Predicting popularity of mass-market films using the tenets of disposition theory

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Abstract: Disposition theory (DT) has been a prevalent and useful theory for examining narrative enjoyment. This study uses logic from DT to predict film popularity indicated by box office gross. A content analysis was conducted on the plot summaries of popular films to determine the extent to which dispositional considerations were upheld. Results indicate that adherence to dispositional considerations is prevalent, but not a significant predictor of film popularity when controlling for other important variables such as budget. Results indicate a need for scholars to incorporate greater understanding of the predictive power of theoretical models in real-world applications.

Keywords: media; appeal; DT; disposition theory; mass market.

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1 Introduction

Disposition theory (DT) (Zillmann, 2000) is one of the most empirically supported theories in media entertainment research (Raney, 2006). The theory states that media enjoyment stems from the equitable or just resolution of narratives. Positive evaluations are dependent on seeing righteous characters rewarded and deviant characters punished to the extent that these characters deserve (Raney, 2006; Zillmann, 2000; Zillmann and Bryant, 1975). Furthermore, narratives enjoy mass appeal and popularity to the extent that they present these justified outcomes (Raney, 2006). This proposition has been supported in recent work by Weber et al. (2008) who demonstrated that dispositional considerations in content predicted Nielsen rankings and fan ratings of a popular soap opera. To date, however, there is little research analysing popular media for their adherence to DT. Perhaps this is due to the logic of narrative structure that inspired the tenets of DT were selected for study precisely because of its ability to elicit positive responses. However, this logic is circular, and begs to be more closely examined. The goal of the current project, therefore, is to examine

1 the extent to which DT is employed in mass-market narratives

2 the extent to which DT can predict mass appeal.

Specifically, we seek to answer the question of whether adherence to DT is merely a prerequisite for popularity, or whether it actually drives popularity.

2 Disposition theory

Disposition theory (DT) is a theory of media enjoyment based on narrative resolutions (Raney, 2004, 2006; Zillmann, 2000). DT offers convincing explanations for enjoyment of drama (Raney and Bryant, 2002), humour (Zillmann and Cantor, 1976) and sports (Raney, 2003). The theory predicts that enjoyment and appeal are derived from the

interaction of character liking and the outcomes that befall the character. DT predicts that reward for liked characters and punishment for disliked characters should lead to positive appraisals of media products. Similarly, reward for disliked characters and punishment for liked characters should lead to negative appraisals. Character liking, in DT, is based on the morality of the character (Zillmann, 2000). According to Zillmann (2000), viewers constantly monitor the actions of a character and determine their liking for the character based on that character's behaviour. Characters who violate important social mores (e.g. causing unwarranted harm) should be disliked by the audience whereas characters who consistently uphold widely accepted foundations of morality (e.g. humanitarianism) should be liked (Raney, 2006; Zillmann, 2000). Although other factors have been found to predict character liking (e.g. identification), the most important driver of character liking, by far, is the morality of the character's actions (Raney, 2009), which is the focus of the current study.

Judgements of characters as moral or immoral, and the subsequent outcomes for these characters, should influence the perceptions of narrative outcomes as more or less justified (Tamborini et al., in press; Weber et al., 2008). Viewers anticipate and positively evaluate narrative resolutions that display benefaction for good characters. Likewise, they will anticipate and positively evaluate those outcomes that show the punishment of bad characters. Perceptions of narratives as justified depend on the interaction between the morality of characters and the deservingness of outcomes associated with their behaviours throughout the narrative. Moreover, the extent to which this interaction influences the perceived justification of outcomes should be strengthened by the importance of the character's behaviour to the show. This multivariate interaction of reward for goodness and punishment for badness has been represented in past work by the disposition theory vector (DT vector) (Tamborini et al., in press; Weber et al., 2008). The DT vector has been used to predict Nielsen ratings of soap opera over ten weeks of the programme, as well as fan ratings of the same show (Weber et al., 2008). It has also been used to examine the effect of prolonged exposure to soap opera on moral judgements (Tamborini et al., in press). In the current study, we use the DT vector to represent the extent to which film narratives adhere to DT tenets. Therefore, our first hypothesis is as follows:

H1: The majority of films adhere to DT.

