 2). The appraisal theory has frequently been used in understanding written texts (see Banari, Bardide, & Bordbar, 2017, for reviews of several examples), and in educational projects with an emphasis on supporting students facing significant disadvantages in education and work contexts (Martin & White, 2005). The theory has also been applied in the study of children's early language development, mostly in talk with a caregiver (Degotardi & Torr, 2007; Painter, 2003). Research on children's use of evaluative language in literacy learning activities, such as writing tasks and narrative production, has also drawn on the appraisal framework (e.g., Christie, 2002; Llinares, & Dalton-Puffer, 2015; Thomas, 2014; Thomas et al., 2015). This article will extend the use of the framework to focus on children's use of evaluative language with their peers, rather than with an adult, and in play, rather than in a formal literacy learning context. Three questions are addressed.

- Does the use of appraisal contribute to establishing some 'common ground' or shared understanding?
- Does the use of appraisal contribute to children's conversational skills, like turn-taking?
- Does the use of appraisal add to the experience of play? If so, in what way?

## 2. Literature Review

The literature review begins with an introductory description of the appraisal framework. Then follows a review of the literature pertinent to an exploration of young children's use of appraisal in their peer conversations. This review starts with studies that discuss the importance of young children's relationships for their language development. Then, it addresses studies of evaluative language, some of which use the framework and some of which draw on other theoretical perspectives.

### 2.1. A Description of Appraisal Theory

Evaluative language comprises resources available for making interpersonal meanings. In Halliday's theory of language (Halliday & Matthiessen, 2004) each utterance is recognized as able to communicate three types of meanings simultaneously: interpersonal, ideational, and textual meanings. The framework of appraisal is a systematic catalogue of the choices available for including evaluation in interactions so sits within the interpersonal dimension. The framework is concerned with how 'evaluation is established, amplified, targeted, and sourced' (Martin & White, 2005, p. 9). Appraisal resources allow a speaker to convey their own point of view and to adopt a stance towards other points of view

(Read & Carroll, 2012). The ability to convey and respond to a point of view is important in establishing shared understandings, making alignments with others that signal solidarity or establishing differences that communicate individuality. The appraisal system includes three major categories: attitude, engagement, and graduation.

Attitude encompasses the ways in which personal feelings are encoded and incorporates three different aspects: affect, judgement, and appreciation, each of which is associated with a different focus for evaluation. Affect concerns emotions, expressing a variety of emotions categorized as desire, happiness, security, satisfaction and their opposites (Martin & White, 2005, p. 49). Judgement concerns behaviour and has two types: Social sanction is concerned with evaluating veracity (truth) and propriety (ethics), whereas social esteem is concerned with evaluations of normality, capacity and tenacity (p. 53). Appreciation concerns evaluation of things, including the reactions those things elicit in terms of their impact and the quality of the reaction. Appreciation also concerns the composition of the items being evaluation in terms of their balance and complexity and the value of the item (p. 56).

A second resource in the appraisal system is engagement. Engagement resources allows the speaker to position their point of view with reference to those of others. This aspect of appraisal will not be addressed in the paper, so only a brief comment about the purpose of engagement is provided. Engagement allows the evaluation being offered to be portrayed as one point of view among others (heterogloss) or it allows the evaluation to be conveyed as taken-for-granted (monogloss; Martin & White, 2005, p. 102). Heteroglossic evaluations expand the range of perspectives, contract them, or justify a point of view.

Graduation resources allow both attitude and engagement evaluations to be adjusted for force and focus. Force enables the strength of the evaluations to be adjusted, either intensifying or weakening the evaluation. Focus increases or decreases the specificity of evaluations allowing variation along a continuum from the particular to the generalized.

Figure 1 sets out the system of choices in the appraisal system at the level of specificity discussed in this article. The resources of attitude are more detailed in the figure than those of graduation and engagement because attitude is the focus of the current analysis:

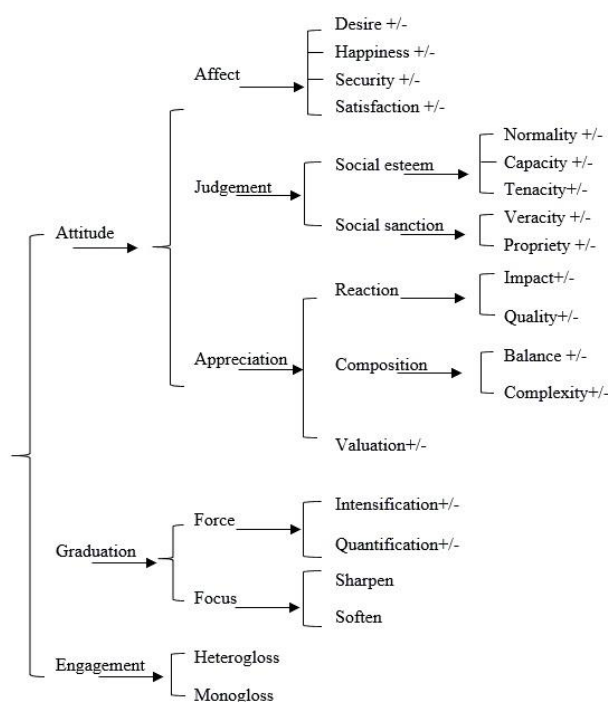


Figure 1. Appraisal Resources (Martin & White, 2005; Read & Carroll, 2012)

## **2.2. Children's Peer Relationships: Interconnection of Friendship and Play**

Children's peer relationships provide specific contexts in which their language develops, and language is an important resource they use to enact those relationships. As children develop, their peer relationships take on increasing significance as they spend more time with other children, in childcare and educational settings. Some of their relationships can be categorized as friendships. Friendships between children involve reciprocity, shared understanding and experiences (Dunn, 2004). Children have more emotional involvement with their friends than with other children as they share fun, happiness, and affection but also sadness, anger and jealousy (e.g., Dunn, 2004; Howes, 2009). Children's friendship choices can be motivated and reinforced by their similarities including their play interests (Laursen, 2017) and time playing together provides opportunities for the friendships to develop (Coelho et al., 2017; Dunn, 2004). Play conversations are a major context for children's talk with friends so it is relevant to provide details on play as a background for understanding the children's use of evaluative language in this study.

