



Narrative Engagement and Vicarious Interaction with Multiple Characters

Shu-Fang Lin

*Department of Communication
National Chung Cheng University*

Katherine R. Dale

*School of Communication
Florida State University*

Daniel G. McDonald, James G. Collier, and Kaitlyn Jones

*School of Communication
The Ohio State University*

Shu-Fang Lin (Ph.D., The Ohio State University, 2005) is a professor in the Department of Communication at National Chung Cheng University. Her research interests include cognitive and emotional effects of entertainment media.

Katherine R. Dale (Ph.D., The Ohio State University, 2015) is an assistant professor in the School of Communication at Florida State University. Her research interests include positive media psychology, media effects, and intergroup interaction.

Daniel G. McDonald (Ph.D., University of Wisconsin-Madison, 1983) is professor emeritus in the School of Communication at The Ohio State University. His research interests include the behavioral, cognitive and affective aspects of the audience's experience during mediated communication.

James G. Collier (Ph.D., The Ohio State University, 2013) is a visiting assistant professor at Wittenberg University. His research interests include cognitive processing of audio-visual and text-based narratives.

Kaitlyn Jones (M.A., The Ohio State University, 2013) was a master's student in the School of Communication at The Ohio State University. Her research interests include parasocial interaction, fan research, and social identity.

Correspondence should be addressed to Shu-Fang Lin, Department of Communication, National Chung Cheng University, No.168, Sec. 1, University Road, Min-Hsiung Township, Chia-Yi County 621, Taiwan. E-mail: telsfl@ccu.edu.tw

This study investigates how audience members relate to and vicariously interact with multiple characters while viewing a narrative. Under the framework of the theory of situation models, we applied a real-time thought-listing technique that incorporated Twitter and focused on three debuting TV dramas to explore how the participants followed multiple characters while watching prime-time television dramas. We examined 3,274 tweets across the three TV series and found that monitoring a greater diversity of characters is associated with an increased number of questions asked and more accurate predictions of future events. The participants who made more accurate predictions had higher narrative engagement. In addition, the participants who had more thoughts about the self tracked a greater diversity of characters and made more accurate predictions about the plot. The results are discussed in terms of the developing literature on narratives in mass communication and entertainment research.

Most of us likely spend more time in artificial interactions than we spend in actual social interactions (Caughy, 1978; Johnson & Patnoe-Woodley, 2016). Between dreams, daydreams/fantasies, imagined interactions (Honeycutt, Choi, & DeBerry, 2009), and media, we apportion a considerable amount of time to imagining ourselves interacting with other people and observing the interactions of people who exist only in our imagination. Many imagined people are representations of real people we know (e.g., friends, family members), some people are completely fictitious (e.g., TV detectives, cartoon characters), and others are people who exist in the real world, though we have likely never interacted with them (e.g., athletes, presidents, prime ministers).

Many mass communication studies in the area of entertainment have supported the idea that audience members interact with media characters (for examples, see Hoffner, 1996; Vorderer, Knobloch, & Schramm, 2001). Among these studies, considerable research has focused on a favorite media character or one main protagonist with whom the audience members interact in their media experience (Bond & Calvert, 2014; Hoffner, 1996). However, most narratives have multiple characters who enter and exit as the story unfolds. As this occurs, audience members switch their focus between characters, follow developing plots, and ultimately follow the goals of multiple characters throughout a narrative (Magliano, Taylor, & Kim, 2005). Horton and Strauss (1957) used the term *vicarious interaction* to describe this process whereby audience members follow and interact with various characters during television viewing. Although Horton and Strauss considered vicarious interaction to be the most common form of interaction for audience members, little research has been conducted to explore this type of audience interaction during television viewing.

This study examines vicarious interaction with multiple characters and explores how different levels of interaction with multiple characters relate to

the media experiences of audience members. By using Twitter as a modified thought-listing technique, we can observe in real time how audience members switch focus between multiple characters while they engage with television dramas in their home.