2.1 DT and popularity

The logic behind DT suggests that creating strong dispositions towards characters are essential to the development of enjoyable narrative (Raney, 2006; Tamborini et al., in press). Weak dispositions, even if they are unambiguously positive or negative, are unlikely to produce strong emotional reactions that lead to subsequent enjoyment. We might expect that it is relatively easy for writers to create clearly defined good and bad characters using established character stereotypes (Raney, 2003). Clearly defined dispositions and clearly defined resolutions should produce the most powerful experiences of joy when hoped for outcomes are observed (Zillmann and Bryant, 1975). Therefore, popular media overall should support the tenets of DT by displaying justified outcomes (cf. Klapper, 1960). We might also expect the most enjoyed films to be the ones that adhere most clearly to dispositional considerations.

Many entertainment scholars assume that the vast majority of films (and nearly all mass-market films) adhere to DT. Although it is assumed that a small minority of films will deviate from DT for novelty's sake, these films are thought to do so only to violate audience's expectations to keep the film viewing experience fresh (Raney, 2004; Tamborini et al., in press). The present study seeks to examine how prevalent adherence to DT is within popular films and how predictive adherence to DT is for film popularity. We pose the following research question:

RQ1: How does DT relate to a film's popularity?

3 Control variables

Clearly, narrative content is not the only predictor of a film's success. Two other variables that should play a huge role in determining success are the budget of a film and the overall quality of the film. We expect films with bigger budgets to be more popular than films with smaller budgets, due to the fact that the movie business is a money-making industry. This finding would replicate the findings of previous research (cf., Simonton, 2005). One also might expect that a film's quality (defined in terms of critics' ratings) may be indicative of a film's popularity. Critics' ratings have been shown to be indicators of late box office gross (Eliashberg and Shugan, 1997), but most films make their largest during the first few weeks of release. Therefore, it is unclear whether critics' ratings indicate overall popularity or simply the popularity of a film in its later weeks of release. The extent to which budget and quality impact the relationship between DT and popularity, however, are not well predicted. Therefore, our final hypothesis and research questions:

H2: Film budget is positively related to popularity.

RQ2: Is film quality related to popularity?

RQ3: To what extent do film budget and film quality moderate the relationship between adherence to DT and popularity?

4 Method

4.1 Content analysis

To examine the hypothesis and research questions, a content analysis was conducted on the plot summaries of a sample of popular films. The sample of films was selected from all films, US and international films, released to US box offices from 1999 to 2008 that grossed at least $1 million at the box office. The sample was collected from The Numbers (www.the-numbers.com), a website self-described as "free resource for industry professionals, the investment community, and movie fans to track business information on movies". The website contains data on US box office gross, international box office gross, release dates and budget information. About 10 films per year were randomly selected from the available population of films to form an initial sample of 100 films.

The plot summaries of the sample films were then collected from Wikipedia (www.wikipedia.org). Wikipedia was chosen because its plot synopses were considered

to be more detailed and more objective than other potential sources (e.g. The Internet Movie Database (imdb)). The synopses on Wikipedia, generally, reveal plot outcomes (i.e. spoilers) whereas the synopses on imdb, usually, simply set up the premise of the narrative. Furthermore, the synopses on Wikipedia can potentially have multiple editors, which allows for input from various perspectives and self-correction, leading to a less biased description. Importantly, Wikipedia entries are constantly monitored by a community of editors, and inaccuracies are quickly discovered and removed by these editors.[1] After collecting plots from Wikipedia, 14 films were excluded from analysis. These films included any film based on a true story or that was a documentary and any film for which there was no Wikipedia entry. The final sample included 86 films.

