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iPad Animations: Powerful Multimodal Practices for Adolescent Literacy and Emotional Language

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Abstract

In an age of mobile technologies, digital animation creation can be an important tool for teaching adolescents how to communicate emotions multimodally. This article draws on appraisal theory and original research to illustrate the power of digital animation for multimodal literacy learning. Students from a culturally diverse cohort were taught how to interpret emotions in animated films, and produced 2D cartoon animations using drawings with an iPad application and stylus. The findings show that impassioned multimodal communication is enhanced by knowledge of how feelings produce different facial expressions, gestures, body movements, and physiological changes in characters that are often exaggerated to powerful effect in animations. This includes an ability to invoke different intensities of emotions. The research has significant implications for engaging adolescents in the multimodal communication of emotions and feelings through vocabulary, images, and body language.

Teaser text

Drawing animations on iPads can teach adolescents to invoke and intensify emotions in multimodal communication. View animations created by students in educational research.

Interviewer:

> What are some ways to show someone that you're feeling scared without using the word scared in your writing? Also, body language as well…

Lily:

> Well, usually they try and curl up, sort of, and back up to a wall or somewhere they can see straight in front of them…to block someone from getting behind them. Like, they have their hand like covering their face, or in front of their chest, like they're ready to push someone if it comes near them. They usually…bend their knees and be smaller than usual. Sometimes their arms shake or, like, they quiver, sometimes they bite their lip, like this [shows teeth over bottom lip]. They furrow their eyebrows and they go pale in the face…and on their arms and stuff they get goose bumps. Sometimes they'll even curl into a fetal position…really frightened.

Lily's response above shows her ability to graphically describe the language of fear of characters in written or visual narratives. For example, she provided a descriptive account of frightened body language (back up to a wall, curl up, bending knees to be smaller than usual, fetal position), gestures (hand covering face, hand in front of chest), eyebrow movements (furrow eyebrows), lip movements (bite their lip), face color (pale in the face), and other physiological signs of stress on the body (arms shake or quiver, goose bumps).

This interaction occurred at the end of a series of lessons that taught 12-year-old students a systematic language to describe different emotions in multimodal texts, such as animations, films and stories, based on the attitude network of the appraisal framework by Martin and White (2005). In particular, they learned how to "show" or invoke emotion (e.g. Droplets of perspiration began to trickle down his forehead) and "tell" or inscribe emotion (e.g. He felt terrorized). The students demonstrated their knowledge of the power of emotional language through the creation of their own drawing animations using the iPad application, Animation Creator HD™.

This article draws on examples from original educational research to show the power of animations for learning a multimodal language of emotions. It highlights why the

multimodal language of emotions matters in twenty-first century literacy practices. A systematic framework for talking about the grammar of emotions is outlined, including ways to invoke and inscribe different level of emotional intensity. Examples of students' multimodal and digital animations are provided to illustrate key principles for developing students' language of emotions with digital technologies, with practical examples from educational research for teachers.

Why teach the multimodal language of emotions?

Emotions are steadily becoming a major focus of adolescent language and literacy research worldwide. For example, researchers have observed the role of emotions in adolescents' poetry reading (Eva-Wood, 2008), reading of novels with music (Caswell, 2005), in students' video composition about emotions and geographical places (Mills, Unsworth, Bellocchi, Park & Ritchie, 2014), and in students' photography at school (Mills, Bellocchi, Patulny, & Dooley, 2017). Teaching the language of emotions is critical because students' ability to express their own emotions through speech, writing, and other modes is associated with sustained academic and social achievement (Durlak, Dymnicki, Taylor, Weissberg, & Schellinger, 2011). On the other hand, incapacity to represent and read emotions is linked to poor social outcomes (Banninger-Huber, 1992).

From a social semiotic approach, modes are defined as socially and culturally shaped resources or organized semiotic structures for making meaning. Examples of such modes include written language, speech, gesture, movement, music, mathematical notation, attire, images, and the design of objects and environments (Mills & Unsworth, 2017). Multimodal literacy refers to communication practices that combine two or more modes of meaning (Kress, 2000).

A considerable number of scholars have provided accounts of how multiple modes convey affective meanings across a range of popular texts, such as in picture books (Painter,

Maretin, Unsworth, 2013), Japanese anime (Chandler-Olcott & Mahar, 2003), and in video game animations (Bissonnette, 2011). The Web 2.0 affordances of the internet—the social web that allows user generated content, connectivity, and crowd sourcing—have reduced barriers to participation in youths' online multimodal production in a participatory culture (Jenkins, Puroshotma, Clinton, Weigel, & Robson, 2006). The widespread production and increased circulation of multimodal texts in online communications environments requires the capability to interpret and represent emotions multimodally (Mills, Bellocchi, Patulny, & Dooley 2017). The production and sharing of emotive, multimodal texts, such as animations, has similarly been afforded by the ubiquity of mobile devices, such as tablets and smart phones, with easy-to-use apps for quick and effective digital cartoon animations.

Why teach animation production as a literacy practice for adolescents?

