Do Morals Featured in Media Content Correspond with Moral Intuitions in Media Users?: A Test of the MIME in Two Cultures

Sujay Prabhu, Lindsay Hahn, Ron Tamborini & Matthew Grizzard

To cite this article: Sujay Prabhu, Lindsay Hahn, Ron Tamborini & Matthew Grizzard (2020): Do Morals Featured in Media Content Correspond with Moral Intuitions in Media Users?: A Test of the MIME in Two Cultures, Journal of Broadcasting & Electronic Media, DOI: 10.1080/08838151.2020.1757364

To link to this article: https://doi.org/10.1080/08838151.2020.1757364

View supplementary material

Published online: 20 May 2020.

Submit your article to this journal

Article views: 3

View related articles

View Crossmark data
Do Morals Featured in Media Content Correspond with Moral Intuitions in Media Users?: A Test of the MIME in Two Cultures

Sujay Prabhu a, Lindsay Hahn b, Ron Tamborini c, and Matthew Grizzard d

aPsychology of Entertainment Media Lab, Michigan State University, East Lansing, Michigan, USA; bDepartment of Communication, University at Buffalo, State University of New York, New York, USA; cDepartment of Communication, Michigan State University, East Lansing, Michigan, USA; dSchool of Communication, The Ohio State University, Columbus, OH, USA

ABSTRACT

The model of intuitive morality and exemplars (MIME; Tamborini, 2013) attempts to examine media’s influence on cognitive mechanisms by describing how representations in media content can influence the strength of moral intuitions (instincts related to morality which have developed in human beings through the course of evolution), and how these intuitions’ strength might subsequently impact moral judgment and behavior. The MIME describes a reciprocal process in which media representations and audiences’ moral instincts continually influence each other. More specifically it predicts that: (a) representations of specific moral values in media content activate related moral instincts in audiences; (b) audience members in turn are influenced by their moral instincts to select content featuring corresponding moral values; and (c) at the aggregate level, these audience...
selection patterns lead media producers to generate content prominently featuring those moral values. If this predicted media-audience interdependency is true, we should expect that the moral instincts which are most active in audiences of specific media content should correspond to the moral values which are more prominently represented in that content. While a growing body of research has demonstrated that exposure to media content featuring specific intuitions can temporarily increase the strength of those intuitions in audiences (e.g., Eden & Tamborini, 2016; Tamborini, Lewis, et al., 2016; Tamborini, Prabhu et al., 2016; Tamborini et al., 2014) and that this strength can temporarily influence their selection of content (Prabhu et al., 2014; Tamborini, Eden et al., 2013), no research to date has examined the relationship between intuitions' prevalence in media content and the associated enduring patterns of intuition strength in audiences (but see Krijnen & Verboord, 2016). The present paper describes an initial test of this enduring instinct-content interdependency proposition in two media systems: one in India and one in the U.S.

The Model of Intuitive Morality and Exemplars (MIME)

The model of intuitive morality and exemplars (MIME; Tamborini, 2013) describes a recursive relationship between media and audiences, wherein media are thought to influence the strength of basal human instincts and these instincts in audiences subsequently impact media-related, as well as real-world behaviors. The moral instincts described in the MIME are adopted from moral foundations theory (Haidt & Joseph, 2007). The MIME uses this theoretical framework to describe five different moral intuitions, each with unique sensitivities to distinct classes of actions. It further explains how exposure to specific representations can activate these moral intuitions in audiences.

Moral Foundations Theory

Moral foundations theory proposes that most moral judgments result from quick, automatic, gut-level processes. The theory describes gut-instincts which guide moral decision-making and have developed in humans through the course of evolution. Although its dual-process logic does not rule out the influence of conscious deliberation on moral reasoning, it proposes that gut instincts account for a substantial portion of moral judgment (Haidt, 2001). More specifically, it proposes that there are five evolutionarily developed mental systems that form the foundation of instinctive moral judgment (Haidt, 2001; Haidt & Joseph, 2007). These intuitions include (a) care (linked to caring, nurturing, empathy, and concern for individuals in need, as well as an aversion toward harm and
cruelty), (b) fairness (based on reciprocal altruism and concerns regarding equality, as well as an aversion toward unequal distribution and unjust consequences), (c) ingroup loyalty (based on coalitional psychology, commitment, and self-sacrifice for the group, and an aversion to group betrayal and treason), (d) authority (a respect for social order and legitimate dominance hierarchies and the virtues of deference, subordination, and leadership, and an aversion toward disobedience and disrespect) and, (e) purity (concerned with suppressing humanity’s carnal nature by cultivating a spiritual mind-set while being averse to biological and social contamination and disgust). While the theory proposes that there may be additional mental systems that constitute morality, these propositions are speculative in nature. As such, the MIME only incorporates the five original mental systems into its model and labels them as moral intuitions.

**Moral Domain Representations**

According to moral foundations theory, each of the five moral intuitions has developed in human beings over time as an evolutionary advantage. As such, each moral intuition serves an adaptive function. More specifically, moral foundations theory describes each intuition as an evolutionarily developed sensitivity to a distinct domain of social behavior that the specific adaptive function relates to (Haidt & Joseph, 2007). For example, the care intuition, whose adaptive function is to protect the young and vulnerable kin from harm, manifests as a sensitivity toward the domain of social behavior related to protection from harm. Hence, exposure to any positive/negative social behavior related to protection from harm (such as one individual protecting another from distress, or even one individual causing pain to another) is likely to automatically trigger the care intuition in a person. We refer to the domain of all social behavior relevant to the adaptive function of moral intuition as a moral domain, and a representation pertinent to that moral domain as a moral domain representation.