4.2 Training and reliability

Four coders (three of the authors and an independent coder who was naïve to the purpose of the study) were trained on all variables. After training with sample film plots and reaching a sufficient level of inter-coder reliability, each film was double-coded by two of the four coders. The inter-coder reliability of the final dataset was Krippendorf's ($\alpha = 0.72$ for character morality, $\alpha = 0.71$ for character outcome).

4.3 Independent variables.

To code for adherence to DT, the characters in the plot were coded on three variables:

1 the importance of the character

2 the morality of the character

3 the outcome that befell the character at the end of the narrative.

Character importance: after an initial coding of the films for character importance, there was relatively low inter-coder agreement on the importance of secondary and tertiary characters in the narratives. To rectify this problem, an objective measure of character importance was employed. The number of references was counted for each character in the plot summary using an internet browser-based string search function, which automatically counted the number of times that a given name was referenced. Based on this frequency information, the three most important characters were selected from each film plot. Character importance was then treated as an ordinal level of measurement (with larger numbers indicating greater importance) because the number of times a character name appeared in a summary was contingent upon the length of the summary. The most important character was assigned the importance score of 3, the second most important character was assigned the importance score of 2 and the third most important character was assigned the importance score of 1.

Character morality: character morality was coded on a five-point scale: *very bad* (–2) to *very good* (2), with a neutral point (0). Character morality referred to whether a character was portrayed as having good or bad motives, which were demonstrated in a character's actions. A good character was defined as one who was motivated to consider the needs of others and acted in ways that benefited or helped others. Examples of actions that indicated a character had good motives included: being kind, sympathetic, generous, loyal, protecting and/or helping others. Good characters who acted primarily in the

interests of others were labelled as 2, whereas good characters who acted in both the interests of others and their own interests were labelled as 1.

A bad character was defined as one who was motivated to act and think in self-interest, ignoring the needs or well-being of others. Bad characters behaved in ways that accommodated their own needs without concern for the needs of others. Examples of actions that indicated that a character had bad motives include: being cruel, unsympathetic, greedy, disloyal, unfair and/or hurting others. Bad characters who intentionally harmed others without remorse to satisfy their own needs were labelled as −2 whereas bad characters who were indifferent to the needs of others in an effort to fulfil their own personal desires were labelled as −1. A character who was portrayed as neither good nor bad was considered as neutral and coded 0.

Character outcome: character outcome was coded on a five-point scale: extremely punished (−2) to extremely rewarded (2), with a neutral point (0). Character outcome referred to whether a character was portrayed as being rewarded or punished at the end of a narrative. Rewards and punishments were not dependent on any character's actions; instead, they were based on whether the character was better or worse off at the end of the narrative. A reward was defined as a positive reinforcement received because of a character's behaviours. It included mental (e.g. mental piece of mind), material (e.g. money, goods) and social (e.g. a desired relationship, social approval) rewards. A punishment was defined as a negative reinforcement received because of a character's behaviour. It included mental punishment (e.g. anguish, depression and loneliness), physical punishment (e.g. being killed or injured) and a failure in attaining goals (e.g. a character being imprisoned or trapped). When a character was neither rewarded nor punished, or if coders were unable to determine whether the character was rewarded or punished, then the outcome was coded as neutral.

The DT vector: to assess the overall adherence of a film to DT, a modified version of the DT vector (Tamborini et al., in press; Weber et al., 2008) was employed. The DT vector is designed to produce a single number that represents the overall adherence of a narrative to the tenets of DT. The score on the vector is the sum of the squared products of the morality scores (recoded so that they range from negative to positive) and outcome scores (recoded so that they range from negative to positive) weighted by the importance of the character (a positive number) for all of the characters in a media narrative (see Figure 1 for the original DT vector).