Animations offer new ways of creative production, opening up possibilities for cultural negotiation and identity formation (Shen, 2007). We define animations as socially and culturally established ways of making meaning in a simulation of movement through a series of pictures or frames. Animations play an important role in popular visual culture, alongside comics, fanfiction, Manga, graphic novels, and video games, and can provide opportunities for students to learn about the development of characters and their emotions in narratives (Fukunaga, 2016).

Animation design by adolescents has been researched as a literacy practice around the world. For example, students' access to multiliteracies was researched in the context of a stop-motion movie-making project with culturally diverse adolescents (Mills, 2006). Students in a UK study demonstrated an ability to critically reflect on the creation of their animated movie texts (Burn & Durran, 2006). Animation has more recently been researched as a tool for teaching language with culturally diverse with post-beginner English learners (Hepple,

Sockhill, Tan, & Alford, 2014). Sophisticated multimodal semiotic frameworks have also been developed to describe character development and affect in anime movies (Toh, 2014).

Animations deploy pleasure and affect to engage viewers, and are located in the realm of popular visual culture and contemporary art (Shen, 2007). One of the interesting features of animations is the emphasis on emotional responses of the characters, affording a key site for interpreting facial expressions, gestures and body language. Composing convincing and moving narratives with believable characters requires an ability to indirectly "invoke" emotions by describing how the character behaved (e.g. Emma's eyes misted with tears and her bottom lip trembled as she turned her gaze), as well as directly "inscribing" affect (e.g. Emma was overcome with painful emotions; Martin & White, 2005). The exaggerated facial expressions, gestures, and body language of characters in animations can serve as a springboard for students' development of literary characters in other forms of literary composition.

Expressive animated footage is an ideal medium for teaching emotions because existing research shows the potential of animations to activate areas of the brain associated with emotional reward. In contrast, realistic imagery can create too much visual detail that can distract the viewer's attention from the overall message. Stylized animations can amplify emotional signals, and "emotion drives attention" (Power, 2009, p.115). Similarly, animations are a form of "kineikonic" or "moving image" text that offers more affordances to show dynamic emotional transitions and intensification than a still image (Burn & Durran, 2006). These features make cartoon animations a valuable and inspiring pedagogical site for developing the multimodal expression of emotions.

Animations can also be used to teach semiotic knowledge, such as the multimodal narrative technique of "*point of view" and influence on the viewer's empathy with the focal characters* (Unsworth, 2014). One example of is a first-person viewpoint, where the audience

is positioned as if they are the character, seeing parts of the characters' own hands or feet. This can be compared to a point of view in which the audience sees alongside the character, such as over the shoulder. Such analysis can help students critically recognize the multimodal constructedness of stories and its influence on the emotions of the viewer (Unsworth, 2014). Research has addressed varied aspects of adolescents' animation productions, such as within the Journal of Adolescent and Adult Literacy (e.g. Chandler-Olcott & Mahar, 2003; Fukunaga, 2016; Hepple, Sockhill, Tan, & Alford, 2014; McGuinness, 2007), but research of the visual language of emotions in students' animations is emergent.

Using the appraisal framework: Understanding the grammar of emotions

The system for describing emotional language applied by the teachers and the students in this research was based on Martin and White's (2005) appraisal theory in English—which is a leading theory worldwide for understanding affect in language. The appraisal framework extends the work of others in the Disadvantaged Schools Program Write it Right literacy project, which had important literacy outcomes for students. Systemic Functional Linguistics theorists, Poynton (1990), Rothery and Stenglin (2000), Macken–Horarik & Martin (2003), and Hood (2004), among others, were also part of the development of the work through applied literacy research that demonstrated enhancement of students' writing. Unsworth (2015), White (2005), Economou (2013) and Mills and colleagues (2014) have extended the appraisal framework to accounts of the visual image. This move to account for visual communication of emotions is vital in response to the multiplicity of communication channels and media in which literacy practices occur in the 21st century (New London Group, 2000).

The appraisal framework was central to the analysis of the students' multimodal texts and interview responses in this research, so the theory and its location within Halliday's systemic functional linguistics is outlined here. There are three axes of meanings called meta-

functions that operate concurrently in all language. The ideational is the construction of the nature of events. The interpersonal refers to the construction of relationships, and the textual pertains to the relative information value among textual elements (Halliday & Matthiessen, 2004). The appraisal framework develops Halliday's interpersonal meta-function of language, with a secondary focus on the ideational and textual meanings. Sophisticated knowledge of the interpersonal axes of meaning is central to students' development of believable characters in narratives, and in developing empathy and evoking an emotional response from readers (Su, 2007; Mavers, 2014).

The appraisal system is currently one of the leading frameworks that specifically systematizes a linguistic approach to describe attitudes in discourse semantics. It concerns three interacting elements – attitude, engagement and intensification. Attitude attends to feelings, engagement addresses opinions, and intensification looks at the amplification of meaning, like a cline, continuum, or gradients (e.g. satisfied, indulged, satiated). The attitude network is central to the study of emotions in the present study, because the network attends to three axes of meaning—affect (emotions), judgment (of people), and appreciation (of non-human things)—to communicate interpersonal meaning (See Figure 1; Martin & White, 2005). In some rhetorical studies and linguistics, these three regions are often referred to as 'emotion', 'ethics' and 'aesthetics' respectively.

