Media Review

Dragon Training and Changing Culture: A Review of DreamWorks' *How to Train Your Dragon*

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DreamWorks' *How to Train Your Dragon* is an animated coming-of-age story in which the hero uses behavioral techniques to befriend and then to train an adversary. This movie provides an example of the successful dissemination of behavioral principles and technologies to the general population. Although it does not represent best practices in every instance, the movie may be an indication of a broader social acceptance of behavioral approaches to conflict resolution.

Key words: dissemination, social change, movies, principles, technologies, culture

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DreamWorks' 2010 release *How to Train Your Dragon* is an animated coming-of-age movie. It tells the tale of how the hero changed his village's centuries-long adversarial relationship with dragons. The film opens with a dramatic, nighttime scene of a Viking village perched on a rocky coastline. Fire-spitting dragons attack the town as Viking warriors mount counterattacks. Through the battle a thin, preteen boy named Hiccup bumbles toward his post at the smithy. Despite his physical ineptitude, Hiccup desperately wants to fight dragons. He, against orders, launches a bolo net from a catapult of his own construction at one of the most feared and little-known dragons, the "Night Fury." When Hiccup goes in search of the downed dragon the following morning, the adventure in behavioral technology begins. A warning to those who have not yet

seen the movie: We reveal details of the story's plot and climax in the following analysis.

Hiccup is unable to bring himself to kill the bound and injured dragon, so he cuts it loose from the net. The dragon, which Hiccup dubs "Toothless," is trapped in a steep-walled canyon because a tail injury renders him unable to fly properly. Unbeknownst to his fellow villagers, Hiccup continues to visit Toothless. Hiccup uses systematic desensitization to get Toothless to allow Hiccup to touch his face. During this process, Hiccup sits near the dragon until the dragon's fear response habituates to his presence, then he moves closer until the response again habituates. Hiccup repeats this process until he's close enough to touch the dragon. When trying to find out what kinds of fish Toothless likes to eat, Hiccup conducts a multiple-stimulus-without-replacement preference assessment by dumping a variety of whole seafood on the sand in front of the dragon and taking note of which fish Toothless eats first and which he avoids completely. During that pro-

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cedure, Hiccup learns that dragons do eat herring but do not eat eel. Through a modified reinforcer assessment, Hiccup also discovers that scratching Toothless behind the ears is reinforcing.

Hiccup designs and constructs a prosthetic tail fin for Toothless. He uses noncontingent reinforcement to increase compliance when he first places the prosthetic on the dragon's tail. To do this, Hiccup gives the dragon a basket of fish. While Toothless eats, Hiccup attaches the tail fin. The dragon accepts the device until Hiccup cinches the strap tightly; then he leaps into the sky with Hiccup holding onto his tail. The device allows Toothless to fly properly.

When Hiccup learns that dragons follow and pounce on flashing or reflected pinpoints of light, he uses that stimulus to prompt Toothless to engage in desired movements. At first, these desired behaviors are just play behaviors between Hiccup and Toothless, but later, Hiccup uses a pinpoint of light to get other dragons to walk into their cages. For humans, the dragon behavior of breathing fire at people is inappropriate, so Hiccup teaches Toothless the replacement behavior of approaching and playing. This process includes, in part, imitation and the scratching-behind-the-ears reinforcer. Toothless proceeds to engage in the play activity more frequently, indicating that the inappropriate behavior was effectively replaced with an alternative activity.

Just as Hiccup and Toothless begin to work well together, Hiccup gets the chance he always wanted: He is ordered to begin training to fight dragons. Because of his slight frame and preadolescent clumsiness, Hiccup has little chance of overcoming dragons with sheer force and physical skill. Yet, he must find a way to survive dragon attacks inside the enclosed training arena. Instead of fighting, Hiccup uses the behavioral techniques he learned from his trials

with Toothless to prevent attacks and get compliance from the training dragons, an example of generalization of skills. As the townsfolk begin to notice Hiccup's skill with dragons, he gains a reputation as a dragon-charmer of sorts.