Figure 1 Original DT Vector

$$\text{DT Vector}_i = \sum_{c=1}^{n} ((\text{Morality}_c)(\text{Outcome}_c))^2 \cdot \text{Importance}_c$$

For our purposes, the DT vector was modified. The original formula calls for the product of the morality and outcome scores to be squared. This squaring, however, causes some theoretical problems. Due to the squaring, it cannot be determined whether a programme adhered to DT or greatly diverged from DT. For example, using the unmodified formula, a film that completely deviates from DT (i.e. a film in which all of the characters behaved immorally (all would receive −2 scores on morality) and in which all of the characters were greatly rewarded (all would receive +2 scores on outcome)) would be assigned the

same score by the DT vector (a high positive score) as a film that completely adhered to DT (i.e. a film in which all of the characters behaved morally (all would receive +2 scores on morality) and in which all of the characters were rewarded (all would receive +2 scores on outcome)). To address this issue, the DT vector was modified so that the product of morality and outcome scores was left un-squared. This modification allows for both positive and negative numbers from the DT vector to indicate adherence and violation of the tenets of DT, respectively (see Figure 2 for the modified DT vector used in this study).

Using the DT vector, scores in our sample could theoretically range from –24 (a film in which all characters were extremely immoral and were extremely rewarded *or* a film in which all characters were extremely moral and were extremely punished) to +24 (a film in which all characters were extremely immoral and were extremely punished *or* a film in which all characters were extremely moral and were extremely rewarded).[2]

Figure 2 Modified DT Vector

$$\text{DT Vector}_i = \sum_{c=1}^{n} (\text{Morality}_c \cdot \text{Outcome}_c \cdot \text{Importance}_c)$$

4.4 Dependent variables

US box office income: the popularity of films was measured by the US box office gross income. The gross income was used instead of the net income because it indicates the quantity of audiences. The US box office income was selected instead of the international income because the current study analysed films released in the USA and international gross income information was not always available. However, it is important to note that US box office income and worldwide income in the dataset were almost perfectly correlated, r (70) = 0.94. US box office income in millions (M = 50.90, SD = 73.76) ranged from 1.28 to 423.32.

4.5 Control variables

Budget: Budget information was obtained from The Numbers and Wikipedia. Budget in millions (M = 49.14, SD = 45.02) ranged from 1.35 to 205.00.

Film quality: film quality was measured by ratings on Metacritic.com. The Metacritic rating is a weighted average of all of the scores assigned to the film by individual film critics. The rating is weighted because the website assigns more significance to some professional critics and prestigious publications. Furthermore, Metacritic's ratings are normalised and ranged from 0 to 100, with higher scores indicating more favourable reviews from critics. Critics' ratings for the current sample (M = 49.28, SD = 18.55) ranged from 6.00 to 91.00.