Children's play comprises a diverse and complex range of activities (Pellegrini, 2013; Wood & Attfield, 2005). Play can involve the creation and maintenance of pretense (Hoyte, Torr, & Degotardi, 2015) and may be characterized by creativity, spontaneity, engagement, enjoyment, and high levels of excitement (Coplan & Arbeau, 2009; Wood & Attfield, 2005). In play children explore complex themes and ideas and manage conflict (De Haan & Singer, 2010). Both actions and language contribute to play, making it a multimodal activity (Smith & Pellegrini, 2013; Trawick-Smith et al., 2011).

Children's language use, their success in forming friends and their involvement in play are interconnected and all three are important for this study. Friendship and play both involve similar uses for language: to develop shared understandings, to express emotions, and to negotiate perspectives. These goals are the very things for which evaluative language provides resources. Whereas research has explored some contexts in which children use evaluative language, there is a gap in the literature with respect to friendship contexts.

## **2.3. Children's Use of Evaluative Language**

Children's use of evaluative language has been studied using a variety of theoretical frameworks, investigating children at different ages and in different contexts. This review concerns talk in informal conversations, rather than structured interviews and classroom contexts. Painter (2003) used Martin and White's (2005) appraisal framework to document the development of evaluative language of children, between the age of 9 months and 4 years, as they interacted with a parent. She found that children expressed attitude first, but they had developed both linguistic and nonlinguistic ways for communicating meanings of judgement and appreciation by the age of two. She proposed that children's efforts to share evaluations contributed to their relationship building and that their efforts to express evaluations triggered other language and cognitive processes. Painter concluded that 'interpersonal meanings are at the heart of' cognitive developments (2003, p. 206) adding support to Halliday's statement that the interpersonal function of language is a gateway to new developments in language and cognition (Halliday, 1993). Another finding from Painter's work was that children in her study wanted to convey meanings, particularly for judgement and appreciation, even though they did not have the explicit vocabulary to do so. Children extended their capacity to achieve evaluation with support of their interaction partner and by using resources of one type of evaluation (e.g., affect) to evoke meanings in another (e.g., judgement or appreciation).

Painter's (2003) analysis provides a nuanced description of children's efforts in evaluation up to 4-years old. Her analysis demonstrates what these children could achieve, mostly with knowledgeable and supportive caregivers, and it maps out a possible developmental pathway which may apply more broadly. Painter's study provides important understandings, but as children start to engage with their peers, new contexts for using evaluative language emerge, and with them new research questions about children's language development arise.

A range of research explores conversations of children between 4-and-8-years-old (Cobb-Moore, Danby & Farrell, 2009; Kyratzis, 2004; Kyratzis, Ross, & Koymen, 2010; Shiro, Migdalek, & Rosemberg, 2019). Some of these studies are explicit about exploring the role of evaluative language while, in others, evaluative language is discussed incidentally.

Shiro et al. (2019) studied 4-to-7-year-olds' confrontations with peers with an explicit focus on evaluative language and based their categories of evaluative language on the work of Labov and Walestsky (1967; Labov, 1972, as

cited in Shiro et al. 2019), rather than on the appraisal framework; however, their analysis does share some features of Martin and White's (2005). They coded words which they called attributes (e.g., *big*), emotions (e.g., *like*, *angry*), and intentions (volition and desire, e.g., *want*). They looked for mitigation (e.g., *very*), and polarity (adding positive or negative markers). The children in this study were shown to be aware of the stance their partner was communicating, were assertive in response and tended to use intentions and negative polarity as dominant strategies.

An earlier study by Cobb-Moore et al. (2009) investigated how 4-to-6-year-old children used language to claim resources, express rules, exert control, and create and employ membership categories. Whereas evaluative language was not the major focus of the study, and no mention was made of frameworks for evaluative language, it is possible to link aspects of their analysis of conversations with some aspects of the appraisal framework. For example, these researchers commented on the evaluative nature of the words that children used and explored ways the children added emphasis in their interactions. This study demonstrated that children used evaluation resources in sophisticated ways to negotiate their relationships. Likewise, Kyratzis et al. (2010) examined 4-year-old children's justifications in play conversations. The extracts of conversation reproduced in that article reveal that evaluative language was a focus of their talk, but the study does not comment on any systematic framework for cataloging the evaluative language resources.

From the work of Painter, (2003) we know that children begin making evaluations from a very young age. They start with expressions of affect and extend these to include both appreciation and judgement by the age of 2 years. They can communicate a greater variety of evaluative meanings when in a supportive situation and use nonlinguistic means when their vocabularies fall short of their communicative intentions. Even though the research on the talk of children the early years of school (Cobb-Moore et al., 2009; Kyratzis et al., 2010; Shiro et al., 2019) does not use Martin and White's (2003) framework, we can glean from these studies that evaluative language plays a role when children encounter conflict as they express emotion and desires (affect), when they want to add emphasis (graduation) and when they provide justifications. Two issues arise from this brief review, first that the studies of school-aged children do not focus on supportive contexts, which is in contrast with the studies of younger children. Supportive contexts, like friendships, are worth investigating. Second, except for Painter's (2003) work, the studies reviewed above do not use the appraisal theory. Banari et al. (2017) note the multiplicity of frameworks that are applied in the study of evaluation resources. They claim that this assortment of approaches makes it difficult to synthesize understandings about the use of these important resources. They claim that the appraisal theory provides detailed and systematic framework to support the study of evaluative language. In response to these two issues, this research draws on the appraisal framework to structure an analysis of how children, in the first year of school, use evaluative language in their friendship conversations.