**Strength of Moral Intuitions**

Moral foundations theory (MFT) claims that although all moral intuitions are active in every human being, some moral intuitions are stronger (i.e., more readily activated) in specific people. For example, the care intuition has been shown to be stronger in women than in men (Graham et al., 2011). In addition, conservatives have been shown to have higher levels of loyalty, authority, and purity than liberals (Graham et al., 2009).

In line with MFT, the MIME maintains that patterns of intuition strength will vary as a result of individual-level factors and, relevant to
the current study, aggregate-level factors. Previous studies have shown differences in the extent to which various groups place importance on certain moral values compared to others. For instance, moral variation has been shown in accordance with groups’ ethnicities as well as political ideologies (Graham et al., 2011). Given that members of a social group often share similar experiences, we could expect similarities in the strength of moral intuitions in members of the same social or cultural group. The MIME refers to this phenomenon as an aggregate pattern of moral intuition strength.

**The MIME’s Account of Media Influence**

The MIME argues that the strength of a moral intuition (at the individual or aggregate level) is not fixed across time, and that it can vary with time in response to external influences. Adapting logic from research describing media’s long-term influence on the chronic accessibility of constructs (Shen, 2004), the MIME argues that frequent/repeated exposure to moral domain representations can increase the chronic/baseline strength of the corresponding moral intuition. For example, if a person frequently encounters fairness-related stimuli, the chronic strength of the fairness intuition should increase in her/him in the long term. Past research on the MIME has shown that media exposure can increase both the temporary (Tamborini, Lewis et al., 2016; Tamborini, Prabhu et al., 2016) and chronic strength (Tamborini, Prabhu et al., 2013) of moral intuitions.

The MIME extends this proposition further to claim that if most members of a particular group are repeatedly exposed to the same media content focusing on representations of specific moral domains, the strength of intuitions relevant to those domains increases in the minds of all group members on an aggregate level. Such a group need not be a social or cultural group, but can also be a set of individuals who are exposed to the same media content over a long period of time. For example, based on this logic, we should observe similarities in the intuition strengths of long-time viewers of a television show, who have been repeatedly and consistently exposed to the same moral domain representations at regular intervals.

**Media Selection as a Function of Intuition Strength**

According to the MIME, the strength of moral intuitions also influences audiences’ choice of media content. Media content featuring both upholding as well as violating representations of a moral intuition that is stronger in audiences should be capable of holding their interest. A program that repeatedly features representations that uphold the principles related to a moral intuition that is stronger in an individual is likely to be liked by
that person. However common as Cantor et al. (1975) note, selective representations of negative hedonic valence generate the arousal that is required to sustain the audience’s interest in a narrative. This means that although negative/violating moral domain representations are likely to produce negative affect in the viewer, they are needed in order to produce the excitatory response that will both amplify the positive affect of the upholding representations, and keep the viewer stimulated and invested in the narrative. For example, consider a group of audience members in whom the care intuition is strong. A TV show which features a large number of representations that uphold care, and a few representations that violate care should excite viewers, and hence keep them interested. This proposition has also found support in past MIME research, which has shown that the strength of moral intuitions predicts selection of media content featuring corresponding moral domains (Prabhu et al., 2014).

**Media Production as a Function of Aggregate Intuition Strength**

The MIME contends that aggregate group media preferences, shaped by shared patterns of intuition strength, ultimately guide the production of media content. Building upon the proposition that media producers are mindful of the tastes of their target audience (Gans, 1957), the MIME claims that media producers constantly monitor themes that appear in content selected by target audiences, and keep featuring those themes in their content in an attempt to retain their target audience. Because the themes featured in selected content will be related (to some extent, at least) to the moral domains relevant to the intuitions that are salient in the target audience, when carried forward, fresh content based on the same themes will focus on the same moral domains. Thereby, content featuring the same moral domain representations is regenerated, which helps maintain the dominance of the same moral intuition/s within the media system.

**The Relationship between Domain Representations and Moral Intuitions**

If the MIME’s propositions are true, there should be a correspondence between the moral domains most frequently represented in the content of specific media and the moral intuitions that are most strong in the minds of the audiences of that media content. For example, if specific media content (such as a TV show) frequently features care and fairness domain representations and the care and fairness moral intuitions are also the most strong moral intuitions in the minds of the audiences of that TV show, this might provide preliminary support for the MIME’s content-intuition interdependency proposition. Before expensive and time-consuming longitudinal studies are carried out to establish causality,
exploring this content-intuition interdependency in separate media systems is an important initial step needed to examine if the propositions of the MIME could be true, and if more studies along this line are warranted. Accordingly, we pose the study’s central hypothesis.

H1: Moral domains that are most frequently represented in the content of specific media will correspond to the moral intuitions that are strongest in the audiences of that media content.

**Method**

MIME logic suggests that the content-intuition interdependency mechanism should not be culture- or media-specific, but should be observed in a variety of media systems. In order to test this proposition, a decision was made to test the same design in the media systems of two different countries. Given that both available coders for this project were people of Indian origin living in the U.S., and familiar with the language and mores of both India and the U.S., it was decided that the hypothesis would be tested with one media system in the U.S. and one in India. Observing the aforementioned content-instinct correspondence separately in both cultures could increase our confidence in the belief that MIME mechanisms are valid across cultures. Notably, it is not the goal of the present study to make cross-cultural comparisons; instead, we seek to test the MIME’s content-intuition interdependency in two separate media systems that exist in separate cultures.