VICARIOUS INTERACTION WITH MULTIPLE CHARACTERS AND SITUATION MODELS OF NARRATIVE EXPERIENCES

The idea that our media use involves simultaneously following and understanding multiple characters has been acknowledged for many years. Horton and Strauss (1957) found that in vicarious interaction, audience members often assume the roles of various characters alternately and reciprocally, and they showed that this type of interaction is the most likely form of interaction for many program genres. As Horton and Strauss noted, vicarious interaction is unlike our everyday face-to-face interaction such that an audience member does not have control over the interactions of media characters and the audience member is only a spectator who “is able to follow the interaction of others while not himself overtly taking part” (p. 580). Vicarious interaction is also different from parasocial interaction, which occurs when an audience member perceives an illusory interpersonal interaction with the media figure who has directly addressed the audience (Horton & Strauss, 1957). Ellis, Streeter, and Engelbrecht (1983) argued that vicarious interaction closely resembles one’s memory of a past concrete experience and is analogous to our everyday imagined interactions (see also Honeycutt et al., 2009).

Despite early acknowledgment of vicarious interaction, the mainstays of communication research predominantly measure audience members’ interactions with a single character, typically their favorite character (e.g., Hoffner, 1996). Among the few studies that examine audience interactions with more than one character within a single narrative, Tian and Hoffner (2010) explored audience members’ involvement with different characters, such as liked, disliked, and neutral characters from a TV drama. They found that participants interacted with media characters differently according to their liking of the characters.

The limited empirical investigation into vicarious interaction leaves us with little knowledge regarding how audience members shift their focus among various elements, such as the plot and characters, when processing a narrative and how vicarious interaction with multiple characters might be associated with audience members’ viewing experiences. A branch of research in narrative comprehension suggests that we engage with narratives by using *situation models* (Zwaan, 2004; Zwaan & Radvansky, 1998) that provide us with a mental representation in which “multiple characters enter and exit dynamically as the plot unfolds” (Noh & Stine-Morrow, 2009, p. 769). According to this line

of research, audience members monitor characters' goals and intentions and follow multiple characters' presence within the narrative (Magliano et al., 2005; Noh & Stine-Morrow, 2009). The research on narrative comprehension suggests that readers build situation models that track the information regarding characters, locations, time, emotions, motivations, objects, actions, and causality that relates to the imagined world and the persons therein (Brunyé, Ditman, Mahoney, & Taylor, 2011; Busselle & Bilandzic, 2008; Oatley, 2011; Zwaan, 2004). From this perspective of understanding narratives as a process, comprehension is regarded as the construction of a comprehensive and dynamic situation model (Smallwood, McSpadden, & Schooler, 2008). Successful construction of the model is influenced by our ability to discriminate between relevant and irrelevant details in a story, that is, by paying attention to the narrative when it matters.

When an audience member is focusing on one character within a narrative, many aspects of this character are available within working memory, including physical characteristics, knowledge, motivations, and goals (Oatley, 2011; Riedl & Young, 2010). A number of events or conditions can cause the audience member to refocus his or her attention on another aspect of the situation, such as a change of scene, the entry of another character, or the passage of narrative time (Brunyé, Mahoney, & Taylor, 2010; Magliano et al., 2005). Garrod and Sanford (1990) suggested that readers keep characters or objects currently introduced in the narrative in "explicit focus," which is held with limited capacity in working memory. Only limited information is accessible for processing, and the attentional focus shifts over time as the narrative unfolds.

Therefore, our comprehension of the narrative is grounded in continuous oscillation among characters and situations that involve multiple motivations, goals, actions, times, and spatial locations. Audience members revise their knowledge of characters and many other aspects of the situation models (e.g., space, time, goals, intentions) as a narrative progresses. Tracking this oscillation of characters and their goals and intentions as they move into and out of focus is fundamental to building a coherent situation model (Noh & Stine-Morrow, 2009). Among the factors that influence situation model construction (e.g., time, space, character, goals, causality), the character dimension is considered one of the most influential and dominant factors of situation models in narrative comprehension (Therriault & Rinck, 2007). Zwaan and Radvansky (1998) noted that characters "form the meat of situation models" (p. 173), which supports the importance of the character dimension in structuring situation models. Research has also found that characters are monitored more carefully than other dimensions when processing narrative events, and shifts in the character dimension cause the most disruptive effects in narrative comprehension (Scott-Rich & Taylor, 2000).