### 3. Methodology

The current research is part of a larger study on the conversations of young children in play situations. Ethics approval was obtained from the Human Research Ethics Committee of the university where the researcher was based at the time of the data collection. Also, the research complied with the ethics guidelines of the Department of Education to which the schools belonged. Informed consent was obtained from parents/carers of all the participating children and their teachers. The children were given control over whether and when they participated.

#### 3.1. Participants

The data were taken from a larger study. The participants were 51 5-to-6-year-old children ( $M = 69.18$  months,  $SD = 3.59$  months) who were in their first year of school in Queensland, Australia. The children specified the level of friendship they shared with other children in the class, selecting from the descriptors 'very good friend,' 'friend,' or 'just a little bit friend.' High-level friendships were those in which the children had mutual nominations of 'very good friend.' High-level friendships had previously been found to have conversations with more topic maintenance (Hoyte, Degotardi, & Torr, 2015), more diverse use of vocabulary (Hoyte, 2014), and more sophisticated use of modal language (Hoyte, Torr, & Degotardi, 2015), so high-level friendships were chosen for this exploratory study. The results could inform future analyses that investigate a larger number of friendship conversations and explore differences between high- and low-level friendships.

### 3.2. Data Collection

Informed consent was obtained from the children's parents or carers. Because it is important that children have control over their own participation (Dockett, Einarsdóttir, & Perry, 2012), each time there was a research-based activity, the children were invited to take part. The researcher also explained that they could go back to class at any time during the activity. This approach gave the children agency over their participation.

The children were invited to play for 30 min, with a basket of open-ended play resources. Open-ended resources allow children to negotiate topics of mutual interest (Trawick-Smith, Russell, & Swaminathan, 2011). It comprised a box of small, colourful building blocks supplemented by collections of items such as pebbles, tiny carpet squares, and pegs. The children were recorded using a small video-camera placed at the edge of the play space. They had time to explore the video recorder and talk about it before it was placed in an unobtrusive position. I spent time in the classroom over a few weeks before the data collection so that they could become accustomed to my presence in the class and I kept a low profile during their play, responding briefly to the comments and questions.

The talk was transcribed adapting the conventions of Eggins and Slade (2004). Each independent or main clause had its own line. The embedded clauses were included in the same line as the embedding main clause. The clause fragments, ellipsed clauses, and minor clauses were each recorded on separate lines. These components included false starts, exclamations, and some minimal responses. As an indicator of the amount of talk, the number of the independent clauses, addressed to each other (rather than to the researcher) was calculated for 22 high-level friendship conversations ( $M = 126.59$ ,  $SD = 50.27$ ). The short pauses were marked by a series of dots, long pauses were timed, and the rising intonation was indicated using a question mark. The comments in square brackets added detail about the children's actions and gestures where it added clarity to the conversation.

### 3.3. Method of Analysis

The two high-level friendship conversations were selected because an initial reading revealed good examples of appraisal being used to build common ground. Extracts from these two conversations became the focus of closer investigation. The start of each extract was determined by one of the children introducing a new idea, asking for new information or requesting an action that indicated a new direction for the play. The end of the extract was marked by some form of resolution, such as an agreement, or the following utterance initiated a new topic or course of action.

Table 1 includes details of the children's ages and the location of the school. The children's talk in each extract was coded for attitude, using the categories outlined in Figure 1, including whether the evaluation was negative or positive. For some of the extracts, graduation was also coded because the presence of grading flagged that a particular comment was evaluative. Some of the utterances involved ellipsis in which the evaluative meanings could be retrieved from an earlier utterance. In this case, the coding was placed in parentheses, for example, (+des) as in Table 2, Line 137:

Table 1. *Details of the Children*

Friendship Pair	Child	Age in months	Child	Age in months	Location
1	Shona	69	Lilly	72	Suburban 1
2	Keenan	73	Nick	65	Regional

The extracts taken from these two high-level conversations will be examined to address the three research questions.

1. Does the use of appraisal add to the experience of play? If so, in what way?
2. Does the use of appraisal contribute to extending turn-taking?
3. Does the use of appraisal contribute to establishing some 'common ground' or shared understanding?

## 4. Results

### 4.1. Shona and Lilly

Shona and Lilly begin their play exploring the resources in the basket. In Clause 53, Shona suggests a castle theme for their play and a few turns later, Lilly expresses agreement. The castle theme is pursued in the conversation

before the extract in Table 1. In this extract, they start exploring characters in the castle theme and evaluation has an important part in the developing the conversation.

Table 2. *Shona and Lilly: Extract 1*

Conversation	Attitude		
	AF	JT	AP
135 Lilly What's your <b>favourite</b> person?			+react
136 Lilly Is it a princess?			
137 Lilly <b>Mine's a princess and a queen</b>			(+react)
138 Shona I <b>like princesses and queens</b>	+des		

In this extract, Lilly uses appreciation when she invites Shona to offer an evaluation. When there is no response, Lilly suggests *a princess* and, then, offers her own preference (*a princess and a queen*). After some effort from Lilly, Shona's reply draws on affect. In this extract, evaluations are the focus of the shared understanding and the turn-taking also revolves around the expression of evaluations.

Shortly after this extract, Lilly introduces the idea of extending the *castle* by adding *a garage*. Table 2 shows the girls using appraisal resources to negotiate what they will build and establish common ground in their interaction.

