Edited by
Mary Ellen Cavitt, Texas State University

Digital Music Toys for Young Children: Parents' Review of the *Munchkin Mozart Magic™ Cube*

Eugenia Costa-Giomi and Edward Hunt
University of Texas at Austin

Infants and toddlers today have access to a wide variety of digital music toys designed specifically for them (Bartel & Cameron, 2007; Ilari, 2011; Merkow, 2014a; Young, Street & Davies, 2006). Such toys offer opportunities to experience music in a variety of ways by facilitating the manipulation of sound in an interactive medium as well as the integration of sound with tactile, visual, and verbal information. Crib mobiles, plush toys, interactive play tables, baby iPods, and other commercial products play sounds and music at the press of a button. The sounds are often accompanied by flashing lights, moving parts, labels, and blinking images creating a highly stimulating sensory experience for infants.

Levin and Rosenquest (2001) express concern for electronic talking, sounding, and moving toys. They argue that such products limit a child's creativity and detract from quality social and verbal interactions between children and adults. Music educators have also pointed out that the musical content presented in toys, CDs, and DVDs designed specifically for young children often lacks variety and compromises quality in its production (Brooks, 2012; Merkow & Costa-Giomi, 2014). But Young (2007) believes that the multi-modal functions in digital toys are appropriate for young children because they match the multi-modal, imaginative nature of engagement typical at this age. Arguably, electronic music toys and screen media extend and supplement children's everyday domestic music experiences (Gillen & Young, 2007; Lamont, 2008; Young, 2009).

Regardless of the criticisms elicited by the use of digital technologies in early childhood, digital music devices are present in the homes of children around the world (DeVries, 2007; Gillen & Young, 2007; Lamont, 2008; Ilari et al., 2011; Merkow, 2012; Young et al., 2006). Such devices reflect our present technology-and media-rich culture (Campbell, 1998; Campbell & Lum, 2007; Marsh, 2002, Merkow, 2012) that relies on the use of devices for communication, work, and entertainment. Sales of baby products including those that play music have increased systematically during the last 10 years (Hughes, 2005; Khermouch, 2004). It is clear that the marketing messages of baby multimedia highlighting the value of music and the potential of

music toys to develop musical understanding has been effective in making interactive music toys a common commodity.

There is little empirical evidence about whether digital music toys support independent musical play in young children. Costa-Giomi and Merkow (in press), who observed mothers and their toddlers playing with a popular digital music toy, found that the toy induced and facilitated musical interactions between children and caregivers and that mothers mediated their toddlers' engagement with the toy. However, toddlers rarely showed independent play or displayed musical behaviors such as singing, rhythmic movements, or dancing in the presence of the toy.

When asked about the music experiences that children have at home, parents report that their children interact with a variety of digital and multimedia products that produce sound and music (DeVries, 2007; Ilari et al., 2011; Young et al., 2006). Parents are generally positive about digital music toys and the opportunities that they afford for their young children (Merkow, 2012; Young, 2008) but they also report that the toys can be noisy, irritating, and over-stimulate their infants (Merkow, 2012). These reports are important in the context of child play because parents are instrumental in providing opportunities for play experiences for their children. Parents not only make decisions about toys purchases, but also regulate their children's use and access to them.

The purpose of this study is to gather information about caregivers' views of the value of a digital music toy, its musical features, as well as their comments about children's responses to the toy. Previous studies on young children's musical environment at home have been based on parental interviews. Instead of asking parents to provide their opinions about a broad category of interactive music toys, we selected one of the many toys currently available in the market and searched for adults' voluntary and unguided comments about it online. This type of anonymous and unsolicited review of a specific toy may reveal the value and uses of digital music toys from an adult perspective.