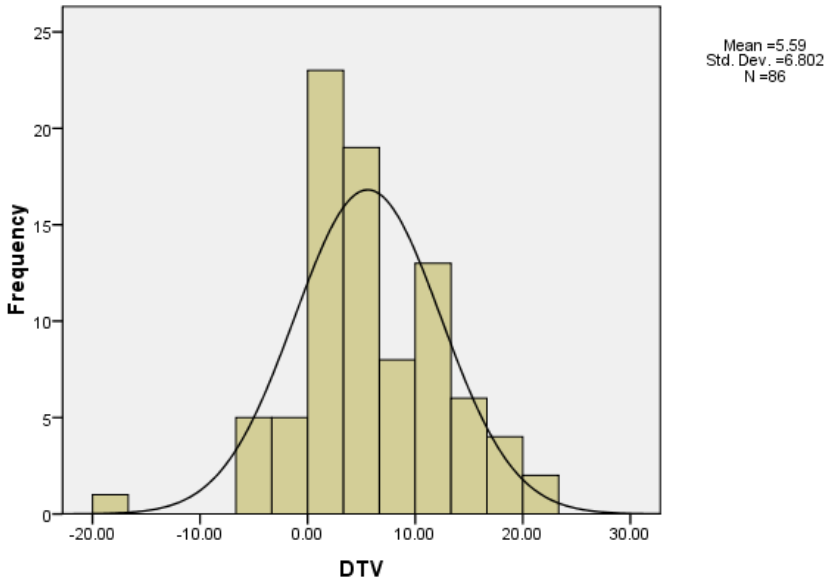
5 Results

To determine if DT is prevalent in popular films (H1), a one-sample *t*-test was conducted. The one-sample *t*-test showed that the average DT vector for all movies ($M = 5.59$, SD = 6.80) was significantly higher than 0, t (85) = 7.62, $p < 0.001$, $r = 0.64$. Thus, adherence to DT is prevalent in films. Figure 3 presents a histogram of the distribution of DT vector scores and Table 1 breaks down the distribution according to popular genres.

Descriptive statistics were examined to further determine the prevalence of DT in popular films (H1). Descriptive statistics showed that the percentage of films adhering to DT (i.e. the films with a positive score on the DT vector) was 73.3%. The 95% confidence interval was 71.8–74.7%. Thus, more than 70% of films adhered to DT. In contrast, only 12.8% of films violated DT (i.e. the films with a negative score on the DT vector). The 95% CI was 11.36–14.2%. The rest of films (14.0%) scored 0 on the DT vector indicating that they neither adhered to nor violated the tenets of DT. A one-way ANOVA showed that the average DT vector for each genre was not different from each other, F (5, 80) = 1.57, $p = 0.18$ and the averages were all significantly higher than zero. The correlation between the score on the DT vector ($M = 5.59$, SD = 6.80) and the budget of films ($M = 45.14$, SD = 45.02) was not significant, but it did approach significance r (71) = 0.21, $p = 0.08$.[3] However, general tendency indicated that high-budget Hollywood movies might adhere to DT more than low-budget films.

DT's relation to film popularity (RQ1) was examined through correlational analyses. A Pearson correlation assessed the relationship between DT vector ($M = 5.86$, SD = 6.80) and US box office income in millions ($M = 50.90$, SD = 73.76). The correlation between the score on the DT vector and US box office income showed a significant positive relationship, r (86) = 0.22, $p = 0.045$.[4] Further analysis between the DT vector and film quality showed that the correlation between DTV and rating ($M = 49.28$, SD = 18.55) was not significant, r (83) = –0.08, $p = 0.47$.

Figure 3 Distribution of DTV (see online version for colours)



To examine whether film budget was positively related to popularity (H2), a correlation analysis was conducted between film budget and gross income. The correlation was highly significant, r (71) = 0.72, $p < 0.001$.[5] To examine whether film quality was related to popularity (RQ2), a correlation analysis was conducted. The correlation was not significant, r (83) = 0.11, $p = 0.34$,[6] indicating that quality may be unrelated to actual popularity.

The extent budget and film quality moderate the relationship between adherence to DT and popularity (RQ3) was examined using multiple regression. A multiple regression analysis was performed with DT vector, budget and quality as predictors of US box office income. The model accounted for a significant portion of variance, F (3, 67) = 27.12, $R^2 = 0.55$, $p < 0.001$.[7] The standardised coefficient for budget was $\beta = 0.71$, $p < 0.001$ and the standardised coefficient for quality was $\beta = 0.15$, $p = 0.07$. Finally, the standardised coefficient for DT vector was $\beta = 0.07$, $p = 0.39$. Thus, we conclude from the analysis that when controlling for other important factors, adherence to DT provided no explanatory power for the film's popularity. Instead, budget was the single most important predictor of the popularity of films.