Table 3. *Shona and Lilly: Extract 2*

Conversation	Attitude		
	AF	JT	AP
147 Lilly No ... I only <b>need a</b> garage because castles have garages	+des		
148 Shona Sometimes hey?			
149 Lilly Yeah			
150 Shona Some castles have			
151 Shona Some castles don't			
152 Lilly And <b>we want</b> ours to be a garage	+des		
153 Shona <b>I hope</b> this won't fall down	+des		
154 Shona Now this is where the princess ... this is where she sleeps			
162 Lilly Now this is <b>a good garage</b>			+val
163 Lilly We need some blocks to go all the way up			
164 Shona Aw ... <b>it's wrecked</b>			-val/-com
165 Lilly <b>I know</b> ... some do that			(-val)
170 Shona <b>I need</b> another squishy one Oh	+des		
171 Lilly <b>Do you want a big*</b> garage?	+des		+val
172 Shona That doesn't			
173 Lilly <b>Do you want ... do you want this big</b> garage?	+des		+val
174 Shona Yes			

\**Big* has been coded as a positive appreciation invoked by the inclusion of the positive affect.

Lilly makes several attempts to get Shona to join in with her idea to build a garage. In this play context, negotiating their joint construction successfully is one way to keep the play going and to develop a shared experience. Initially, Lilly makes her point of view known using affect, expressing her desire for a garage. Then, her efforts repeat an expression of affect but explicitly include Shona as wanting and hoping the same things as she does. When this does not achieve agreement from Shona, Lilly expresses appreciation of the garage. In Lines 171 and 173, Lilly combines both affect (*want*) and appreciation (*big*). The resources of attitude provide Lilly with a variety of ways she can express her preferences. These resources allow her to be persuasive without being repetitive. They enable her to make the garage idea more appealing by having her utterance foreground the desirable quality of being *big*. Lilly's efforts to engage Shona meet with success when Shona agrees to Lilly's plan in Line 174.

Throughout this segment of interaction, Shona seems noncommittal at best or even to be ignoring her friend's suggestions. In the face of this lack of reciprocity, Lilly persists to find ways to encourage a response from Shona. In

addition, she is very responsive to Shona's comments in lines 148 and 151 and when Shona makes an appreciation comment about the collapsed construction in Line 164, Lilly affirms this evaluation. In Extract 2, resources of evaluation play a prominent role in Lilly's utterances that strive for reciprocity and to negotiate a shared direction for their play.

During subsequent moves in the play, the girls each become engrossed building different things which continues in the third extract recorded in Table 4. Even though they remain committed to separate ideas, they affirm their common ground by sharing an evaluation of the whole experience in Lines 418-419:

Table 4. *Shona and Lilly: Extract 3*

Conversation	Attitude		
	AF	JT	AP
402 <i>Lilly</i> Well help me			
403 <i>Lilly</i> Because I'm making a car park			
404 <i>Shona</i> But I <b>want</b> to make a castle ... a <b>different</b> castle ... a <b>real</b> castle	+des		+ comp +val
405 <i>Lilly</i> Can I have those please?			
406 <i>Lilly</i> Yes			
407 <i>Lilly</i> I've got an idea			
408 <i>Lilly</i> I need all of them	+des		
409 <i>Shona</i> OK ... that's what I was thinking			
410 <i>Shona</i> So I don't need some more	-des		
411 <i>Shona</i> And I don't know what to do with these			
412 <i>Shona</i> I'm going to do it <b>different</b> ... a <b>real</b> castle			+ comp +val
413 <i>Lilly</i> I'm going to make a car park			
414 <i>Lilly</i> Do you ... do you <b>want</b> to use this for your castle?	+des		
415 <i>Shona</i> No thanks			
416 <i>Lilly</i> I'm just going to leave them there ... OK ... OK?			
417 <i>Lilly</i> Those are the spares			
418 <i>Lilly</i> <b>Man I like</b> it here	+sat		
419 <i>Shona</i> And <b>me</b>	+sat		

Lilly's initial attempts (Lines 402-407) to bring Shona into alignment with her own ideas meets some resistance. Shona expresses her commitment to building a castle (and by implication, not a car park) using a cluster of appraisal resources in the one utterance. In Line 404, Shona combines affect and two statements of appreciation. When Lilly doesn't respond to Shona's expression of a preference, Shona repeats her two statements of appreciation in Line 412. Lilly persists with her own preference for building a car park. The failure to align their play could be problematic for their continuing play, but in lines 414 and 416, Lilly tries a different approach to achieving some common ground. She offers to share resources with Shona, using affect to do so. This attempt to get Shona 'on the same page' has not worked either. Lilly's next comment, in Line 418, provides a statement of affect about the whole play opportunity. This evaluation is affirmed by Shona. In this extract the girls' togetherness was challenged by their commitment to their individual ideas. After some failed attempts by Lilly to bring Shona around to her position, the segment of play concludes with a very positive and shared expression of affect.

In Extract 3, the expression of affect and of appreciation are important resources the children call on in their efforts to establish common ground and around which turn-taking unfolds. In addition, the girls use affect to express their individuality (preference for car parks or castles) and to reaffirm their togetherness (their shared enjoyment of the experience).

In Extract 4, the girls use judgement resources. A segment of very repetitive conversation occurs before Lilly makes a judgement of Shona's behaviour. Shona also joins in using judgement resources:



Table 4. *Shona and Lilly: Extract 4*

Conversation	Attitude		
	AF	JT	AP
480 <i>Lilly</i> I and my mum make names up			
481 <i>Shona</i> Who?			
482 <i>Lilly</i> I and my mum			
483 <i>Shona</i> Who?			
484 <i>Lilly</i> My mum			
485 <i>Shona</i> Who?			
486 <i>Lilly</i> My mum			
487 <i>Shona</i> Who?			
488 <i>Lilly</i> My mum			
489 <i>Shona</i> No			
490 <i>Lilly</i> Yes			
491 <i>Shona</i> Who?			
492 <i>Lilly</i> My mum			
493 <i>Shona</i> Who?			
494 <i>Lilly</i> Stop ... it's <b>annoying</b>		-prop	
495 <i>Shona</i> You're <b>funny</b>		+cap	
496 <i>Lilly</i> Your brother's <b>annoying</b>		-prop	
497 <i>Shona</i> No ... your brother's <b>annoying</b>		-prop	
498 <i>Lilly</i> I don't have a brother			
499 <i>Shona</i> What about your cousin's <b>annoying</b> ?		-prop	