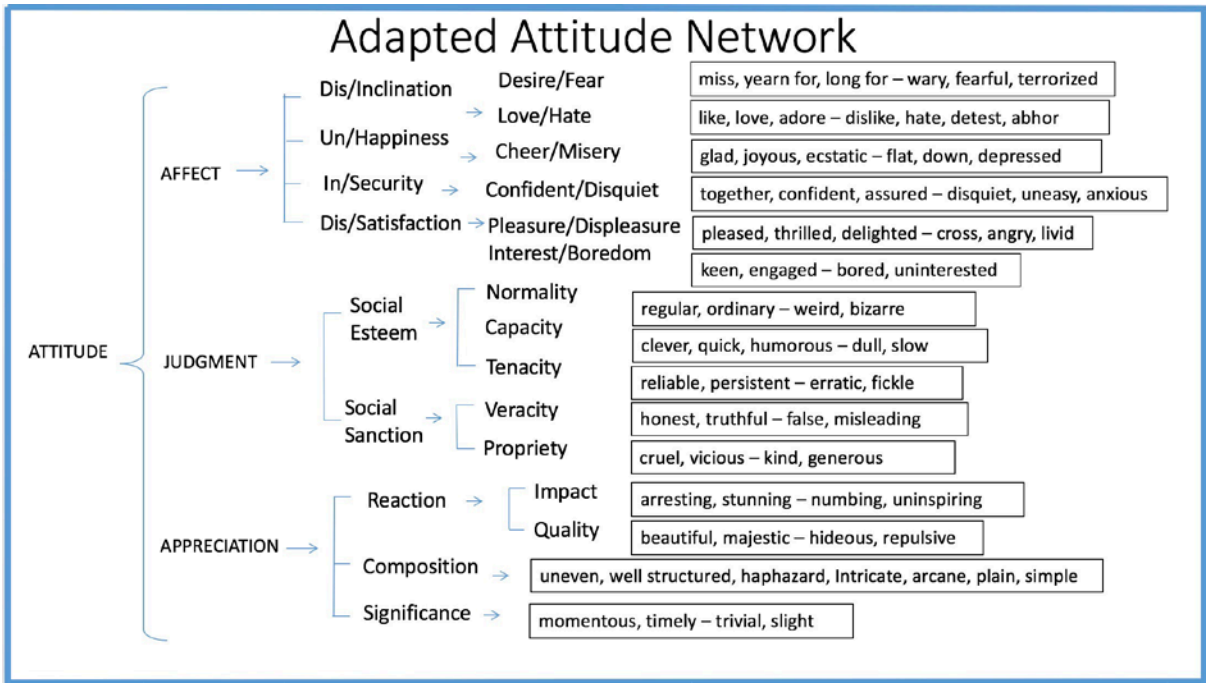

Figure 1 Adapted Attitude Network (Adapted from Martin and White, 2005, p.138)

The relevant dimension of the three-part attitude network to the teaching and analysis of student texts in the current study is the grammar that deals with emotions or affect—language resources to convey positive and negative feelings. The attitude network uses the following broad categories of affect— disinclination/inclination, unhappiness/happiness, dissatisfaction/satisfaction, and insecurity/security—outlining a range of interpersonal meanings and dispositions within these categories (Martin & White, 2005). For example, unhappiness can include feelings of misery (e.g. down, sad, miserable) or antipathy (e.g. dislike, hate, abhor), and happiness can include cheer (e.g. cheerful, buoyant, jubilant) or affection (e.g. fond of, love, adore). The fourth category called dis/inclination, describes *fear* (e.g. wary, fearful terrorized) or *desire* (e.g. miss, long for, yearn for).

Each of these may be descriptions of emotional states (e.g. I was petrified) or behaviors that indicate emotional states (e.g. his hands trembled with fear). The framework addresses language resources to interpret attitudes, but also to indirectly or directly

communicate feelings. Different intensities of the same emotion can also be expressed grammatically using different lexical terms (See Figure 2). For example, a continuum of