This study was carried out in two phases. The first phase (content analysis) established patterns of moral domain representations in examined media content. The second phase (MF-AMP procedure) recruited regular viewers of the selected media content and administered the MF-AMP to ascertain their patterns of moral intuition strength, and contrasted it with patterns of moral intuition strength of non-viewers from these cultures.

**Phase 1 – Content Analysis**

**Selection of Media to Analyze**

The MIME’s long-term component describes the effect of repeated media exposure on the strength of audience’s moral intuitions. This effect will likely be strongest in audiences of media that are habitually consumed. Such audiences could include those of daily television serials (also known as soap operas) which air multiple times during a week with storylines that continue from one day to another, often airing for several years. By returning to storylines on a daily basis, serials create compelling characters and encourage audiences to develop enduring attachments that can result in strong audience parasocial relationships with them (e.g., Perse & Rubin, 1988; Rubin, 1985; Rubin & Perse, 1987). This type of viewer involvement
with serial content suggests that daily serials are an ideal medium in which to test the MIME’s propositions.

**Selecting Specific Daily Serials for Analysis**

The MIME proposes that content-intuition correspondence can be detected within a single media system. Such a system should include a media platform with content that is fairly homogenous, and which appeals to an audience of a specific psychographic. While such a media platform could exist at many levels of abstraction in the context of television (such as a genre or content in a specific channel), the most basic and irreducible level of a media system in television pertains to an *individual television show*. Every television show is produced to cater to a specific audience psychographic (from a MIME perspective, this would be an audience in whom specific intuitions are stronger than others), and should accordingly have content that is homogenous in terms of moral domain representation. It is at this level that similarity between content and audience characteristics is best observed. Combining content from multiple shows that may each cater to different audiences would overlook the unique pattern of domain representations in each show which attracts its specific audience. So for example, if we randomly sampled from a list of all shows on television, coded them and combined their findings, this would defeat the purpose of identifying a unique media system in which the media content focused on a single pattern of moral domain representations, and whose audience represented a distinct pattern of aggregate moral intuition strength. Hence, just one daily serial was sampled to represent each media system from India and the U.S. respectively.

While the content and audience of a single television show could represent an individual media system, the mere existence of a television show does not imply a media system. Numerous television shows on air may not have a consistent viewer base who watches (and can be influenced by) the content regularly. A media system is best observed with a television show which has a loyal and committed fan base that consistently views its content and accordingly guides the future production of content. Therefore, only the most popular and long-running daily serial (at the time the study was being conducted) in India and the U.S. were considered for analysis. At the time of coding, *The Young and the Restless* and *Diya aur Baati Hum* were the most watched daily serials in the U.S. and India, respectively, each having a loyal fan base which has persisted for several years (https://bestmediainfo.com/2013/11/gec-watch-diya-aur-baati-hum-on-starplus-becomes-highest-ever-rated-fiction-show/). Accordingly, they were chosen for coding.
**Sampling Units for Analysis**

The basic unit of coding and analysis in this study was the *scene*. The five moral domains were coded for presence or absence in each scene. We defined a scene as an uninterrupted sequence of action or interaction between characters in a specific setting. A scene ends whenever the action cuts to a completely new physical setting. The scene was chosen as the unit of coding because a scene is the basic foundational block of every television narrative. It is at this level that a moral domain representation (such as empathy, dishonesty, disobedience, etc.) is best understood by viewers and most easily coded.

Practical considerations in this study made it very difficult for the random sampling of units (i.e., scenes) and necessitated a convenience sample. The classical practice of random sampling in content analyses assumes that each unit (for example, newspaper article) can be comprehended and coded independently by itself. However, units (scenes) in TV narratives can rarely be comprehended completely by themselves and are not independent of each other. In the context of a TV show, sufficiently comprehending each unit/scene is often dependent on comprehending the previous scene. For example, it is difficult to detect moral representations like dishonesty unless one understands the larger context that the scene is set in. In addition, in daily serials, every episode is not self-contained. Each episode starts from where the previous episode ends. Therefore, random sampling of episodes is not practical, given that it is difficult to fully comprehend the actions in one episode without knowing the proceedings of the past several episodes. Therefore, a decision was made to use one large block of consecutive episodes from each show for coding purposes. The selection of such a convenience sample could raise several questions including whether such a selected block of content could be taken to represent broader patterns of content representations in the show over a prolonged period of time. This point has been addressed in the limitations section, where we have presented various reasons to argue that even a sample such as one we selected could be representative of the broader content patterns of a show over a larger period of time.

**Coder Training**

Because coding the daily serial content from the US and India required that coders be able to code for moral representations in the English and Hindi language, respectively, coders were trained to recognize moral content from videos in two languages (Hindi and English). Therefore, it was important that the coders could understand conversations in both Hindi and English. One male and one female coder (both graduate level communication students) were chosen as coders. Both coders were born and raised in India, but exposed to American media from a young age, and had also
lived in the U.S. for a few years. Based on their extensive experiences, it was presumed that they were familiar with customs and codes of conduct in both cultures and could identify moral stimuli relevant to moral intuitions in media content.