At the start of this extract, rather than playing with the resources, the repeated question and answer routine is playful, at least, for Shona. When Lilly loses patience, she uses judgement to let Shona know her feelings about her friend's behaviour. In the utterances that follow, the expression of judgement becomes the focus of the talk as they take turns to make judgements. Whereas the criticisms of each other could conceivably threaten the conversation, both girls employ strategies that seem to deflect any negative consequences of their comments. Shona adds a more positive judgement (*you're funny*) and Lilly shifts the focus of the criticism to the behaviour of someone outside the conversation (*your brother's annoying*). This strategy seems to move the interaction on to less threatening territory, with Shona making her use of judgement in Line 499 into a suggestion, seeking confirmation from Lilly. In Lines 494-499, affect is the focus of the interaction that constitutes their conversation. The trading of judgement keeps them talking, it keeps them engaging with each other in the playful context. Even though annoying behaviours and being criticised could threaten their togetherness, the girls find ways to avoid such a breakdown. The girls adjust their use of affect rather than stopping it during this part of the conversation. Lilly uses it to express her feelings about Shona's behaviour on one hand and, then, both Shona and Lilly use it to find a shared perspective they can both safely agree with.

#### 4.2. *Nick and Keenan*

Nick and Keenan also share a high-level friendship. Throughout the conversation Keenan is the more vocal partner, but Nick is also very involved in the play. They use evaluative language in several segments of their conversation. They start their play together by exploring the resources and using them to build towers, stacking various bits and pieces on top of each other.

In this segment, right at the start of their play, the boys are both building separate constructions with Nick very engrossed in his own. Keenan keeps a close watch on Nick's construction while he provides a commentary on his own efforts. In this extract, Keenan uses evaluative language when he tries to attract Nick's attention and involvement. He also seems to use evaluative language to create or emphasise a sense of excitement. These two endeavours may constitute efforts to keep the play going and make it a rewarding activity:

Table 5. *Nick and Keenan: Extract 1*

Conversation	Attitude			Graduation	
	AF	JT	AP	FR	FC
8 <i>Keenan</i> I'm trying to make this <b>as tall as I can</b>			+val	+int	
9 <i>Keenan</i> It just fell down					
10 <i>Keenan</i> I'm trying to make this ... <b>just tall</b>			+val		+sh
11 <i>Keenan</i> I'm trying to make this <b>as tall as I can get it</b> [11 was addressed to the researcher.]			+val	+int	
12 <i>Adult</i> Mmm					
13 <i>Keenan</i> I'm trying to get it <b>taller than anything</b>			+val	+int	
14 <i>Keenan</i> I'm trying to get it <b>taller than you</b> [14 is said with Keenan looking at the researcher.] [Keenan looks over at Nick's construction.]			+val	+int	+sh
22 <i>Keenan</i> Hey ... Nick how did you get <b>it that tall?</b>			+val	+int	+sh
23 <i>Keenan</i> <b>Very tall</b>			+val	+int	
24 <i>Nick</i> <b>Tall as this</b>			+val	+int	+sh

In this extract, appreciation has a central role in Keenan's commentary on his construction and his request to Nick. When Nick responds, he also uses appreciation. In this analysis tall and taller are invoked appreciation. While **tall** does not always convey attitude when graduation is included (e.g., *as tall as ...*, *taller than ...*), the intensification of the quality indicates attitude is involved. Martin and White (2005) comment that when grading is added to a word that may not always convey attitude and, then, that grading 'flags' or connotes attitude (p. 66). The flagged attitude is repeatedly used by Keenan in his efforts to build the excitement and to engage Nick. In the last utterance in this extract, Keenan uses appreciation to affirm Nick's construction and to invite Nick to contribute to the conversation.

Despite Keenan's efforts, Nick is still engrossed in his own construction. In the next extract, Keenan continues his efforts to engage Nick, using evaluations. In response to Keenan's comments in Line 35, Nick turns his back on his own construction and watches his friend's building:

Table 6. *Nick and Keenan: Extract 2*

Conversation	Attitude		
	AF	JT	AP
32 <i>Keenan</i> Ooh it fell down			
33 <i>Keenan</i> Prob'ly put it up there so it doesn't fall off			
34 <i>Keenan</i> Look what I'm thinking off Nick			
35 <i>Keenan</i> So it doesn't fall over [Nick turns to look.]			
36 <i>Keenan</i> It won't fall over now			
37 <i>Keenan</i> It's <b>balancing</b> [Nick turns back to his own construction and Keenan keeps building his.]			+comp
38 <i>Keenan</i> Look <b>how high</b> I'm getting mine Nick			+val
39 <i>Keenan</i> Aahh!! that's <b>so high</b> [It falls.]			+val
40 <i>Keenan</i> Nick you look how I can get it			
41 <i>Keenan</i> <b>Really high</b> [It falls over.]			+val
42 <i>Keenan</i> Ohh			
43 <i>Keenan</i> Nick you watch			
44 <i>Keenan</i> Nick you watch <b>how high</b> I can get it			+val
45 <i>Keenan</i> Nick watch <b>how high</b> I can get it oh oh oh ... ooh			+val
46 <i>Keenan</i> Nick you watch			
47 <i>Keenan</i> It's <b>pretty high</b> Nick			+val
48 <i>Keenan</i> Nick look <b>how high</b> it is			+val
49 <i>Keenan</i> It's getting <b>really high</b> isn't it?			+val
50 <i>Keenan</i> It's getting <b>high</b>			+val
51 <i>Keenan</i> Oh Nick it fell down			

In this extract, Keenan continues to be the more vocal partner. He provides a commentary on his own construction and many of his comments include evaluation. The appreciation in this extract is also flagged, due to the graduation added by the words such as how, so, pretty and really. Repetition of positive evaluation builds the excitement in the situation and when Keenan invites a response from Nick in Line 49, it is evaluation that he is being invited to share. The conversation and play between these two friends revolve around appraisal.