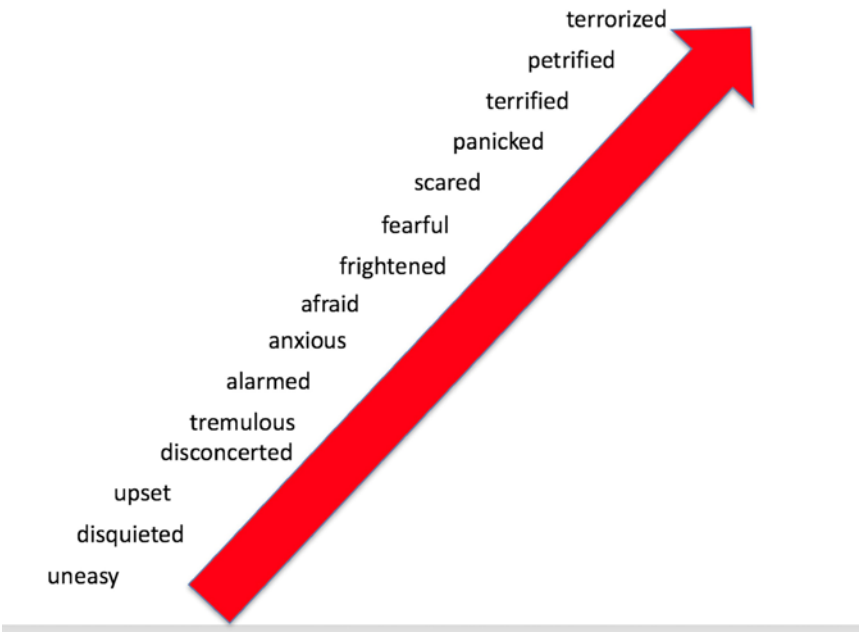

Figure 2 Intensification of Affect

feeling "*scared*" from low to high could be expressed as *disquieted*, *anxious* or *distraught* (Mills, Bellocchi, Patulny, & Dooley, 2017).

These categories of affect are important to the analysis of the students' texts across modes in the current study, including their spoken, written, and visual communication. Part of the significance of our approach was the extension of Martin and White's (2005) linguistic appraisal framework to address the representation of affect through images and bodily communication. The students learned relevant ways to communicate these emotions multimodally, such as through words, visual images, facial expression, posture, movement, color, and music, and to apply relevant knowledge in their animation creations and written texts.

In visual narratives, characters are developed through emotional expressiveness, which is indicated largely through nuanced and authentic representations of body language, such stance, gestures, facial expression, and movement (Su, 2007). Interpersonal

communication in multimodal texts is often supported by the visual mode. For example, 80% of interpersonal communication is communicated through facial expression, gestures and body language compared to 10% of the words (Su, 2007). It is for this reason that the present study applies the attitude network to amplify the power of written and visual communication for the expression of emotions in animations as popular, every day multimodal texts.

Teaching emotional expression through drawing animations

The attitude network was taught to the teachers in the study through a series of professional development workshops and applied in their programs. The following lesson outline was taught to culturally and linguistically diverse students, approximately 12 years of age, and the school was situated in a socially disadvantaged, outer-urban suburb. The students were taught a twelve-hour program implemented over one school quarter. The series of six lessons (2 hours per lesson) aimed for the students to develop a multimodal language for the expression of emotions (words, images, facial expressions, gestures and body language) across a range of media. Students become familiar with the categories of affect in the attitude network: happiness/unhappiness; satisfaction/dissatisfaction, security/insecurity and disinclination/ inclination.

Lesson #1 taught facial expressions for different emotions, expanding the students' range and level of emotive vocabulary. The students were introduced to affect meanings within the attitude network, including language to intensify affect. The students matched new emotive vocabulary to images of faces in printed material (e.g. engrossed, euphoric, despondent), and used vocabulary for lower and higher-level intensities of an emotion (e.g. disgusted, sickened, repulsed). The teacher and students dramatized facial expressions and the class interpreted the emotions.

Lesson #2 taught extended vocabulary, facial expressions, and colors for different emotions. The teacher modelled how to use the emotion language in grammar, and the

students applied this language in their writing of letters to their future selves. They viewed downloaded popular Pixar™ shorts: Blue Umbrella™, Partly Cloudy™, Presto™, The Feast™, Sanjay's Super Team ™, Riley's First Date™, Dug's Special Mission™, and Geri's Game™. The teacher paused the clips at strategic points for the students to interpret the emotion evoked. Students were shown a color wheel to select emotive vocabulary to suit the hue (e.g. red for anger or passion), and explored abstract images or lines to show emotions.

Lesson #3 taught students how to "show" rather than "tell" the emotional states of characters in their stories. This included developing student knowledge of body language for different emotions, while expanding knowledge of emotional expression in animations. The students analyzed the emotional expression provoked by the body language of characters in Pixar movie animations and description of body language in novels, including standing and sitting postures, and obvious and subtle body language. They also learned how to express transitioning body language from one emotional state to another in written and visual modes.

Lesson # 4 extended the students' knowledge of "judgement" in the attitude network to evaluate characters in narratives (Martin & White, 2005), and to apply this knowledge in their writing. They identified judgements of social esteem (e.g. How normal vs special, capable, or dependable is a character?) or judgements of social sanction (e.g. How forthright or ethical is a character?). After viewing animated clips, the students made judgements about the characters: social esteem (e.g. lucky, powerful, brave, timid), and social sanction (e.g. truthful, devious, kind, evil). They identified and provided judgements of characters in written texts.

Lesson #5 involved creating the drawing animations individually on iPads using a stylus. The students were shown simple example animations created by the teacher using the Animation Creator HD™ application to show a character blinking, before displaying an emotion. Students drew simple cartoons because the animation requires redrawing the

character multiple times over a feint outline of the previous drawing, adding subtle face and body movements. When the animation is replayed, the images are joined together in a rapid moving sequence. Students created a second animation to show an emotion intensifying (e.g. down, sorrowful, miserable), or transitioning emotions (e.g. excited to furious).