Coders were first asked to thoroughly read the protocol by themselves. They then met and discussed the protocol. Coders were trained to identify where a scene begins and ends until there was 100% agreement. During training, coders discussed and coded TV serial content together, specially focusing on disagreements. After minor changes were made in the coding manual to resolve ambiguity, coders independently coded 2 weeks of content. Some of this content was used to establish reliability, the rest was used for final coding.

**Coding Manual**

As stated earlier, a moral domain refers to the domain of social behavior relevant to a specific adaptive function. In order to come up with a scheme of moral domain representations that could be coded in our content, we referred to Haidt and Joseph (2007) who specify a broad domain of adaptive triggers (such as dominance/submission for authority) related to each moral domain. They further claim that the broad adaptive function of each domain is manifested in specific virtues (such as obedience and deference for authority) and vices (such as treason for ingroup loyalty). This is consistent with moral foundation theory’s logic, which states that both positive/upholding and negative/violating representations are capable of activating moral intuitions. Rather than coding for these virtues/vices (which can be abstract and therefore difficult to be unambiguously detected in narratives) directly, we implemented a coding manual which outlines behavioral correlates of these virtues and vices. This coding manual was developed to extract moral intuitions from both text and video content, and has been used successfully in previous research (Hahn et al., 2017; Tamborini et al., 2017).

The behavioral correlates identified by the coding manual are behaviors, which manifest a latent virtue/vice and highlight the importance of engaging in the virtue, or avoiding the vice. For example, Haidt and Joseph identify kindness as well as caring as virtues relevant to care. However, as clear as these concepts may be in abstraction, they can be difficult to code in narrative content because it can be manifested in several specific behaviors. As a result, representations of kindness and caring were operationalized as acts of considerate behavior and empathy, respectively. In our coding manual, considerate behavior, the concrete behavioral correlate of kindness, referred to physical acts meant to accommodate needs of others (such as helping an old woman walk across the street), and empathizing with others (the behavioral correlate of caring) referred to the act of
listening to another person and identifying with that person’s pain/discomfort. Similarly, a set of behavioral correlates were identified for virtues/vices relevant to all five moral domains. Coders were trained to identify these behavioral correlates in content in the training phase. Coders coded for the presence/absence of each of these behavioral correlates during reliability testing.

In order to identify behavioral correlates that could be deemed to be reliably coded based on an acceptable level of intercoder agreement, Krippendorff’s (2012) guidelines were used. Krippendorff (2012) is reluctant to prescribe a single threshold of intercoder agreement that applies in all cases. Instead, he suggests that the minimum level of intercoder agreement should depend on the need for precision in that case. A case with concrete, urgent life-or-death implications would require close to perfect intercoder agreement. However, he suggests that a study whose implications are less concrete and urgent, and more abstract/theoretical in nature could have a lower level of intercoder agreement. For a content analysis such as ours, which is a preliminary effort to code abstract concepts that are still in the process of being further explored and fleshed out, he suggests a more liberal cutoff of a Krippendorff’s Alpha of 0.66. Accordingly, this cutoff was adopted as the criterion to determine if a behavioral correlate was deemed reliable enough to be coded in the final coding. After reliability testing, behavioral correlates which did not meet the aforementioned level of intercoder agreement, or had insufficient variance (i.e., were not coded for at all) were discarded (procedural/distributive justice and injustice for fairness, excess/sacrilege for purity). This left three behavioral correlates for all domains except purity, for which only two behavioral correlates remained. The behavioral correlates which remained were deemed to sufficiently represent a substantial amount of theoretical breadth of all domains and were retained for final coding. In the final coding, a moral domain was considered to be present in the scene if any of its final behavioral correlates were coded for in the scene. The list of behavioral correlates for all moral domains, along with their conceptual and operational definitions and their Krippendorff’s Alphas can be seen in Table 1.

**Coding Procedure**

Coders watched the most recent month (at the time of coding) of content for both shows. Once coders became familiar with the proceedings in all storylines, as well as comfortable in identifying the various types of moral domain representations in the codebook, both coders coded the same block of consecutive content (51 scenes) for reliability testing purposes. Communication among coders (pertaining to coding the material) during the coding stages was forbidden. After appropriate behavioral correlates were identified for final coding based on intercoder agreement, coders
continued coding the ongoing content. In the final coding phase, each coder separately coded every alternate day of content in the Indian and US serial. For example, on 1 day, Coder 1 coded the episode in the Indian serial and Coder 2 coded the episode in the U.S. serial. They switched positions the next day. This procedure continued until all content in the block was coded. Data obtained during reliability testing were combined with the data from the final coding. This was done in accordance with Krippendorff’s (2012) recommendation to exclude consideration of units on which coders disagreed. In total, 263 scenes ($n_{\text{Indian}} = 129$, $n_{\text{US}} = 134$) were coded.

### Phase 2: MF-AMP Procedure

**Recruiting TV Show Viewers and Non-viewers**

Data from four different samples (show viewers and non-viewers from both countries) were collected online on the crowdsourcing website Mechanical Turk. This website provides a platform for people to do quick online tasks for employers (such as transcribing audio, tagging pictures, and participating in online research) and be compensated accordingly. Mechanical Turk is increasingly being used as a tool to recruit subjects for research.