Research has shown that audience members can follow and switch focus between multiple characters' goals and motivations during their media experiences. Magliano et al. (2005) found evidence that when watching a commercial film, both the protagonist's and antagonist's goals were carefully monitored by audience members. Later, Noh and Stine-Morrow (2009) found that people stored information regarding multiple characters in their working memory and that the relevant information was activated when their attention shifted to a reintroduced character during narrative events. This process of switching and allocating attention between multiple characters ensures comprehensive situation model construction and maintains coherent narrative stories.

The aforementioned research indicates that we do not place ourselves in one character's shoes but in all of the characters' shoes, and we move among them to build an understanding of the situation dynamics and to update our model as required. The present study proposes that audience members construct a more elaborate and dynamic situation model by updating information obtained about a variety of characters. This process is crucial to narrative comprehension (Zwaan & Radvansky, 1998) and will presumably have significant effects on the cognitive and emotional aspects of media experiences.

Constructing an elaborate situation model requires audience members to frequently monitor and update incoming information concerning various characters. We expect that audience members who frequently update information about various characters will likely observe possible connections between multiple characters and discover information cues that link to the transition of the story plot. Research has shown that people ask questions when there are discrepancies between the readers' mental model and the information provided by the texts (Otero, 2009). Asking questions helps readers to focus more on the important aspects of the texts, monitor their comprehension of the texts, and further increase their understanding of the texts (Baker, 1989; King, 1991). Questioning represents a metacognition process that improves text comprehension (Gavelek & Raphael, 1985; King, 1989). Therefore, audiences who monitor narrative details may generate more elaborate inferences about plot development. As a story unfolds, we would expect that audience members who think about a greater diversity of characters will be motivated to ask more questions as they monitor and notice inconsistent information among the characters (whether deliberately inconsistent, as in mysteries or dramas, or accidentally inconsistent, which occurs with poor production or writing). Thus, we propose the following hypothesis:

- H1: Audience members who think about a greater diversity of characters will generate more questions about the plot and future developments than audience members who think about a lesser diversity of characters.

In addition to asking questions about the past or current events in narratives, readers commonly predict what will occur in the future when monitoring characters' motivations, goals, and actions (Zwaan & Radvansky, 1998). Predictive inferences improve the development of situation models and comprehension (Graesser, Singer, & Trabasso, 1994) by helping readers obtain information cues that are not explicitly presented in the narratives (Fincher-Kiefer, 1996; Niehaus & Young, 2014). Movie makers apply certain cinematic techniques to encourage viewers to generate predictions to increase narrative engagement (Magliano, Dijkstra, & Zwaan, 1996). Prediction making is often based on what readers are monitoring in the narratives (Niehaus & Young, 2014), and when readers observe detailed information such as facial expressions or conversational cues between characters, they can predict future events more precisely (Kurby & Zacks, 2008).

Because most narratives feature more than one character, monitoring a greater diversity of characters should provide richer information regarding the plots and events in the narrative, which will lead to more accurate predictions and better comprehension. On the other hand, audience members who follow fewer characters may not be aware of informational clues already provided by the narratives; thus, they may generate imprecise predictions based on incomplete or insufficient information (Niehaus & Young, 2014; van Dijk & Kintsch, 1983). Therefore, we propose the following hypothesis that explores this relationship:

- H2: Audience members who think about a greater diversity of characters will predict plot events more accurately than audience members who think about a lesser diversity of characters.

Studies have demonstrated that prediction accuracy is related to narrative comprehension (see Fincher-Kiefer, 1996) and engagement (Smallwood et al., 2008). Audience members may feel suspense when anticipating future plotlines, and audience members acquire a sense of satisfaction when their prediction is accurate (Magliano, Dijkstra, & Zwaan, 1996). Accurate predictions also indicate that audience members monitor the information that forms the mental representation of the narrative world that is causally consistent with the progression of the events. In their proposed model of narrative comprehension and engagement, Busselle and Bilandzic (2008) suggested that after constructing a frequently updated and dynamic situation model, audience members will comprehend narrative texts better and be engaged in narratives as they feel a flowlike experience by placing themselves inside the narrative world. Therefore, we expect that accurate plot prediction indicates that audience members form mental models that are consistent with the narrative progression. Audience members will be more engaged in the narrative world if their mental representations better reflect the narrative world. Therefore, we propose the following hypothesis:

- H3: Audience members who predict future plots more accurately will have a higher level of narrative engagement than audience members who have lower prediction accuracy.