Lesson #6 provided further opportunities for the students to create animations. The teacher modelled how to draw a "dream bubble" that floats across the screen toward a character. The students simulated the "dream bubble" concept with their characters, events and emotions. They animated the emotions of a character that blinks, followed by an event or trigger as the bubble popped. The students exported their final animations and the teacher compiled them into a single short film for display to different audiences.

Animations draw on the multimodal language of emotions

The students were able to provoke (directly) or invoke (indirectly) a range of positive and negative emotions within the eight major sets of meaning in Martin and White's (2005) typology of affect groups in the attitude network—unhappiness or happiness, insecurity or security, dissatisfaction or satisfaction, and disinclination or inclination. The students created characters with varied facial expressions, body language, postures, and movements to communicate different dispositions and gradients of emotions.

In terms of the variety of emotions evoked in the 60 animations designed by the students, affect meanings included happiness, affection, sadness, surprise, confusion, fear, relief, power, anger, loneliness, embarrassment, disgust, and a neutral disposition. The most frequently represented emotions were negative emotions – anger and sadness. Table 1 provides a summary of the percentage of multimodal texts created by students that applied various types of animation techniques for representing affect (See Table 1).

<Insert Table 1>

Table 1 Analysis of Emotions in Animations

A multimodal analysis of the animations data set demonstrated that the majority of texts attended to narrative representation (92% of texts), and drew on a wide range of animation techniques to typify particular emotions. An analysis of the multimodal language of emotions applied in the animations is illustrated further through a viewing of a sample of three animations and recorded interview responses from students below.

The animation depicted in Figure 3 is a cleverly drawn, color image of an original, geometrical cartoon character that used some of the shape drawing tools (Copy stable link into browser to watch: **http://tiny.cc/a1e7ly**). When the silent animation of melancholy emotions is played, the head shape and torso remain essentially unchanged, while the expression of sorrow is concentrated on the gradual formation of tears in the eyes and subtle changes to the mouth.

Figure 3 Animation of Unhappiness

Luminous tears begin to well up in the vacant eyes before trickling down the character's face, and the neutral lips tremble and become thinner and tighter. This is accompanied by some subtle movement in the jaw. The animation is short, but simple and effective in communicating unhappiness. There is amplification through simplification. The

animation invokes feelings of misery (e.g. down, sad, miserable), which is directed at self, rather than antipathy (e.g. dislike, hate, abhor), which is directed at someone (Martin & White, 2005). This is suggested because there is no other character indicated as a trigger for the emotion. When the students were asked to explain how a character feels when they are melancholy or depressed, two students described:

> Henry:
>
> They're like, slumped forward and their shoulders and arms are just dangling. They look like…they don't really care at the moment, and…usually, when they're sad their eyes aren't wide open, they're more closed. They would ignore eye contact. They would have their head down looking at the floor…Drained—on the verge of crying.
>
> Gemma:
>
> Their shoulders would be down and dragging their legs. Like their lips would be like down and… they would be looking at the ground. Tears… drained, depressed.

This sample of responses shows that the students were able to focus on a range of bodily meanings to describe unhappiness, accounting for posture (slumped forward), gestures (shoulders and arms dangling), eye movements (looking at the ground, eyes not wide open—more closed, ignoring eye-contact), lip movements (their lips would be down), and leg movements (dragging their legs). They were able to supply emotive vocabulary, such as "drained" and "depressed" to describe more intensified feelings of sadness.

The second example depicted in Figure 4 is a student's animation of anger intensifying (Copy link into browser to watch: **http://tiny.cc/7ze7ly**). This sixteen second animation uses a minimalist drawing technique concentrating on variation from frame to frame in the representation of the eyes, mouth, colour and other movement lines to convey growing agitation and annoyance progressing eventually to extreme anger.

Figure 4 Animation of Intensified Anger

The initial image presents the baseline of neutral affect with the eyes as dots and the mouth as a horizontal line. In the first change the eyes become horizontal lines – an ambivalent representation, not yet necessarily revealing anger. The mouth line gradually becomes a long, thin oval shape just showing dots for teeth, and adding pink blotches that move around the sides of the character's face, suggesting the flushed face of anger. The thin oval mouth and dots for teeth becomes a wider, flatter oval, with gritted teeth establishing the angry grimace.

The pink facial blotches become bright red, while the lines above and below the eyes becoming slanted, so the angry grimace is intensified as a sharper angry frown. The red facial blotches and mouth become progressively larger, with a larger 'grill' of teeth visible. Finally, the character's entire body turns bright red. The corrugated hair acquires dynamic wavy yellow corrugated lines of fiery anger. This student has mastered the minimalist animated drawing technique to depict various intensities of emotion from the character being shown as annoyed then progressively angrier, and finally to being hyper furious.