### Table 1. Behavioral correlates and Krippendorff’s alphas for each intuition.

<table>
<thead>
<tr>
<th>Moral Intuition</th>
<th>Adaptive Challenge*</th>
<th>Adaptive triggers*</th>
<th>Relevant virtues/vices*</th>
<th>Behavioral Correlate</th>
<th>Krippendorff’s $\alpha$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care</td>
<td>Protecting young and vulnerable</td>
<td>Suffering, Distress, Threat to kin</td>
<td>Kindness</td>
<td>Considerate Behavior</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Caring</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cruelty</td>
<td>0.86</td>
</tr>
<tr>
<td>Fairness</td>
<td>Dyadic cooperation with non-kin</td>
<td>Cooperation, Cheating, Deception</td>
<td>Honesty</td>
<td>Honesty under pressure to lie</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Justice</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dishonesty</td>
<td>0.81</td>
</tr>
<tr>
<td>Loyalty</td>
<td>Protecting group from rival groups</td>
<td>Threat or challenge to group</td>
<td>Self-sacrifice</td>
<td>Concern/Sacrifice for group</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Treason</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cowardice</td>
<td>0.66</td>
</tr>
<tr>
<td>Authority</td>
<td>Negotiating hierarchies</td>
<td>Dominance, Submission</td>
<td>Obedience</td>
<td>Obeying orders</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Deferring to tradition</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Disobedience</td>
<td>0.85</td>
</tr>
<tr>
<td>Purity</td>
<td>Avoiding contamination</td>
<td>Waste, Diseased people</td>
<td>Temperance</td>
<td>Restraining physical pleasure</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Piety</td>
<td>0.73</td>
</tr>
</tbody>
</table>

* = As reported in Haidt and Joseph (2007)
conducted online (Mason & Suri, 2012). Most participants on the website belong to India or the United States, and represent a broad range of demographic categories in both cultures (https://www.behind-the-enemy-lines.com/2010/03/newdemographics-of-mechanical-turk.html). Regular viewers of the Indian and U.S. shows were recruited with the help of a screening quiz to ensure that they were viewers. To recruit non-viewers of the shows (for comparison purposes) in both countries, an open invitation asked residents of India or the U.S. to complete the MF-AMP and, at the end of the procedure, indicate if they were regular viewers of the TV show from their country. Participants who indicated that they were viewers of the show(s) were discarded.

To recruit viewers of shows from both countries, an invitation (one for each show) was posted on the website inviting regular viewers of the show to participate in an online procedure. They were told that they would have to pass a screening quiz which checked if they were regular viewers of the show, following which they would do a quick rating task (MF-AMP procedure). Participants who successfully completed the quiz and rating task were paid 0.40 USD. Participants who failed the screening quiz were not paid and were not allowed to do the rating task. The study procedure was approved by the host institution’s Institutional Review Board (IRB).

**Screening Quiz.** A timed quiz consisting of four multiple-choice questions was used to gauge the participant’s knowledge of the shows. After entering an anonymous research code, participants were told that they would be directed to a page which would be active only for 60 seconds in which they would have to answer four questions about the show. The next page had a timer (counting down from 60 seconds), and four questions, each requiring the participant to select the picture of an actor/actress featured on the show from among four options. Only participants who answered all four questions correctly passed the quiz and were allowed to advance. Even if one question was answered incorrectly the participant was disqualified, and his/her IP address was blocked (so that they could not take the same quiz again). The 60-second timer was included to prevent participants from searching other online sources for the answer. Many of the actors that the participants had to identify in the quiz were not featured very frequently in the show so that they could be identified only by loyal and regular viewers of the show.

Responses from 473 participants across all four viewer and non-viewer groups were collected. After this, an attempt was made to remove the inattentive participants among them. The MF-AMP measures the extent to which participants respond positively to domain-upholding words and negatively to domain-violating words. Given that there were a roughly equal number of domain-upholding and -violating words, there is expected
to be at least some variance in the responses of an attentive participant. Based on this logic, participants who pressed the like or dislike button for 90% or more of the trials were considered to be inattentive, and not considered for further analysis. This left 104 viewers (\(M_{\text{age}} = 40.59, n_{\text{females}} = 75\)) and 120 non-viewers (\(M_{\text{age}} = 36.22, n_{\text{females}} = 68\)) from the U.S. and 115 viewers (\(M_{\text{age}} = 32.59, n_{\text{females}} = 71\)) and 119 non-viewers (\(M_{\text{age}} = 34.53, n_{\text{females}} = 54\)) from India.

**MF-AMP Procedure**

This study used an implicit measure known as moral foundations-affect misattribution procedure (MF-AMP) which purports to preconsciously measure the strength of moral intuitions. Adapted from the affect misattribution procedure (AMP; Payne, Cheng, Govorun, & Stewart, 2005) the MF-AMP has shown an indication of reliably measuring the strength of moral intuitions (Tamborini, Lewis, et al., 2016; Tamborini, Prabhu et al., 2016). Because this measure is implicit in nature, it is ideally suited to measure the preconscious strength of moral intuitions that participants may not consciously recognize.