All the while, Hiccup is still visiting Toothless and improving the prosthetic tail. Together, they fly free of the valley that held Toothless captive and explore the coastline. During one of their adventures, Hiccup discovers the dragons' home lair and learns why dragons are always attacking the Viking village and stealing their livestock. The dragons must feed a gigantic queen dragon or be eaten themselves. Hiccup's affinity for dragons is furthered by this new knowledge, and he becomes more determined to form an alliance with the beasts.

Hiccup's secret friendship with Toothless is revealed during his final training test. When the villagers realize Hiccup is not only unable to kill dragons but also works *with* dragons, they shun him and capture Toothless. The Viking warriors launch a massive attack on the dragon homeland, using Toothless as a guide. Only Hiccup knows what his fellow citizens are up against. He convinces the other kids from his class to take action then teaches them how to train the dragons. They are successful in their efforts, demonstrating that the technology Hiccup developed with Toothless was easily applied by other people and with other dragons. Together the newly befriended training dragons and their former opponents fly to the warriors' (and Toothless') rescue.

There is a long tradition of society using television and film media to teach children socially appropriate behavior. Television programs in particular have been incorporated into child rearing in communities around the world. The children's program *Sesame Street* celebrated its 40th anniversary last year and has

aired in more than 140 countries. Part of the mission of Sesame Workshop, the nonprofit organization behind *Sesame Street*, is “to use the medium of television as a tool to help children learn” (Sesame Workshop, 2010). Shows like *Sesame Street* help prepare children to learn letters, numbers, and social skills, but *How to Train Your Dragon* demonstrates that film is a medium through which we can prepare children to learn about appropriate behavioral practices.

How to Train Your Dragon, released March 26, 2010, debuted at number one at the box office and grossed \$133.4 million in North America alone during its first 3 weeks in theaters. *Monsters vs. Aliens*, DreamWorks’ release from the same weekend the previous year, grossed \$59.3 million during its first weekend (The Associated Press, 2010). Disney-Pixar’s *Up* raked in \$68.1 million during its debut weekend in May, 2009, and Columbia’s *Cloudy with a Chance of Meatballs* debuted in the third weekend of September, 2009, with \$30.3 million (<http://www.boxofficemojo.com>). These numbers show that families are still attending animated films in theaters.

Of the aforementioned films, only *How to Train Your Dragon* featured such a wealth of behavioral techniques. Still, it may be an indication that such practices are becoming more common in our culture, or at least that writers in Hollywood are more aware of them. Hiccup not only used positive reinforcement instead of punishment during his own interactions with the dragons, but he eventually convinced his entire village to replace the aversive techniques they had practiced for centuries with more constructive practices.

How to Train Your Dragon is based on the novel of the same name written by Cressida Cowell (released in Great Britain in 2003, United States in 2004). Unlike many other current popular children’s stories (both books and films), *How to Train*

Your Dragon uses techniques based on reinforcement to solve socially significant problems. Although the movie features more behavioral techniques than the book, the most prominent behavioral technique in the book is a reinforcer assessment. Hiccup lists potential reinforcers for Toothless, and then tests each one. In the book, the most effective reinforcer Hiccup uses with Toothless is joke telling. Cowell states that she did not intentionally highlight behavioral principles but that she “was interested in the book having an educational message” (C. Cowell, personal communication, April 19, 2010).

We may never know whether this is an indication of the broader impact of behavior analysis or simply an indication of perceptive authors understanding the efficacy of procedures that happen to be behavioral, but it *is* an indication that behavioral techniques can be featured in successful entertainment media. And although both the book and movie versions of the story do not precisely follow behavioral protocol and do not always use practices considered to be most desirable by those who shape ethical guidelines (the protagonist does use aversive techniques to overcome a more powerful enemy in the end), throughout the plot, Hiccup uses positive reinforcement to gain compliance from a much larger animal that has traditionally been a sworn enemy.

A single story alone does not necessarily indicate widespread cultural change; however, *How to Train Your Dragon* may be evidence that some aspects of behavior analysis (a) have influenced the broader culture and (b) can be disseminated to the population at large through pop-culture entertainment. Here is a popular children’s movie that makes positive reinforcement a familiar concept and, in so doing, stresses cooperation over opposition, thus preparing young viewers to readily accept techniques and philosophies to which

they might not otherwise be exposed. In the same way that *Sesame Street* is an integral part of child rearing, so too may be films that focus on the effective use of behavioral principles to influence social practices.

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