In the following discussion about a past event and the nature of their friendship, affect, judgement, and appreciation are all employed:

Table 7. *Nick and Keenan: Extract 3*

Conversation	Attitude			Graduation	
	AF	JT	AP	FR	FC
147 <i>Nick</i> Someone said you <b>not my best friend</b> no more			-val	+int	+sh
148 <i>Keenan</i> I am					
149 <i>Nick</i> Why Emma said you <b>not my best friend</b> no more?			-val	+int	+sh
150 <i>Keenan</i> I am I said					
151 <i>Keenan</i> I said I'll ... um you'll ... I'll be your <b>very very best friend</b>			+val	+int	+sh
152 <i>Nick</i> Emma said to me Keenan's not ... you <b>not my best friend</b> no more			-val	+int	+sh
153 <i>Keenan</i> Well I was					
154 <i>Nick</i> You <b>tricking</b> me		-ver			
155 <i>Keenan</i> No ... I'm not					
156 <i>Keenan</i> Emma was <b>tricking</b> you		-ver			
157 <i>Keenan</i> I said you're <b>my best friend</b>			+val	+int	+sh
158 <i>Keenan</i> I would never say you're not					
159 <i>Keenan</i> You're <b>my best friend</b>			+val	+int	+sh
160 <i>Keenan</i> I'll <b>always like</b> you cause you're my cousin	+ des			+int	

In this exchange, both the boys provide comments about friendship. Although friend is ideational, it connotes positive valuation, a friend is a valued relationship, a good thing to have. When friend is coupled with the graduation of best and very best, the positive valuation is emphasized. The boys' comments could also be interpreted as examples of judgement, continuing to be a friend suggests a positive judgement of propriety (it is a decent thing to do to be a friend). Ceasing to be a friend would accrue a negative judgement with respect to tenacity, flagged with the use of no more in Line 152 (it is not good to stop being a best friend once you have started). Tricking or lying about being a friend would be judged as negative in terms of veracity and/or propriety. In this section of talk, the children weave together their use of the resources of appraisal. In doing so they achieve the types of evaluations they want to make (judgements of behaviour), even if they are not using the lexical resources available in adult language (e.g., words like unfaithful or disloyal). This is a pattern of usage identified by Painter (2003) which the children in her study employed when they had not yet acquired from the adult language to suit their evaluation intentions.

Evaluations are important in all three extracts and across these sections of talk; the boys use a range of attitude types. In the first two extracts, the evaluation focuses on their construction activity. In the last extract, the evaluation centers on their experience of friendship. In all the extracts, appraisal is an important part of their interactions, triggering turn-taking and playing a part in their shared experiences.

## 5. Discussion

This study set out to explore the ways in which evaluative language might add to the experience of play between friends. Martin and White (2005) propose that the resources of appraisal are important tools for managing relationships. Although only using a small data set, this study showed how appraisal resources may have aided turn-taking and establishing 'common ground,' both of which contribute to play and friendship.

The first observation was that evaluative language was central to the children's efforts to draw their friend into the conversation. When the children try to encourage their friend into a shared play scenario or to take a turn, they use evaluation resources. Specifically, they use attitude to invite alignment. For example, Keenan is much more talkative than Nick, but his commentaries invite Nick to join in and appreciation is at the core of this invitation.

Furthermore, whereas the children seem to use attitude to build alignment, they do not always start with the same evaluations and may need to work hard to find a shared position. Lilly and Shona maintain different evaluations in their Extract 3, they persist with their individual preferences for building car parks vs. castles. However, after an exchange of different opinions they very quickly express the same attitude to being in the play situation. In the third extract from the boys' conversation, Nick uses a reported evaluation of their friendship (from Emma) to challenge Keenan three times. He also makes his own negative evaluation of Keenan's fidelity. Keenan works very hard to refute the claims. Whereas Nick makes four negative evaluations, Keenan makes four positive evaluations of his friendship for Nick, one statement of negative evaluation of Emma and five extra denials of Nick's accusations. It seems that when these children encounter different perspectives from their friend, one of them, at least, makes a concerted effort in their talk to establish a shared evaluation.

Across both play conversations, affect, judgement, and appreciation may be used in different ways. They use affect in ways that try to build togetherness and to invite the partner to take a turn in the talk. The children reveal what their individual likes and wants, but they also inquire into or invite their friend to communicate their likes and desires. Appreciation is the most frequently used Attitude resource that the children use to create a play scenario in mutually agreeable ways. Lilly makes positive descriptions of the things she wants to create, perhaps by way of persuading Shona to switch from castle-building to make garages/car parks. Keenan uses appreciation to increase the drama and excitement as he provides a commentary on his building, perhaps trying to entice a response from Nick. Judgement is also part of these conversations. Negative judgements are made in each conversation (*you're annoying* and *you're tricking*). These accusations could threaten the friendship and need to be managed. The play pairs each find their own way to address the criticisms so that the friendship is not undermined. When judgements are made, the turn-taking seemed to be more reciprocal, perhaps a criticism demands a response more than other types of evaluation.

Attitude resources are front and centre in the relationship work children are doing when they play and talk together. Healthy friendships rely on mutuality and these young friends use evaluation resources in ways that keep the relationship responsive to the other and open to negotiation. Play frequently involves high levels of emotion, and evaluation in their commentaries adds excitement to the play which may work to attract and keep each other's attention.