**Broad Description.** In the MF-AMP, subjects are asked to make a pleasant/unpleasant judgment of an ambiguous stimulus (a Chinese character, shown briefly for 100 ms) by pressing the I button (on the right-hand side of the keyboard) if they find the stimulus to be pleasant and E button (on the left-hand side of the keyboard) if they find stimulus to be unpleasant. This ambiguous stimulus (which appears only for 100 ms) is preceded by a target stimulus (a word/phrase representing a moral intuition, flashed for 75 ms). Although participants are explicitly told to rate the pleasantness of the Chinese character, and that the preceding word/phrase only serves as a warning signal which should be otherwise ignored, the residual affect from the word/phrase is assumed to influence the pleasantness judgment of the Chinese character. Thus, if exposure to the word compassion (a word upholding the care intuition) generates positive affect in a participant, it is expected to influence him/her to rate the following Chinese character as pleasant.

Some of the words/phrases used in this procedure uphold a moral intuition (such as kindness for care) while others violate a moral intuition (such as insubordinate for authority). Consistent pleasant judgments of Chinese characters following words/phrases upholding a moral intuition indicate greater strength of that intuition, as do consistent unpleasant ratings of Chinese characters following words/phrases violating the intuition.
Data Preparation. While performing a CFA on our data, we had to control for a measurement artifact that influences scores on the MF-AMP. In addition to the constructs that they represent, observed variables sometimes contain some variance that can be attributed to measurement methods (Podsakoff et al., 2003). This type of variance is known as common method variance and is usually represented in a CFA through a method factor (Richardson et al., 2009). In the case of the MF-AMP, when a word produces no positive or negative affect in the participant, they randomly press the E key (unpleasant) on the left or I key (pleasant) key on the right. However, in these cases, their responses are not quite random and are instead usually biased toward their dominant hand. For a right-handed person, the tendency to hit the right button more often (in the absence of affect) leads to an unnatural inflation of the proportion of pleasant/like responses for positively valenced words, and unnatural inflation of dislike/unpleasant responses (after reversing) for negatively valenced words. The same effect works in the opposite direction for left-handed participants. This artifact causes the relationship between positive and negative words to become less positive and more negative. In order to control for this, a method factor was introduced in the measurement model. As recommended in the aforementioned research, the score for every word/item loaded on two factors: (a) a factor representing the individual moral intuition that the word represents, and (b) a method factor (a single factor common for all words) representing dominant hand bias, on which positive and negative words loaded in opposite directions. Because this bias influences all words to the same extent, the factor loadings of all words on this artifact’s factor were constrained to be equal in magnitude but opposite in direction for the positive and negative words. In addition, every word also loaded on to another latent factor representing its moral intuition. The factor loadings on the factors representing the five moral intuitions were unconstrained.

A maximum likelihood procedure with a variance-covariance matrix input was used to test the fit of the measurement model. It yielded an acceptable fit, $\chi^2 (124, N = 454) = 151.38, p = .05, \chi^2/df = 1.22; \text{CFI} = .99; \text{TLI} = .99, \text{RMSEA} = .02$. The factor loadings of all words on their respective latent moral intuitions were positive and significant (all $p < .001$), with standardized estimates of the same ranging from .31 to .63.

Results

In order to examine if the strongest moral intuition/s in each viewer also corresponded to the most frequently featured moral domain/s in the content s/he watched, a multi-level modeling procedure was carried out in which MF-AMP scores (the dependent variable, representing the strength
of each of the five moral intuitions in the viewer) and moral domain representation (the independent variable, indicating the frequency of representations of the five moral domains in the TV show that the viewer watched) were nested within each individual viewer.

Because variances and correlations between elements were similar, compound symmetry: correlation metric was chosen as the covariance in the analysis in the multilevel regression procedure. Moral domain representation in content was assigned as the fixed effect. Because the strength of the fixed effect could vary across participants (due to various individual differences), each individual subject was assigned as the random effect that had to be controlled for. The analyses were conducted for Indian and U.S. viewers separately.

The analysis for viewers of the U.S. TV show indicated a significant effect of moral domain representation in content on moral intuition strength of viewers, \( b = .20 \) (95% CI [.12, .26]), \( F(1, 417) = 33.65, p < .001 \). A similar statistically significant relation between moral domain representation in content watched, and moral intuition strength in viewers was observed for Indian viewers, \( b = .23 \) (95% CI [.16, .30]), \( F(1, 443) = 43.55, p < .001 \). When the analysis was run after combining the data for Indian and U.S. viewers, a similar association between moral domain representation and moral intuition strength of viewers was observed, \( b = .21 \) (95% CI [.16, .26]), \( F(1, 861) = 75.70, p < .001 \).

When the same multi-level modeling procedure corresponded MF-AMP scores of non-viewers in the U.S. and moral domain representations in the U.S. TV show, the result was not significant, \( b = .05 \) (95% CI [−.01, .12]), \( F(1, 479) = 2.40, p = .12 \) showing that content representations in the U.S. TV show did not correspond to the participants who did not watch it. On the other hand, a significant relationship was found between Indian content and non-viewers from India, \( b = .11 \) (95% CI [.05, .18]), \( F(1, 475) = 11.09. p = .01 \). However, as is apparent, the measure of association is far weaker than the association between Indian content and its viewers. In order to examine if the association between Indian viewers and content representations in the Indian show was significantly stronger than the corresponding association for non-viewers, a multi-level modeling procedure was carried out with all Indian subjects (viewers as well as non-viewers) with MF-AMP scores as the dependent variable, and content, group (viewer/non-viewer) and their interaction as the independent variables. The interaction between content and group was significant (\( b = .12; 95\% \) CI [.02, .21], \( F[1, 918] = 5.51. p = .02 \)), and the association between intuition strength of Indian viewers and Indian content representations was significantly stronger than the corresponding association between Indian content and non-viewers. Descriptive statistics and inter-domain/intuition comparisons for content representation scores – as well as
Table 2. ANOVAs comparing moral domains/intuitions in content, viewers and non-viewers in the U.S.