The students were not only able to represent the emotion of anger visually in their animations, but they could describe the embodied rage visibly in their verbal descriptions. This is illustrated in the following student responses to these questions: “What are some ways to “show” rather than “tell” in your writing that someone is feeling angry? Describe what someone might look like when they are angry? What are some other words to use instead of angry?

Charlotte:

> You could explain that they have a red face and their fists are tight…stomping their feet, clenching their teeth like this… [demonstrates show of bottom teeth clenched]. They're tensing all their muscles. They're breathing heavily.

Ella:

> Like, sometimes they clench and unclench their fists repetitively. They try to make themselves look bigger and they stand in a firm way, like, they can't be moved. Sometimes you can see, like, veins on their arms or on their head, and they clench their jaw. They furrow their eyebrows, and might go bright red—taking really deep breaths…infuriated.

Charlotte and Ella primarily describe appearances, actions and physiological processes that would afford inferences about a character’s affective state, in this case anger. They show an understanding of the use of descriptive language to invoke affect. Their responses also suggest that they understand that the repetition of certain gestures are indicative of anger, such as repetitive fist clenching. Another way to show affect is to inscribe affect through explicit use of the vocabulary of emotions, such as feeling annoyed, agitated, or furious. Ella provides one instance of inscribed affect—infuriated.

A third example shown in Figure 5 evokes a more complex combination of transitioning affect categories (Copy link into browser to watch: **http://tiny.cc/2we7ly**). It

begins with a boy experiencing curiosity and amusement as a bubble approaches, temporarily followed by some teary disappointment when the bubble pops. This is quickly turned into surprise, indicated by an open mouth, as a smiling girlfriend appears and embraces the lonely boy. At the midpoint, the narrative evokes a sense of the characters' inclination toward one another, involving the anticipation of affect. At the same time, the emotion state of happiness as affection (e.g. love) is invoked by the smiling faces, the embrace, and the mirroring of

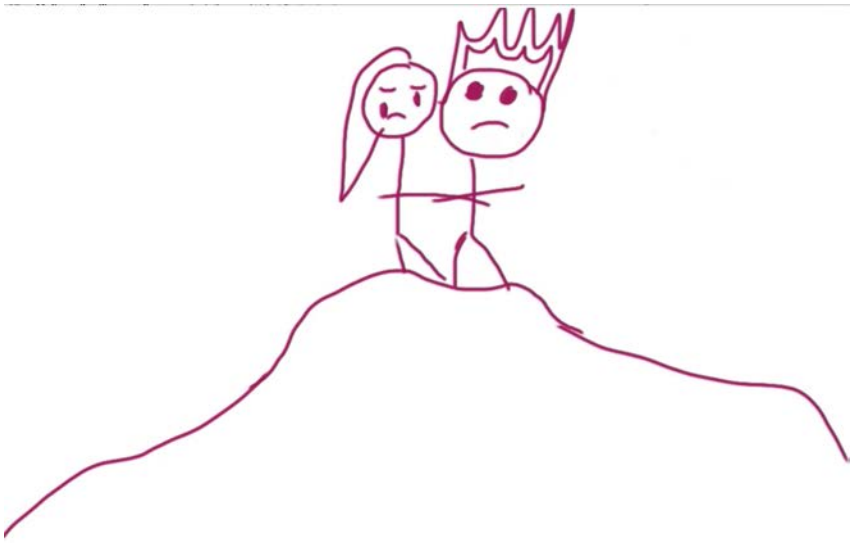

Figure 5 Animation of Mixed Emotions

their facial expressions—blinking and rosy cheek movements in turn. However, their happiness is short-lived as the girl begins to cry and gradually fade away, triggering the boy's downcast eyes and tears that slowly fall to the ground with an exaggerated splash, provoking meanings of unhappiness, loneliness and inclination (e.g. desire—missing girlfriend). This animation uses transitioning emotions to create a moving narrative sequence. Interestingly, transitioning was a common feature of the other student animations (67%). We interviewed the teachers to describe how they continued to teach the students to describe different intensities, levels or degrees of emotions:

Teacher Vanessa:

> We've focused a lot on visual imagery, facial expression, body language and modality, to assist students to understand the different intensity levels and the degrees of emotions…We've used clines to represent the different intensity levels of emotion. So, in terms of the emotion "feeling engaged", they might say, "I am engaged", and then moving along the cline they might say, "I am immersed", or "deep in thought". To show a large amount of emotion they would use words such as, "I feel captivated" or "engrossed" or "fascinated".

A key strength was that before narrative writing the teachers reminded the students to apply the language of emotions that they had learned in the animation work: "We'd often ask them—before they start to do any writing—to think about the emotion clines and the different types of words or the emotion that they want to express, and then really open up the different types of words or the intensity that they could use." One outcome was that the students developed a broadened, nuanced, and more sophisticated repertoire of vocabulary to describe emotions of characters.

> Teacher Vanessa:
>
> Their vocabulary has really improved and we're not having to pull it out of them as much as we were before. It's there now, and we don't have to do as much of the heavy lifting. It's more descriptive as well—it's more entertaining.