## 6. Conclusion

Research shows that friendships are important in young children's lives for their well-being, for language and literacy development, for social and emotional growth and for their success in school (Dunn, 2004; Vincent et al., 2016). Bernstein's (2000) claim that education should be concerned with children's social inclusion, as well as their personal enhancement and active participation in the world, encourages us to consider how we can support children's social lives. Understanding how they navigate friendships and the place of language within this is both fascinating and important. The appraisal framework from Martin and White (2005) provides tools to facilitate a detailed, systematic investigation of evaluation resources that children employ to manage relationships throughout their lives, resources that they will need as they engage in learning and literacy in school contexts. This article is a preliminary exploration into young children's use of evaluation in talk with each other. It focuses on a time in children's lives where they are starting to learn how to initiate and maintain friendships. Analysis of the selected extracts demonstrates that appraisal resources of attitude contribute to the children's play and relationships. Future research needs to examine the use of engagement and graduation and execute a more systematic analysis of whole conversations. Most importantly, a systematic comparison between high-level and low-level friendship conversations would be a valuable next step to investigate the ideas raised in this article. I hope the current analysis reveals to the reader that these four young friends made skillful use of evaluative language, and that the appraisal theory offers a valuable resource to support further investigation into how levels of friendship might influence children's use of evaluative language.

### Acknowledgments

I would like to acknowledge the enthusiasm and trust of the children who participated in this project. I also acknowledge the generosity of the teachers who invited me into their classrooms and accommodated me in the timetables so that the children could get to know me and share their friendship talk. The research was also made possible by the cooperation of the principals who welcomed me into their schools.

Thank you to the reviewer who provided very detailed feedback and insights to extend my analysis.

### Conflict of Interest

There were no conflicts of interest in this study.

### Ethics Board Approval Statements

Ethics approval was granted from Macquarie University Human Ethics Committee.

### Funding

The data for this study were collected with the funding support from an Australian Postgraduate Award Scholarship.

### References

- Banari, R., Bardide, A., & Bordbar, A. (2017). A comparative study of attitudinal language employed by English and Persian writers in academic writing. *Journal of Research in Applied Linguistics*, 8, 150-163. <https://doi.org/10.22055/rals.2017.12919>
- Bernstein, B. B. (2000). *Pedagogy, symbolic control, and identity: Theory, research, and critique*. London: Rowman & Littlefield.
- Blum-Kulka, S., Huck-Taglicht, D., & Avni, H. (2004). The social and discursive spectrum of peer talk. *Discourse Studies*, 6(3), 307-328. <https://doi.org/10.1177/1461445604044291>
- Brogaard-Clausen, S., & Robson, S. (2019). Friendships for well-being?: Parents' and practitioners' positioning of young children's friendships in the evaluation of wellbeing factors. *International Journal of Early Years Education*, 27(4), 345-359. <https://doi.org/10.1080/09669760.2019.1629881>
- Bulotsky-Shearer, R. J., Manz, P. H., Mendez, J. L., McWayne, C. M., Sekino, Y., & Fantuzzo, J. W. (2012). Peer play interactions and readiness to learn: A protective influence for African American preschool children from low-income households. *Child Development Perspectives*, 6(3), 225-231.
- Carter, C. (2021). Navigating young children's friendship selection: Implications for practice. *International Journal of Early Years Education*, <https://doi.org/10.1080/09669760.2021.1892600>
- Christie, F. (2002). *Classroom discourse analysis: A functional perspective*. New York: Continuum.
- Cobb-Moore, C., Danby, S., & Farrell, A. (2009). Young children as rule makers. *Journal of Pragmatics*, 41(8), 1477-1492. <https://doi.org/10.1016/j.pragma.2007.04.013>
- Coelho, L., Torres, N., Fernandes, C., & Santos, A. J. (2017). Quality of play, social acceptance and reciprocal friendship in preschool children. *European Early Childhood Education Research Journal*, 25(6), 812-823. <https://doi.org/10.1080/1350293X.2017.1380879>
- Coplan, R. J., & Arbeau, K. A. (2009). Peer interactions and play in early childhood. In K. H. Rubin, W. M. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and group* (pp. 143-161). New York: The Guilford Press.
- Corsaro, W. A. (2003). *"We're friends, right": Inside kids' culture*. Washington: Joseph Henry Press. <https://doi.org/10.17226/10723>