<table>
<thead>
<tr>
<th>Proportion of scenes featuring domain</th>
<th>Mean MF-AMP scores of viewers</th>
<th>Mean MF-AMP scores of non-viewers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Care</td>
<td>.46a</td>
<td>.50</td>
</tr>
<tr>
<td>Fairness</td>
<td>.39b</td>
<td>.49</td>
</tr>
<tr>
<td>Loyalty</td>
<td>.07c</td>
<td>.26</td>
</tr>
<tr>
<td>Authority</td>
<td>.06c</td>
<td>.24</td>
</tr>
<tr>
<td>Purity</td>
<td>.08c</td>
<td>.27</td>
</tr>
</tbody>
</table>

F     41.57                     11.65                     2.31
\( df_{\text{between}} \) 4                4                4
\( df_{\text{error}} \) 568              412              476
p     <.001                      <.001                      .06
\( \eta^2_p \) .23               .10                          .02

Means that share a subscript do not differ from each other significantly. The F and p pertain to ANOVAs comparing the five domains/intuitions (among themselves) in content, viewers, or non-viewers.

Table 3. ANOVAs comparing moral domains/intuitions in content, viewers and non-viewers in India.

<table>
<thead>
<tr>
<th>Proportion of scenes featuring domain</th>
<th>Mean MF-AMP scores of viewers</th>
<th>Mean MF-AMP scores of non-viewers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Care</td>
<td>.40a</td>
<td>.49</td>
</tr>
<tr>
<td>Fairness</td>
<td>.33a</td>
<td>.47</td>
</tr>
<tr>
<td>Loyalty</td>
<td>.06b</td>
<td>.24</td>
</tr>
<tr>
<td>Authority</td>
<td>.40a</td>
<td>.49</td>
</tr>
<tr>
<td>Purity</td>
<td>.03b</td>
<td>.17</td>
</tr>
</tbody>
</table>

F     22.37                     11.42                     3.99
\( df_{\text{between}} \) 4                4                4
\( df_{\text{error}} \) 408              440              472
p     <.001                      <.001                      <.01
\( \eta^2_p \) .18               .09                          .10

Means that share a subscript do not differ from each other significantly. The F and p pertain to ANOVAs comparing the five domains/intuitions (among themselves) in content, viewers, or non-viewers.

MF-AMP scores (for viewers and non-viewers) for both the U.S. and Indian TV show – can be found in Tables 2 and 3, respectively.

Discussion

The present study offers a preliminary test of the MIME’s predicted relationship between intuitions’ prevalence in media content and associated enduring patterns of intuition strength in audiences. We examined the MIME’s enduring instinct-content interdependency in two unique media systems and found support for this proposition in both. Overall, the results present preliminary evidence of a correspondence between patterns of moral domain representation in content viewed and moral intuition.
strength in viewers of Indian (*Diya aur Baati Hum*) and U.S. (*The Young and The Restless*) TV serials.

The findings are consistent with the media-intuition interrelationship predicted by the MIME. In addition, it must be noted this relation between moral domain representations and audience moral intuition strength has been shown in the context of two different cultures, and that this relation between moral domain representations and intuition strength is either weaker or non-existent for non-viewers. The fact that this relationship has been demonstrated in two cultures corroborates the MIME’s claim that its mechanisms should be universal and apply across cultures.

The results of this study are consistent with the cyclical process described in the MIME and can provide a useful framework for cultural scholars attempting to understand the mechanisms through which emphasis on specific moral values (over others) are maintained in distinct cultures. The cyclical mechanisms described in the MIME not only have implications on a broader level (for example, with respect to overarching patterns found in media content in a specific national culture) but also for media systems that exist on smaller levels such as with regards to specific genres of media content. For example, the results may explain how conservative- and liberal-focused media in the U.S. play a part in maintaining the polarized moral views of their respective audiences.

More importantly, this study supports both the potential of the MIME’s framework to advance our broader understanding of media’s relationship with human instincts and the particular importance of moral intuitions. Preliminary evidence consistent with the processes outlined in the MIME supports the model’s application in research examining the long-term reciprocal influence between media use and human cognition. Scholars should be encouraged to consider the role of moral intuitions when examining media’s relationship with a range of pro-social behaviors. For example, charitable acts and helping behavior could be explained as the function of media’s association with the care intuition. Patriotic feelings and group unity could be explained as a function of media’s association with ingroup loyalty. The MIME suggests that moral intuitions play a major role in explaining many aspects of human behavior. These initial findings suggest value in studying how media’s representation of these intuitions is related to audiences’ thoughts and behaviors.

Although the focus of our investigation was on the relationship between patterns of intuition salience in television content and viewers of that content, it is worth pointing out that for both U.S. and Indian non-viewers, we observed a weak but positive relationship between their intuition salience and intuitions emphasized in their respective television content. The fact that we see a weak but positive correlation in non-viewers (and a stronger one in
viewers) for both Indian and U.S. populations, is not inconsistent with the MIME. In fact, the MIME would contend that popular television content should emphasize the intuitions that are most important within the culture for which the content is produced. Although in the past, the MIME has focused predominantly on evidence demonstrating the effects of exposure to media content, the weak but positive results in the present study for non-viewers might suggest the value of expanding this logic to consider how these relationships might exist even for people who are not exposed to media content.