Table 1 Descriptive statistics of sample

		US gross box office (in millions)		*Metacritic rating (0–100)*	
Genre	*n*	*M*	*SD*	*M*	*SD*
Action	22	61.43	50.80	44.00	13.70
Adventure	10	150.57	144.48	53.70	21.16
Comedy	24	44.23	62.95	49.33	21.04
Crime	5	43.98	25.15	39.50	18.86
Drama	16	20.50	27.68	61.20	14.18
Horror	9	30.87	28.85	35.44	15.70
Total	86	52.61	74.53	49.28	18.55

6 Discussion

The results underscore the importance of DT to film narrative. There was a clear prevalence of adherence to a narrative structure in which good characters are rewarded and bad characters are punished. The fact that the majority of films adhered to these criteria was unsurprising. Since 12.8% of the films apparently violated DT (i.e. 11 films out of the final 86 films in the analysis), it appears that sometimes, films may still be reasonably popular or profitable even when DT is violated. Indeed, it has been noted that for a film to remain engaging, the well-being of good characters must be compromised in order to create conflict and suspense, which is the driving mechanism of dramatic narrative (Zillmann, 2006). Sometimes, good characters may be punished in order to allow for other characters to maintain their well-being or to engage members of the audience who seek closure and balance for a morally laden narrative scenario.

The positive correlation between DT and popularity is in line with current theory suggesting that popular media reflects social justice mores. However, it is notable that this correlation between DT and popularity disappeared when controlling for the budget of a film. This implies that DT has little to no predictive power when it comes to

measuring box office success. It is important to note, however, that this lack of a correlation could be due to a restriction in range problem. Films with narratives that significantly deviate from DT could be weeded out by producers and distributors before they ever reach the box office, which would lead to an attenuated correlation between DT and success. This self-regulation by the film industry would thus lead to an attenuated correlation between DT and success. The fact that the distribution of DT vector scores in this sample centres significantly above zero is further evidence of this possibility. This indicates that film producers may have an understanding (either intuitive or explicit) of the tenets of DT. Supporting this, Raney (2003) implies that rather than knowingly adhering to DT, writers are simply holding to standard narrative convention. If DT is the same thing as narrative convention, one might think that the writers would be better at producing popular films (i.e. films that make money to the extent that they hold to these conventions). Perhaps the average US moviegoer is jaded and looking for other types of entertainment than formulaic storytelling, and this result might indicate that this is what is taking place. On the other hand, clearly marketing, budget, big name talent, social networking and many other factors drive gross intake rather than content features. Perhaps strong narrative justice cannot compete with some of these other factors for variance explained, and adherence to DT it is a necessary, but not sufficient, condition for success.

The fact that budget is the most important predictor of popularity indicates that DT may be less important in predicting mass popularity. This does not indicate that DT is not an important theory for narrative appeal. It may indicate, however, that the DT processes occur within the individual rather than at the level of the mass audience. In fact, Zillmann (2000) argued a similar point in his moral sanction theory of delight and repugnance:

> "In constructing theories of drama appreciation that involve moral sanction as an essential mechanism it is therefore imperative to recognize, and to make allowances for, the diversity of basal morality in strata of the population at large" (pp.60–61).

We argue with regard to DT that emphasis should be placed on *intra*-individual reception processes rather than examining patterns across individuals, which may represent the confounding of both moral and non-moral factors related to character liking.

6.1 Limitations

This study was the first to quantify the extent to which films violate or adhere to DT's tenets of morality and outcome in narratives. The study also provided a methodological contribution by modifying the DT vector (Weber et al., 2008) so it can distinguish between movies that violate DT's tenets and movies that uphold DT's tenets. This is an improvement over the past literature since the original DT vector cannot distinguish between violations of and adherence to those tenets

Although the study served its purpose, it did, however, have some limitations. For example, sometimes the descriptions of the film endings did not contain enough detail for coders to ascertain the degree to which characters were rewarded or punished, so one was left being forced to code for an ambiguous ending when the actual film provided those endings. This could have led to the lower reliabilities between coders. However, even with this limitation, coder reliability was still acceptable. Next, secondary and tertiary characters were poorly described in the summaries, as evidenced by the initial lack of

inter-coder agreement in character importance. Although this was the exception rather than the rule, it demonstrates how actual films would have been much more detailed and how a direct analysis of the films themselves would be superior. Lastly, media often depict subtle punishments and rewards that may not have been indicated by the short film summaries. If the actual films had been coded rather than the film summaries, character morality and endings for some of the films would have been clearer.