There are thousands of music toys currently in the market. For example, Amazon.com lists 17,000 music toys available for purchase (Amazon, n.d.). Of these, 700 are portrayed as *interactive* musical toys. We chose one of the most popular ones according to purchase and feedback information provided on this particular website. We selected the *Munchkin Mozart Magic™ Cube* because of its popularity, its original interactive music features, and the marketing message that identifies it as providing a solid music foundation for children. Parents' opinions about toys are readily available on many websites catering to consumers of products for young children. Such sites usually allow reviewers to post comments and to use a rating scale to express their satisfaction with the product.

Method

The Munchkin Mozart Magic™ Cube

The toy is a six-inch cube with a button depicting the illustration of an instrument on each side: violin, harp, French horn, flute, piano, and the orchestra. By pressing the orchestra button, a melody orchestrated for the five instruments plays for up to 30 seconds or until the button is pressed again. By pressing the buttons one at the time, one can hear the performance of each instrument individually. By pressing two or more buttons simultaneously or in sequence, it is also possible to hear the combination of various instrumentations. This add-on "orchestrating" function is one of the innovative interactive features of the toy.

The repertoire of the toy consists of eight excerpts by Mozart: *Non Piu Andre (Marriage of Figaro); Country Dance #5, K.609; Come Sweet May, K.596; Ah! Vous Dirai-je, Maman, K. 265 (Twinkle, Twinkle); Der Vogelfanger (The Magic Flute); March in D, K.408; Landler, K. 606; and LaCi Darem La Mano (Don Giovanni)* (Munchkin, 2012). To change the piece, one must press the orchestra button twice. The Cube also displays lights that blink to the rhythm of the melody. Although there is no volume control, there is a master switch that turns the toy on and off.

The marketing descriptors of the cube portray it as toy "for budding young composers of all ages," "that lets your child add and subtract instruments of a symphony," "inspires creativity and interactive play," "provides a fun musical foundation," and "teaches babies and toddlers how to identify the sounds of the distinct classical instruments in Mozart's compositions" (Munchkin, 2013a). A video produced by the company suggests that the toy facilitates composing and can turn a child into a "mini maestro" (Munchkin, 2013b).

Data collection and analysis

As of November 2013, there were over 800 reviews for the *Munchkin Mozart Magic™ Cube* in Amazon.com (Amazon, n.d.). We analyzed the 50 reviews posted on the site during a period of three months to identify references to the musical qualities of the toy and the music behaviors it elicits in children.

We completed a content analysis of the reviews identifying (1) any words with sound or musical connotations (e.g., it's too *loud*, the *songs* are nice); (2) any statements that described children's behaviors and attitudes (e.g., the baby loves the blinking lights; he claps and sings when I press a button; her favorite instrument is the harp); (3) any statement that alluded to learning (e.g., she can now press the buttons; it is good to learn about cause and effect; he remembers the name of the flute). Additionally, we noted the rating provided by the reviewers. The ratings could range from a negative rating of one star to a positive rating of five stars.

Results

The average online rating of the Cube was high (4.5 stars out of 5) with less than 10% of the reviewers rating it below three stars. Most reviews contained positive comments about the Cube. Two reviewers who provided very low ratings (fewer than three stars) explained that the Cube stopped working soon after purchasing it and two others criticized the quality of the sound and the absence of a volume control.

Most reviewers (90%) commented on the musical characteristics of the toy. They referred to the instruments it presented (21%), the loudness of the music (11%), the quality of sound (47%), and the music selections, style of music, and songs (10%). With the exception of a few remarks about the sound being too loud, most of these music-related comments were positive. For example, reviewers wrote:

> My almost 9-month old loves this toy. She plays with it every day. The music is pleasant, not too loud and not too soft. She is drawn to the flashing light which is in time with the music. She's figured out that to make the lights flash she needs to push the button. A great toy to learn cause and effect without driving the parents mental with obnoxiously loud sounds. (February 2, 2013).

> I got this toy because of the music. I love that it's very pretty sounding and not like some toys that sound terrible. So far, however, my 7 month old has taken little interest after having it for a month. Pros: interesting way to adding music to child's life, pretty sounds, durable
> Cons: my 7 month old has yet to show interest in this. (3/25/13).