In the analysis of the students' pre-test writing samples collected prior to the teaching of the unit, many of the texts made no reference to an emotion. Among the texts that referenced an emotion, only three common affect meanings were applied: "happy", "joy", and "excited". In contrast, the post-test writing samples overwhelmingly included reference to affect, with a much wider range of positive and negative affect vocabulary, and utilizing gradients of emotional intensity and evoked affect in descriptions of body language.

An example of the application of affective language in writing is provided in Chelsea's text below (See Figure 6.0).

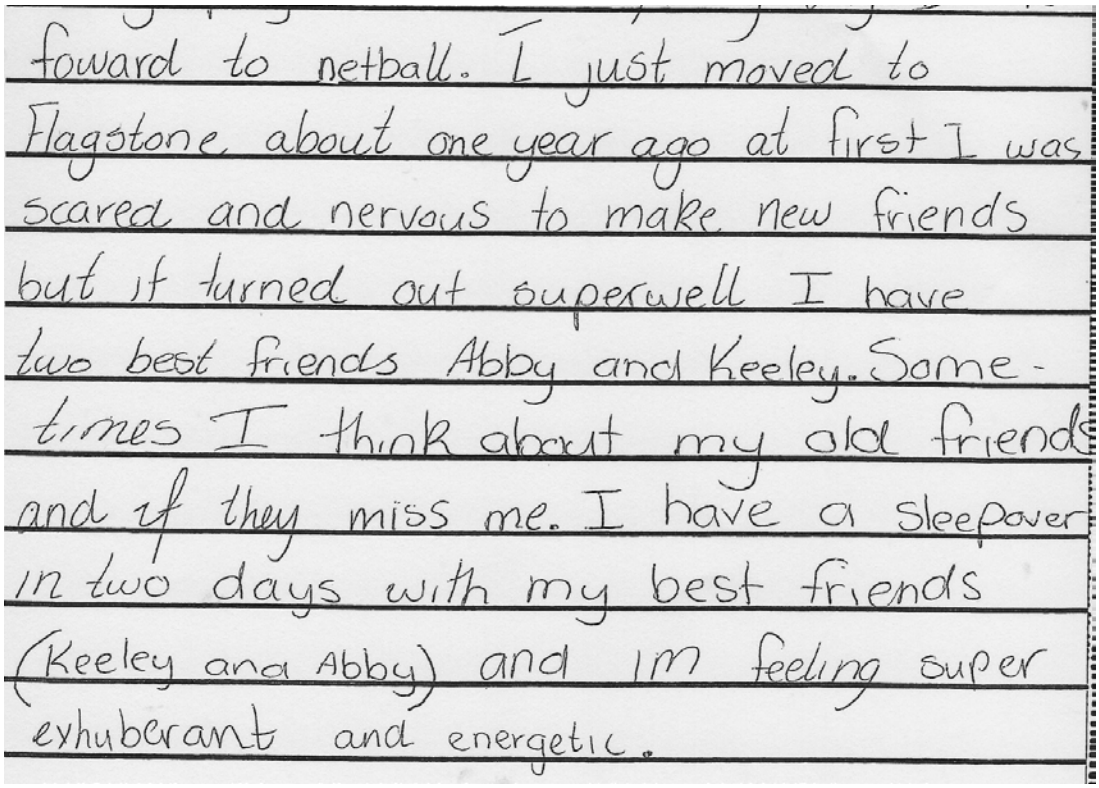
foward to netball. I just moved to Flagstone about one year ago at first I was scared and nervous to make new friends but it turned out superwell I have two best friends Abby and Keeley. Sometimes I think about my old friends and if they miss me. I have a sleepover in two days with my best friends (Keeley and Abby) and im feeling super exhuberant and energetic.

Figure 6 Affect in Chelsea's Written Text

Within the excerpt above, Chelsea's inner thoughts and dispositions associated with moving house are disclosed to the reader. Her writing is not a simple recitation of events, but reveals personal feelings of insecurity: "At first, I was nervous and scared". This expresses disquiet at varied levels of intensity from medium to high. Chelsea also wonders if her old friends "miss her", which is an indication "inclination" associated with her absence (Martin & White, 2005). In the final sentence, Chelsea turns to feelings about her new friends and an anticipated event, which triggers intense feelings of happiness—energy and exuberance.

In a second example, Thomas' personality comes to life as he shares his feelings experienced when playing the drums (See Figure 7):