SELF-REFERENCE IN SITUATION MODELS AND NARRATIVE ENGAGEMENT

The theory of situation models posits that readers or audience members apply their personal experiences to help construct situation models and to understand the motives or goals of the characters, locations, objects, and/or events in the narrative (Gernsbacher, 1995; van Dijk & Kintsch, 1983). The activation of autobiographical memory or episodic memory helps people incorporate the incoming information in narratives and facilitates the construction of a more elaborate situation model (Albrecht & O'Brien, 1993).

Research shows that individuals reflect on their memories and emotions as they engage with a story and construct a situation model. Holland (1975), for example, asserted that individuals use narrative content to recreate their own characteristic psychological processes and that researchers consider what the audience member brings to the story, such as their personality and life experience. Similarly, Nussbaum (1986) and Oatley (1995) emphasized that narrative forms clarify a spectator's emotional experience through self-reflection. McDonald, Sarge, Lin, Collier, and Potocki (2015) found that self-related thoughts commonly occur during media consumption, particularly during highly engaged media use. The self-referencing that occurs suggests that narrative engagement may be characterized by a frequent and rapid oscillation between the narrative and real worlds (Busselle & Bilandzic, 2008; Oatley, 1999; Tan, 2008). Oatley (1999) proposed that the audience alternates among the first-, second- and third-person perspectives throughout narrative involvement and sometimes draws on autobiographical memories and background knowledge to interpret the story.

Similarly, Tan (2008) suggested that narrative processing relies on two spaces in the mind: executive and entertainment. The executive space serves as an interface with the real world and provides the infrastructure to facilitate the construction of the imagined world of the narrative. The entertainment space is a "theater of imagination" in which the logic and relationships of the narrative are developed and maintained. Tan suggested that during narrative engagement, the executive space is always accessible, which allows an audience member to oscillate between the narrative and real worlds to compare information, check facts, and interpret the story. Thus, engaging with the narrative world requires audience members not only to adopt the perspective and feel the emotions of the characters in the story (Busselle & Bilandzic, 2008) but also to evoke the personal experiences and knowledge that connect to the real world to comprehend the narrative (Visch & Tan, 2008).

As a result, we expect that the activation of self-related thoughts, either from past experiences or the knowledge associated with episodic autobiographical memory, will facilitate the construction of more elaborate situation models, which is indicated by showing a greater diversity of character mentions and predicting the future plot more accurately. Therefore, we propose the following hypotheses:

- H4a: Audience members who have more thoughts concerning the self will think about a greater diversity of characters.
- H4b: Audience members who have more thoughts concerning the self will predict future plots more accurately.

METHOD

The participants were undergraduates at a large midwestern U.S. university ($N = 332$).¹ We used the first 3 hours of three debuting dramatic TV series to track vicarious interaction over time. We also used real-time thought-listing via Twitter to assess audience thoughts while watching these programs at home.

Prior to their broadcast debuts, three dramatic series on three networks were chosen: *Smash*, *The River*, and *NYC 22*. *Smash* (NBC) is a musical drama that follows the story of a play being created for Broadway. *The River* (ABC) explores supernatural events along the Amazon River. *NYC 22* (CBS) is set in a New York City police department and follows rookie police officers as they combat crime and interact with local citizens. We selected these programs because they represent a variety of program types and plots within the broad genre of drama, and we chose premiering shows to avoid problems with differing levels of character or plot familiarity among participants.