Most reviewers chose not to describe children's interactions with the toy in detail but stated in broader terms whether their children liked it or liked playing with it.

> My baby seems to really like this cube. He loves watching the flashing lights and hearing the music. The reason I did not give it five stars is because the instruments do all sound very similar and a bit electronic sounding, but other than that not that annoying of electronic toy. (3/16/13).

> Cute product. Bought it based upon favorable reviews. It's ok. My 9 month old daughter doesn't seem to like it much at all, but the product is really well made and plays cute music. Maybe she'll grow into it? (3/4/13).

Although most reviewers (83%) commented on children's nonmusical behaviors with the Cube such as liking the toy, playing with its lights, kicking it, dropping it, and sitting on it, fewer elaborated on children's musical behaviors (25%). Those who included references to children's musical behaviors referred to listening (20%) and dancing (5%).

> I bought this for my 13 month old son. He loves the toy; music makes him dance every time he plays with it. I'll recommend this toy to anyone. (3/18/13).

> My special needs son loves this toy. It's his favorite. He enjoys kicking it and listening to the music. After 3 years it's still his favorite. (3/3/13).

> Seriously, we have a top 5 list of must bring/have with us when we go anywhere, and this is one. My MIL freaked out when it ran out of batteries. It's that good. I'm not even sure why, but the baby becomes obsessed with the different instruments and the sounds. And it plays a lot of tunes-excellent purchase. (3/10/13).

Rarely did reviewers refer to the didactical value of the toy. Only 15% of the reviews provided any comments related to what children could learn by playing with the Cube. When reviewers commented on the educational outcomes of playing with the toy, they said that children learned or would learn to recognize the instruments (7%) and songs (4%), or acquire nonmusical skills or knowledge such as pressing buttons, colors, and cause and effect (6%).

> I bought it for my 6 month old but my 2 year old loves it too, and she now has learned all of the instruments. (2/23/13).

> I like this toy because it has good sound and is a simple introduction to individual instruments. I like its simple features, soft corners and bright colors. It is a favorite gift choice. (3/11/13).

Only one review referred to the creative appeal of the toy as portrayed in the marketing messages. The review was concise but clear in its message:

> Such a fun and creative toy. Interactive music that's not annoying for the adults. I would buy one for every child you know. (3/4/13).

None of the reviews commented on the compositional capabilities of the Cube as described in the company video, and only five included comments about the combinations of instruments afforded by the toy.

> Even a baby can play with this, and toddlers also enjoy it. It is a musical instrument for babies - six different songs that you can play in almost unlimited variety, switching orchestration in mid-song. In addition, it is sturdy, surviving dropping, banging around, and all the tough love an active toddler can dole out. (3/7/13).

> Love, love, love this Cube. My 8 month young daughter loves it too. It never gets old and it's so much fun to hit all the different instruments, then listen to them all play in sync. Great buy!! (2/1/13).

Discussion

Reviewers were positive about the toy and reported that their children enjoyed playing with it. Although their descriptions did not usually focus on its unique musical capabilities (e.g., changing the instrumentation of the recorded performances), references to music-related features were not uncommon. Reviewers liked the look, sturdiness and the interactive way in which the Cube presented the instruments and commented on the colorful buttons and the attractive lights of the toy. They also described the sound and musical features of the Cube. The most common statements related to sound referred to timbre. Almost all reviewers referred to the instruments depicted by the Cube or the general quality of the sound. Although a few reviewers described the tone quality of the Cube as unnatural, electronic, and annoying, most commented on the improved sound quality of the toy as compared to other toys in the market. They identified the display of instruments as a distinct feature of the Cube and obviously liked the variety of musical timbres provided by the toy.

That reviewers talked so often about the timbre of the Cube, the quality of the sound and the instruments, and compared the sound to that of other toys indicates the importance that timbre plays in their assessment of children's music toys. We know that timbre is a perceptually salient feature for infants and that it helps them recognize and remember the sounds around them (Costa-Giomi, 2013). It is comforting to know that caregivers are attentive to the quality and variety of sounds and instruments with which infants interact at home.