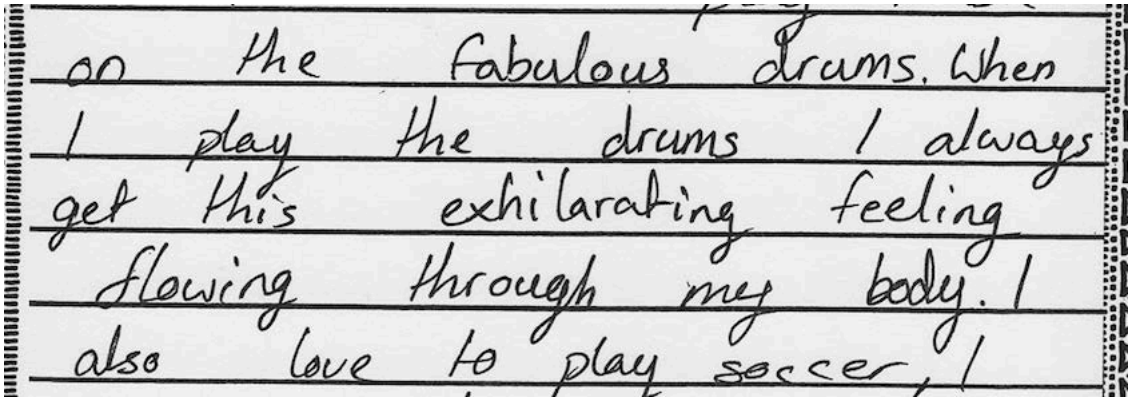

Figure 7 Thomas' Affect in Written Text

Here, Thomas creates interpersonal meanings between the reader and writer by sharing the positive affect that he experiences from the rhythms of his drum, using the phrase "exhilarating feeling flowing through my body". This conveys intense levels of rhapsody and elation that is experienced as a memorable physical sensation. He also expresses his "love" of playing soccer, which is also a high level of positive affect in the happiness affect group (Martin and White, 2005).

Recommendations

More research is needed to understand how students can represent all three axes in the attitude network—affect, judgment and appreciation—across multiple modes and media, such as through written narratives, moving images, film, graphic novels, video games, and animations. While multimodal research has been forged over more than three decades, research of the visual, gestural and other bodily meanings to show emotions in adolescents' literacy practices is still a rapidly developing field. Increasingly, digital imagery practices feature prominently in the lives of young people who have ubiquitous access to the internet via mobile devices, such as phones and tablets, in an age of affective mobile media (Hjorth & Lim, 2012).

It is imperative for educators to take an active role in guiding skillful and enriched use of the grammar of visual images. Research on the appraisal framework applied to moving

images is still emergent, particularly in relation to attitudinal meanings of appreciation and judgment (White, 2005). Teachers and students can build up broadened and sophisticated repertoires of multimodal resources to communicate intensified attitudinal meanings in expert ways, as illustrated here. The changes to the digital communications environment and the very nature of image construction, modification and distribution points to the need for schooling to critically address students' multimodal repertoires of emotional expression.

Conclusion: The multimodal power of animations for emotional expression

This research has demonstrated the power of making animations for the multimodal expression of emotions. It illustrates the useful application of the appraisal framework to provide a language to inscribe or invoke different emotions. It also demonstrates how students expanded their vocabulary for inscribing feelings from low to high levels of intensity. The student animations required the orchestration of semiotic elements to provoke emotions, from the choice of lines and colors, to the subtle facial expressions, body movements, and rhythms that were created in these moving visual texts.

Communication from birth to adulthood is fundamentally multimodal, and non-verbal language is a precursor to speech in human development and socialization (Taglialatela et al, 2011). Animation creation is also fundamentally multimodal, inviting frame-by-frame construction of non-verbal language sequences and images to tell a story. Adolescents often look to popular animations in their everyday literacy practices to find role models, and to live through those stories. Teachers can explore the multimodal power of animations to invoke feelings and emotions. Animation creation can become a springboard for students to gain richer understandings of the interpersonal meta-function of written and spoken texts. Animation is not simply the art of creating drawings that move, but the art of creating drawings that move the emotions.

Take action!

- Analyze the emotions, facial expressions and body language of characters in short animated film clips, pausing the clips at critical points to make inferences.
- Make and share your examples of drawing animations utilizing Animator Creator HD™ on your iPad to show character emotions such as anger, happy, sad or surprise through eye, eye-brow, lip, arm, leg or other body movements.
- Give a live demonstration or show a YouTube tutorial on how to animate a character blinking, then becoming sad, angry, happy etc. You can use examples from the online links below.
- Give students iPads with Animation Creator HD™ or similar drawing animator app installed, and a stylus, and allow them to create their own character. The challenge is to include a blink, eye changes, and some mouth movements.
- Students can create a second animation showing emotion growing by adding color (e.g. red for angry, blue for sad), movement lines (e.g. exploding with anger, quivering with fear), or other physiological changes (e.g. hair standing on end). Export the animations.
- The final animations can be compiled into a single short film for display.
- Without digital technologies, the students could create similar drawing animations using flip books.

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More to Explore

- View this YouTube tutorial on choosing an iPad stylus, using the Animation Creator HD™ and other drawing applications: https://www.youtube.com/watch?v=G78NXyHaRok
- GoAnimate for Schools to create animated videos in a secure online environment: https://goanimate4schools.com/public_index
- 50 Ways to use Animations as a Teaching Tool: http://www.opencolleges.edu.au/informed/features/50-ways-to-use-animation-as-a-teaching-tool/
- Learn more about the grammar of emotions from a popular book for secondary teachers: Love, G., Droga, L., & Humphrey, S. (2011). Working grammar: An introduction for secondary English teachers. Melbourne: Pearson Australia.