The participation required approximately 3.5 hours distributed across 2–3 weeks. The individuals who watched *Smash* or *NYC 22* participated for 20 days, whereas those who watched *The River* participated for 13 days. This discrepancy in participation duration was due to the 2-hour premiere episode of *The River*. Thus, the total time spent—including providing the baseline information, 3 hours of viewing and thought-listing, and short questionnaire responses for each episode—was equivalent across the three shows. The participants were required to have access to the Internet and broadcast television content during the original broadcast. To be assigned to shows, participants were asked to indicate, from a list of times, when they would be available. If more than one time was selected, the participant was randomly assigned to one of the available programs.

¹This study was approved by Institutional Review Board of the Ohio State University on January 3, 2012.

Procedure

The participants e-mailed the researcher to obtain an ID to use for the study and were directed to a baseline questionnaire that obtained demographic information. They were then instructed to set up a private account by using their research ID on the social networking site Twitter.

Twitter is a microblogging site that allows users to create and send messages of 140 characters or less. These messages—called tweets—are displayed on a feed updated in real time. By using Twitter as a modified thought-listing technique, we are able to observe the way that audience members follow multiple characters while engaging with debuting television dramas over 3 weeks. This method has an advantage: Research has demonstrated that increasing numbers of people are discussing TV programs via social media during viewing (Marketing Charts, 2013). Providing thoughts via Twitter as a thought-listing method resembles participants' daily TV viewing routine, which allows us to assess audience members' thoughts in a nonobtrusive and natural setting. Having participants watch episodes of TV dramas at home also ensures greater ecological validity for observing vicarious interactions with media characters than an assessment in a lab setting. Using a real-time thought report in a written format has been shown to be a valid method for assessing mental representations during narrative comprehension (Kurby & Zacks, 2012).

During the broadcast of each show, participants signed into Twitter for the entire episode. Each participant followed the research account and accepted a request from the research account to be followed. Thus, all participant tweets were available to the researchers, and all participants received reminders and update tweets from the researchers. Because these new Twitter accounts were set to private, only the researchers could see the tweets, and participants were unable to see the tweets of other participants. At each commercial break, the participants were prompted to share their thoughts by the researcher who tweeted the question, "What are you thinking?" Asking this question during the commercial break allowed the participants to tweet their thoughts at a naturally occurring break, thus avoiding issues with the research account unintentionally pulling participants out of a state of narrative engagement. However, participants could also tweet during the show as they might when watching television on their own, and they were able to post as many tweets as needed to reflect their thoughts fully. This method was modified from Carter's signaled stopping technique (Carter, Ruggels, Jackson, & Hefner, 1973) and has been applied to examine cognitive thoughts of audience members in a variety of research studies (Hawkins, Pingree, Fitzpatrick, Thompson, & Bauman, 1991; McDonald et al., 2015).

At the end of each episode, participants were directed to a short online questionnaire, which was a 12-item measure of narrative engagement (McDonald et al., 2015). All of the episodes lasted 50 minutes, except the first episode of *The River*,

which was 110 minutes. The online questionnaire for this episode was administered at the end of the show, which we marked as Episode 2 to be consistent with the viewing time of all other episodes. Therefore, there was no narrative engagement measure for Episode 1 of *The River*.

Measures

Narrative Engagement. Narrative engagement was measured with the 12-item Narrative Engagement Scale developed by McDonald et al. (2015). The scale has been shown in previous research using different data to correlate .818 with Green and Brock's transportation scale ($N = 176, p < .001$) while exhibiting stronger internal consistency. Across the programs, reliability was considered acceptable, with Cronbach's $\alpha = .875$ for Episode 1 (i.e., for *Smash* and *NYC 22* because, as just discussed, there was no narrative engagement measure for Episode 1 of *The River*; $N = 76$), $\alpha = .909$ for the second episode (across the three programs; $N = 118$), and $\alpha = .850$ for Episode 3 (across the three programs; $N = 113$).

Tweets and the Measures Computed from Tweets. There were 3,274 tweets obtained across the three episodes of the three series. Among the tweets, 46.8% of the tweets were posted during commercial breaks and 53.2% of the tweets were posted during the program. All tweets were captured and entered into SPSS 19 and WordStat 6.1 (Provalis Research, 2010) for processing.

To test our hypotheses, we developed measures of self-reference and plot prediction accuracy. We also calculated the diversity of character mentions from tweets. We employed WordStat 6.1 (Provalis Research, 2010) to locate relevant words within the tweets and to identify the tweets for coding.