- Danby, S., Thompson, C., Theobald, M., & Thorpe, K. (2012). Children's strategies for making friends when starting school. *Australasian Journal of Early Childhood*, 37(2), 63-71. <https://doi.org/10.1177/183693911203700210>
- Degotardi, S., & Torr, J. (2007). A longitudinal investigation of mothers' mind-related talk to their 12- to 24-month-old infants. *Early Child Development and Care*, 177(6-7), 767-780. <https://doi.org/10.1080/03004430701379280>
- de Haan, D., & Singer, E. (2001). Young children's language of togetherness. *International Journal of Early Years Education*, 9(2), 117-124.
- Dockett, S., Einarsdóttir, J., & Perry, B. (2012). Young children's decisions about research participation: Opting out. *International Journal of Early Years Education*, 20(3), 244-256. <https://doi.org/10.1080/09669760.2012.715405>
- Drijbooms, E., Groen, M., & Verhoeven, L. (2017). Children's use of evaluative devices in spoken and written narratives. *Journal of Child Language*, 44, 767-794. <https://doi.org/10.1017/S0305000916000234>
- Dunn, J. (2004). *Children's friendships: The beginnings of intimacy*. Oxford: Blackwell Publishing.
- Eggins, S., & Slade, D. (2004). *Analysing casual conversation* (2<sup>nd</sup> ed.). London: Equinox.
- Halliday, M. A. K. (1993). Towards a language-based theory of learning. *Linguistics and Education*, 5, 93-116. [https://doi.org/10.1016/0898-5898\(93\)90026-7](https://doi.org/10.1016/0898-5898(93)90026-7)
- Halliday, M. A. K., & Matthiessen, C. M. I. M. (2004). *An introduction to functional grammar* (3<sup>rd</sup> ed.). London: Hodder Arnold.
- Heimans, S., & Singh, P. (2020). Schooling and poverty: Rethinking impact, research and social justice. *Asia-Pacific Journal of Teacher Education*, 48(1), 1-14. <https://doi.org/10.1080/1359866X.2019.1700907>
- Heimans S, Singh P, & Barnes A. (2020). Researching educational disadvantage: Concepts emerging from working in/with an Australian school. *Improving Schools*. <https://doi.org/10.1177/1365480220938892>
- Howes, C. (2009). Friendship in early childhood. In K. H. Rubin, W. M. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 180-194). New York: The Guilford Press.
- Hoyte, F. (2014). *Using their words: Young children's language in friendship and play*. Unpublished doctoral dissertation, Macquarie University.
- Hoyte, F., Degotardi, S., & Torr, J. (2015). What it is all about: Topic choices in young children's play. *International Journal of Play*, 4(2), 136-148. <https://doi.org/10.1080/21594937.2015.1060566>
- Hoyte, F., Torr, J., & Degotardi, S. (2015). Creating pretence and sharing friendship: Modal expressions in children's play. *International Journal of Early Years Education*, 23(1), 17-30. <https://doi.org/10.1080/09669760.2014.992867>
- Katz, J. R. (2004). Building peer relationships in talk: Toddlers' peer conversations in childcare. *Discourse Studies*, 6(3), 329-346. <https://doi.org/10.1177/1461445604044292>
- Kyrtzsis, A. (2004). Talk and interaction among children and the coconstruction of peer groups and peer culture. *Annual Review of Anthropology*, 33(1), 625-649. <https://doi.org/10.1146/annurev.anthro.33.070203.144008>
- Kyrtzsis, A., Ross, T., & Koymen, S. (2010). Validating justifications in preschool girls' and boys' friendship group talk: Implications for linguistic and sociocognitive development. *Journal of Child Language*, 37(1), 115-144. <https://doi.org/10.1017/S0305000908009069>
- Ladd, G. W., Kochenderfer, B. J., & Coleman, C. C. (1996). Friendship quality as a predictor of young children's early school adjustment. *Child Development*, 67(3), 1103-1118.
- Laursen, B. (2017). Making and keeping friends: The importance of being similar. *Child Development Perspectives*, 11(4), 282-289. <https://doi.org/10.1111/cdep.1224>
- Llinares, A., & Dalton-Puffer, C. (2015). The role of different tasks in CLIL students' use of evaluative language. *System*, 54, 69-79. <http://dx.doi.org/10.1016/j.system.2015.05.001>

- Martin, J. R., & White, P. R. R. (2005). *The language of evaluation: Appraisal in English*. Houndmills: Palgrave MacMillan.
- Painter, C. (2003). Developing attitude: An ontogenetic perspective on appraisal. *Text*, 23(2), 183-209.
- Pellegrini, A. D. (2013). Play. In P. D. Zelazo (Ed.), *The Oxford handbook of developmental psychology: Self and other* (Vol. 2; pp. 276-299). New York: Oxford University Press.
- Rendle-Short, J., Cobb-Moore, C., & Danby, S. (2014). Aligning in and through interaction: Children getting in and out of spontaneous activity. *Discourse Studies*, 16(6), 792-815. <https://doi.org/10.1177/1461445614546248>
- Read, J., & Carroll, J. (2012) Annotating expressions of appraisal in English. *Language Resources and Evaluation*, 46(3), 421-447. <https://doi.org/10.1007/s10579-010-9135-7>
- Sadri, E., & Tahririan, M. H. (2018). Teacher-assisted vs. peer-assisted performances and L2 development: A mixed methods approach. *Journal of Research in Applied Linguistics*, 9(1), 3-28.
- Shiro, M. (2003). Genre and evaluation in narrative development. *Journal of Child Language*, 30, 165-195. <https://doi.org/10.1017/S0305000902005500>
- Shiro, M., Migdalek, M., & Rosemberg, C. (2019) Stance-taking in Spanish-speaking preschoolers' argumentative interaction. *Psychology of Language and Communications*, 23(1), 184-211. <https://doi.org/10.2478/plc-2019-0009>
- Shiro, M., Hoff, E., & Ribot, K. (2020). Cultural differences in the content of child talk: Evaluative lexis of English monolingual and Spanish-English bilingual 30-month-olds. *Journal of Child Language*, 47, 844-869. <https://doi.org/10.1017/S0305000919000990>
- Smith, P. K., & Pellegrini, A. (2013). Learning through play. In R. E. Tremblay, M. Boivin, & R. D. V. Peters (Eds.), *Encyclopedia on early childhood development* (pp. 1-6). Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development.
- Theobald, M., S. Danby, C. Thompson, & K. Thorpe. (2014). Friendships in the early years. In S. Garvis & D. Pendergast, (Eds.), *Health and wellbeing in the early years* (pp. 115-132). Cambridge University Press.
- Thomas, D. (2015). *Writing for change: Persuasion across the school year*. Unpublished doctoral dissertation, University of Tasmania.
- Thomas, D. P., Thomas, A. A., & Moltow, D. T. (2015). Evaluative stance in high-achieving year 3 persuasive texts. *Linguistics and Education*, 30, 26-41. <https://doi.org/10.1016/j.linged.2015.03.003>
- Trawick-Smith, J., Russell, H., & Swaminathan, S. (2011). Measuring the effects of toys on the problem-solving, creative and social behaviours of preschool children. *Early Child Development and Care*, 181(7), 909-927. <https://doi.org/10.1080/03004430.2010.503892>
- Vincent, C., Neal, S., & Iqbal, H. (2016). Children's friendships in diverse primary schools: teachers and the processes of policy enactment. *Journal of Education Policy*, 31(4), 482-494. <https://doi.org/10.1080/02680939.2015.1130859>
- Wood, E., & Attfield, J. (2005). *Play, learning, and the early childhood curriculum*. London: SAGE.



© 2021 by the authors. Licensee Shahid Chamran University of Ahvaz, Iran. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0 license). (<http://creativecommons.org/licenses/by-nc/4.0/>).