6.2 Future directions and conclusion

Future studies investigating how films adhere (or do not adhere) to DT's tenets should use actual films rather than summaries. By utilising such a method, one should be able to detect more subtle rewards and punishments and code with higher reliability and precision. The limitations of the current study were partially due to such ambiguities inherent in the summaries.

With regard to subtleties of reward and punishment, there are numerous examples where endings might be ambiguous in a summary but much clearer when it comes to the iconic representation of film.

Furthermore, there is also the issue of minimally satisfying resolutions, where the characters receive the best possible resolution given the circumstances of the film (Zillmann, 2000). For example, if a character dies, but exorcises demons or comes to peace by dying, then should that be considered as a reward or as a punishment? We think that a complete film, generally, will depict the emotions of the character of interest well enough for the viewer to distinguish the degree of the punishment or reward inherent in such an event. Or, e.g., as in the film *Braveheart*, if a good character dies near the beginning of the film to drive the plot forward, how should this be taken into account when assessing the degree to which the other characters were rewarded in the end? Losing a loved one should be a tragic punishment, but when good characters are simply spared from harm and their loved ones have suffered loss of life, is this not a 'net' punishment?

Rewards and punishments should be tracked through the entire duration of the film and take into account the events that drive a plot forward, the events of the climax and the events of any dénouement. This might reveal a general narrative structure that does not necessarily entail good characters being rewarded or bad characters being punished perforce, but one in which bad characters do not have positive outcomes in the end (but still may in the middle or beginning of a film) while good characters are only punished to drive the plot forward (and balance is restored in the end). This would still be consistent with the implicit assumptions of DT.

This study provides the first ecological examination of DT in popular films. It answers several questions regarding how DT functions in popular film and tests some implicit assumptions within the literature by examining how films actually adhere to or violate a theory important for narrative enjoyment. As descriptive research like this expands, considerations of liking, film quality and popularity should be explored further. As media scholars, we cannot neglect any reason why a particular film would be considered enjoyable, high in quality or popular, nor can we neglect to provide answers to what these constructs mean.

References

Eliashberg, J. and Shugan, S.M. (1997) 'Film critics: influencers or predictors?' *Journal of Marketing*, Vol. 61, pp.68–78.

Giles, J. (2005) 'Internet encyclopedias go head to head', *Nature*, Vol. 438, pp.900–901.

Klapper, J.T. (1960) *The Effects of Mass Communication*. Glencoe, IL: Free Press.

Raney, A.A. (2003) 'Disposition-based theories of enjoyment', in J. Bryant, D.R. Roskos-Ewoldsen and J. Cantor (Eds.), *Communication and Emotion: Essays in Honor of Dolf Zillmann*. Mahwah, NJ: Erlbaum, pp.61–84.

Raney, A.A. (2004) 'Expanding disposition theory: reconsidering character liking, moral evaluations, and enjoyment', *Communication Theory*, Vol. 14, pp.348–369.

Raney, A.A. (2006) 'The psychology of disposition-based theories of media enjoyment', in J. Bryant and P. Vorderer (Eds.), *Psychology of Entertainment*. Mahwah, NJ: Erlbaum, pp.137–150.

Raney, A.A. (2009) 'Testing affective disposition theory: a comparison of hero and anti-hero narratives', Paper presented at the *Annual Meeting of the International Communication Association*, Chicago, IL.