Self-Reference. Researchers have combined thought-listing methods with counting pronouns to unobtrusively assess self-focus. An increased use of first-person pronouns is associated with an increase in self-related thoughts, self-knowledge (Davis et al., 2004; Todd, Simpson, & Tamir, 2016), and self-focus (Duval & Wicklund, 1972; Wood, Saltzberg, & Goldsamt, 1990). Following the procedures in previous studies, self-referential words included the use of first-person personal pronouns, such as *I, me, myself, my, mine, we, our, ours,* and *ourselves*. WordStat was used to locate each tweet that mentioned self in this manner. A tweet was coded 1 if it referenced the self.

Diversity of Character Mentions. All character names were obtained from the Internet Movie Database. The authors coded the thoughts and listed descriptors that were references to characters and associated these references with specific characters to identify the characters being mentioned. The

references were typically physical descriptions (e.g., the blond cop) or indicated by actions (e.g., the guy selling plants). The authors developed a set of descriptors and agreed on which descriptors referred to which characters. Each character then became a variable in WordStat, such that each time a specific character was mentioned, a 1 was recorded for this character. The number of characters mentioned for each episode was used to compute the diversity index, Simpson's D (McDonald & Dimmick, 2003). Simpson's D is considered to be one of the most commonly used and best measures of diversity (Salgado, Nienstedt, & Schneider, 2014). To obtain the value of Simpson's D, we first calculated the probabilities (p_i values) by dividing the number of each character mention of a participant by the total number of character mentions of the participant. The p_i value for each character was squared, and then, all the p_i values obtained for each character of a specific show were summed. The value of Simpson's D was obtained by subtracting the sum from 1. The value of Simpson's D ranges from 0 to 1. A value closer to 1 indicates greater diversity.

Questions. All tweets that ended with a question mark were identified with WordStat. The authors randomly selected 400 posts and found one tweet that had a question mark that was not a question and two tweets that were questions without question marks. These three tweets accounted for only .75% of the randomly selected tweets, which indicates that most tweets containing question marks were true questions. However, it is possible that not all questions included question marks and not all tweets containing question marks were true questions.

Plotting. All tweets ($N = 3,274$) were classified with a coding procedure as either plot related or not plot related. Two of the authors watched each episode of the series and developed a transcript of the programs. We then developed a coding scheme for the comments that were related to the plot, such as the characters, objects, locations, and actions of characters. Two authors coded each tweet as either a plot reference or not a plot reference. All discrepancies were resolved through independent coding by a third author.

Plot Prediction Accuracy. To assess plot prediction accuracy, all tweets were coded using a similar procedure as just mentioned. Specifically, all statements and forecasts of the plot or other events in the narrative were coded for accuracy. They were coded 1 if the event described came true within the narrative. The coders discussed each discrepancy and resolved all but three disagreements. The three disagreements were resolved by a third author, who assessed the videos of the programs to facilitate resolution.

RESULTS

Of the 3,274 tweeted thoughts, 32.5% had a plot reference, 4% accurately predicted the future plot, and 11.85% tweets were questions. Characters were mentioned in 799 (24.4%) tweets, and the self was mentioned in 1,501 (45.8%) tweets. For the participants who tweeted about characters, the average number of character mentions was 3.02 ($SD = 1.87$), with 83.8% of the participants mentioning more than one character and 69.4% of the participants mentioning at least three characters in their tweets. Table 1 represents the zero-order correlations between the variables.

Before testing the hypotheses, a mixed model was used to examine the growth trajectory of the variables, including self-reference, the diversity of character mentions, questions, prediction accuracy, and narrative engagement, across the three episodes of the three programs. The time variable (each episode was evenly divided by four time points for a total of 12 time points) was coded and treated as a covariate in the mixed model analysis. The results showed no significant changes of all the variables over time (self-reference: $\beta = -.035$, $SE = .053$, $p > .10$; character mentions: $\beta = .016$, $SE = .049$, $p > .10$; questions: $\beta = -.019$, $SE = .034$, $p > .10$; prediction accuracy: $\beta = -.005$, $SE = .018$, $p > .10$; narrative engagement: $\beta = .043$, $SE = .067$, $p > .10$). Therefore, the following analyses were conducted without considering the variations in individual growth.