Parents provided very few comments about the didactic functions of the toy. Their assessments of the Cube didn't seem to be based on its pedagogical value but on its appeal to children as well as its features. Liking the music repertoire, the selection of timbres, and the quality of the sound seemed more critical factors to reviewers than the learning outcomes it possibly afforded. The seven reviewers (15%) who spontaneously commented on what children learned or could learn by playing with the toy cited musical and nonmusical concepts such as colors, cause and effect, pressing buttons, learning songs and recognizing musical instruments.

The scarcity of explicit references to the pedagogical use of the Cube is surprising considering the strong marketing messages on the toy packaging and company videos about the educational value of the toy. The reviews we analyzed seem to indicate that adults buy toys for children's entertainment rather than learning. After all, "the best toys are those that the child finds pleasure in" (Almquist, 1994; p. 66). Considering that the pedagogical value of toys may be only ancillary to adults, we cannot help but question the effectiveness of marketing campaigns that highlight the educational features of toys. However, because this study focused on a single toy, it is premature to draw conclusions about the educational value of digital music toys in general. Perhaps reviewers' apparent lack of concern for the didactic functions of the Cube may be reflective of an inherited feature of this particular toy. The Cube may simply be inadequate for the development of the creative and compositional skills advertised by the manufacturer.

It is worth noting reviewers' comments about the behaviors that the toy elicited from children. Although all toys provide opportunities for interactive play, the marketing emphasis on the interactive nature of digital toys suggests that such toys may be particularly effective in eliciting a variety of children's responses. We found that most reviewers indeed described a variety of children's responses in their assessments of the Cube. Most of the behaviors described were nonmusical such as button presses, catching the blinking lights, using the Cube for climbing, sitting and other utilitarian purposes, and a broad "liking the toy."

Less than a third of the reviews included references to the musical behaviors of the children when playing with the toy. Reviewers who commented on children's musical behaviors referred to listening and dancing and none mentioned singing. These results support those of previous studies that showed a low incidence of overt musical behaviors on YouTube videos of young children engaged in play with the Cube at home (Merkow, 2012) as well as those of children engaged in play with the toy in a controlled lab environment (Costa-Giomi & Merkow, in press). It seems paradoxical that a toy portrayed as musical and interactive was so ineffective in eliciting the type of behaviors that we most often think of as *musically interactive*. Arguably, the Cube was not designed to elicit singing or dancing but button presses, and as such, it facilitated listening to the music triggered by the buttons. From an educational point of view, the fact that reviewers noticed that their children listened to the music played by the Cube is important because it suggests that caregivers may appreciate the value of repeated listening during early childhood. That the toy portrayed the music of Mozart may be an indication of the manufacturer's interest in prompting repeated listening. Although the claim that listening to Mozart's music makes children smarter has long been discredited (Bangerter & Heath, 2004), it seems that there is still value in capitalizing on such premise.

In summary, the online reviewers were very positive about the appeal of the toy and its musical features but indifferent as to its educational value. The identification of different instruments was the most, and only, musical learning outcome they described. The few reviewers who referred to children's musical behaviors in their comments most often cited listening. Overall, it seems that reviewers appreciated that the toy allowed children to turn the music on and off and that the quality of the music selections and of the sound in general were adequate for a toy. That the toy produces music at the press of a button makes it appropriate for infants and toddlers who may not have the dexterity and motor precision to manipulate more sophisticated music devices. The blinking lights and colorful appearance of the toy may be effective in enticing young children into engaging in repeated listening experiences. However, it seems that consumers are not taking advantage of the interactive features advertised by the manufacturer for the development of creative and composing skills. It seems that children, and possibly adults, need guidance and modeling to discover and utilize the most distinct interactive

features of the Cube. Just like with any other toy, device, or musical instrument, interactions with adults or other children may be needed to support the independent play and learning experiences intended by the manufacturer.

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