Raney, A.A. and Bryant, J. (2002) 'Moral judgment and crime drama: an integrated theory of enjoyment', *Journal of Communication*, Vol. 52, pp.402–415.

Simonton, K.D. (2005) 'Cinematic creativity and production budgets: does money make the movie?' *The Journal of Creative Behavior*, Vol. 39, No. 1, pp.1–15.

Tamborini, R., Weber, R., Eden, A., Bowman, N.D. and Grizzard, M. (in press) 'Repeated exposure to daytime soap opera and shifts in moral judgment toward social convention', *Journal of Broadcasting and Electronic Media*, Vol. 54, No. 4.

Weber, R., Tamborini, R., Lee, H.E. and Stipp, H. (2008) 'Soap opera exposure and enjoyment: a longitudinal test of disposition theory', *Media Psychology*, Vol. 11, pp.462–487.

Zillmann, D. (2000) 'Basal morality in drama appreciation', in I. Bondebjerg (Ed.), *Moving Images, Culture and the Mind*. Luton, England: University of Luton Press, pp.53–63.

Zillmann, D. (2006) 'Dramaturgy for emotions from fictional narration', in J. Bryant and P. Jennings (Eds.), *Psychology of Entertainmen*t. Mahwah, NJ: Lawrence Erlbaum Associates, pp.215–238.

Zillmann, D. and Bryant, J. (1975) 'Viewer's moral sanction of retribution in the appreciation of dramatic representations', *Journal of Experimental Social Psychology*, Vol. 11, pp.572–582.

Zillmann, D. and Cantor, J.R. (1976) 'A disposition theory of humour and mirth', in T. Chapman and H. Foot (Eds.), *Humor and Laughter: Theory, Research and Applications*. New York: John Wiley & Sons, pp.97–115.

Notes

[1] In fact, a study comparing scientific articles in Wikipedia and Encyclopedia Britannica found that the number of errors in Wikipedia closely mirrored the number of errors present in Encyclopedia Britannica (cf. Giles, 2005).

[2] The DT vector score was normally distributed as indicated by a one-sample Kolmogorov–Smirnov, K–S (86) = 0.08, $p = 0.20$. Thus, the assumption of normal distribution was not violated in the subsequent analyses involving this variable.

[3] Budget was not normally distributed as indicated by a one-sample Kolmogorov–Smirnov test, K–S (71) = 0.18, $p < 0.001$. However, a natural log transformation was conducted on budget which normalised the data, K–S (71) = 0.09, $p = 0.20$. The correlation between the transformed budget and the DT vector, r (71) = 0.21, $p = 0.087$, did not differ from the correlation with the untransformed budget information, which is presented in the text.

[4] Box office gross was not normally distributed as indicated by a one-sample Kolmogorov–Smirnov test, K–S (71) = 0.23, $p < 0.001$. However, a natural log transformation was conducted on US box office gross income which normalised the data, K–S (71) = 0.09, $p = 0.20$. The correlation between the transformed gross income and the DT vector, r (71) = 0.215, $p = 0.047$, did not differ from the correlation with the untransformed gross income information, which is presented in the text.

[5] The correlation between the transformed gross income and the transformed budget, r (71) = 0.77, $p < 0.001$, did not differ from the correlation with the untransformed variables, which is presented in the text.

[6] The correlation between the transformed gross income and film quality was also not significant, r (83) = − 16, $p < 0.15$, did not significantly differ from the correlation with the untransformed variable, which is presented in the text.

[7] The multiple regression was also run with the transformed variables. There were no significant differences between the transformed data and the untransformed data. F (3, 67) = 32.40, $p < 0.001$, $R^2 = 0.59$. $\beta_{\text{BUDGET}} = 0.76$, $p < 0.001$; $\beta_{\text{QUALITY}} = 0.04$, $p = 0.61$; $\beta_{\text{DTVECTOR}} = 0.05$, $p = 0.57$.