**Limitations**

A major limitation of this study pertains to the fact that we attempted to test for the existence of a longitudinal, reciprocal process using a content analysis and a cross-sectional survey. Testing the MIME’s long-term recursive model is challenging for many reasons. Although our study was only an initial attempt at testing the media-audience moral interdependency described in the MIME, it is important for future studies to test the complex, causal mechanisms suggested in the MIME with time-series designs, as well as with content and audiences that could be considered to be more rigorously representative of their respective populations.

Second, the content we analyzed was not randomly selected, but instead represented a convenience sample of consecutively occurring content. In the context of TV serials, one could argue that sampling from one block of content could mean that the content is heavily influenced by a specific stage of the story arc, and is not necessarily representative of the broader trends in the content. While this may be a valid concern, our decision to consider our convenience sample to be broadly representative of the population of content was based on our belief that patterns of moral domain representation in daily serials are largely stable over time. This proposition finds support in a previous content analytic study (Tamborini et al., 2011) which coded for the presence of moral intuitions in daily TV serials in two different cultures over a longer period of time. Patterns of moral domain representations in daily TV serials in both the U.S. and Mexico showed little variance over time. Related to this, future studies should work to test MIME propositions in more populations.

Similar objections could also be raised at our use of one serial (and the viewers of that one serial) in each media system. Importantly, our main goal in the present study was to provide an initial test of the MIME’s instinct-content interdependency in two media systems. Because it is our belief that a media system is best observed with a television show that has a loyal and committed fan base, we selected the most popular and long-running daily
serial (at the time the study was being conducted) in India and the U.S. While our decision to test this proposition in one show per media system may leave questions remaining regarding the extent to which our findings are generalizable across different shows or media systems, we have no reason to believe that there was anything particularly unique about our chosen TV serials’ (*Diya aur Baati Hum* and *The Young and The Restless*) or media systems’ (India and the U.S.) ability to produce the effect observed here. Nevertheless, future studies should attempt to replicate the findings of this study using a greater number of serials in different program genres and media systems.

Another limitation lies in the fact that we recruited our sample of TV viewers from the online platform of Mechanical Turk. While the strictly timed quiz helped ensure that selected participants could be reliably considered to be regular viewers of each TV serial, participants recruited on such an online platform may not necessarily be representative of the larger population of both viewers of the TV show as well as non-viewers of the show. These limitations in both the content and audience sample could raise the question of whether our findings could generalize to a larger body of content and audiences, and should be noted as such. However, we would like to also point out that despite these limitations, our findings were validated in the context of two different independent media systems situated in different national cultures.

Finally, it must be mentioned that the intercoder agreement for many of our behavioral correlates fell below the traditional .80 threshold accepted in most social scientific studies. As we mentioned above, Krippendorff (2012) is reluctant to prescribe a single threshold of intercoder agreement that applies in all cases, and thus we implemented a decision rule that allowed for the inclusion of behavioral correlates which may have more disagreements than the traditional .80 threshold would allow. This decision was made due to the fact that the present study is only a preliminary effort to code latent concepts using a manifest codebook. We acknowledge that the threshold we have used would ideally be more rigorous, and thus we would interpret with caution the results of analyses using variables with more disagreement.

**Conclusion and Future Directions**

This study could serve as an initial step in testing the media-audience moral interdependency described in the MIME. While this study tested MIME mechanisms in the context of a media system related to fictional television content, the same mechanisms can hold in almost any media system. The effect may be most apparent in long-term users of news media such as newspapers, news channels or specific news programs with an ideological bent. The framework used in the MIME could also help explain the influence of non-media ideological platforms on the morals of their long-term users –
such as the effect on religious texts on their followers – as well as the influence of moral fables on the moral make-up of children. Future research needs to explore the mediating role of moral intuitions in the formation of moral values in a variety of mediated and non-mediated contexts, in addition to examining outcome differences when audiences are exposed to virtue/vice depictions.

**Disclosure statement**

No potential conflict of interest was reported by the authors.

**Notes on contributors**

*Sujay Prabhu* (Ph.D., Michigan State University) is a Research Associate in the Psychology of Entertainment Media Lab at Michigan State University. His research interests include the role of intuitive motivations in the influence and evaluation of media, as well the development of implicit measures that can accurately gauge the accessibility of preconscious concepts.

*Lindsay Hahn* (Ph.D., Michigan State University) is an Assistant Professor in the Department of Communication at the University at Buffalo, State University of New York. Her research investigates the cognitive processes surrounding media use and effects in audiences across the lifespan.

*Ron Tamborini* (Ph.D., Indiana University) is a Professor in the Department of Communication at Michigan State University where he teaches courses in media processes and methods of communication inquiry. His research examines how characteristics of traditional and new media alter psychological experience and influence on users.

*Matthew Grizzard* (PhD, Michigan State University) is an Assistant Professor in the School of Communication at The Ohio State University. His research examines moral emotions and moral judgment processes related to the consumption of narrative and interactive media entertainment.

**ORCID**

Lindsay Hahn [http://orcid.org/0000-0002-0039-9782](http://orcid.org/0000-0002-0039-9782)
Matthew Grizzard [http://orcid.org/0000-0003-2883-0308](http://orcid.org/0000-0003-2883-0308)

**References**