Our first hypothesis predicts that audience members who mention a greater diversity of characters will generate more questions concerning the plot or future developments while a narrative progresses. We performed a regression analysis in which the diversity of character mentions was the independent variable and the number of questions was the dependent variable. The result was statistically significant for the diversity of character mentions ($b = .183$), $t(330) = 3.333$, $p < .01$, which indicates that when there was a greater the diversity of character mentions, the participants asked more questions. As a result, H1 is supported.

TABLE 1
Zero Order Correlations Between Variables

	1	2	3	4
1. Diversity of character mentions	—			
2. Questions	.175**	—		
3. Plot prediction accuracy	.313**	.168**	—	
4. Self-reference	.320**	.333**	.322**	—
5. Narrative engagement	.148*	.064	.165**	.165**

* $p < .05$. ** $p < .01$.

Our second hypothesis predicts that audience members who mention a greater diversity of characters will have more accurate thoughts about future plot development (i.e., will predict plot events more accurately) than audience members who adopt fewer perspectives. To test this hypothesis, we employed a simple regression analysis in which we selected every person who made at least one tweet related to the plot. We then performed a regression analysis in which the number of correct predictions was the dependent variable and the diversity of character mentions was the independent variable. The result shows that a greater diversity of character mentions is associated with increased accuracy in plot predictions ($b = .307$), $t(330) = 5.742$, $p < .01$, which supports H2.

The third hypothesis proposes that prediction accuracy is positively associated with narrative engagement. We performed a regression analysis in which narrative engagement was the dependent variable and prediction accuracy was the independent variable. The result of the regression analysis revealed that prediction accuracy was significantly related to narrative engagement ($b = .236$), $t(330) = 2.753$, $p < .01$. H3 is thus supported.

H4 examine the relationship between thoughts concerning the self and the diversity of character mentions (H4a) and prediction accuracy (H4b). The result of a single regression analysis showed that audience members who had more thoughts concerning the self are more diverse in character mentions ($b = .300$), $t(330) = 5.711$, $p < .01$, and they generated more accurate predictions about the future plots ($b = .326$), $t(330) = 6.161$, $p < .01$. Therefore, H4a and H4b are supported.

DISCUSSION

The “active audience” is a concept that has been important to the field of mass communication for more than half a century (McQuail, Blumler, & Brownm, 1972). Recent research on narrative processing is beginning to illuminate how complex an active audience may be. Audience members track multiple characters’ motivations, goals, and actions; guess their thoughts; and infer information that is unspecified in the narrative. To our knowledge, this is one of the first empirical works to use live television broadcasting to observe vicarious interaction with multiple characters and assess its impact on media entertainment experiences.

The current study found evidence that when asked to tweet what they were thinking, audience members revealed many of the aspects of narrative processing described earlier. Many of the tweets revealed connections to the television content. For example, one participant tweeted, “I would be freaking out if I were

on that subway” in response to *NYC 22*. Other participants shared thoughts about the characters and their lives, such as, “Maybe Tess should take Emmet’s advice and leave.” These types of media interaction are indicative of vicarious interaction where audience members consider the perspectives of media characters at a slight distance (Horton & Strauss, 1957) and through an imagined interaction with the narrative (Ellis et al., 1983).

Our results suggest that the participants who monitored various media characters were more likely to ask questions and make more accurate predictions regarding future plot events. These results are consistent with the previous research on the situation models of narratives (Zwaan, 2004; Zwaan & Radvansky, 1998), which suggests that individuals who monitor more detailed information about the narratives and relate to more media characters may comprehend the narratives better. We also found that the participants who made more accurate predictions had higher levels of narrative engagement. This finding provides additional evidence for Busselle and Bilandzic’s (2008) model of narrative comprehension and engagement, which proposes that better narrative comprehension is associated with higher levels of narrative engagement. The results of the current study also show that the participants who applied their self-experiences and self-knowledge were more diverse in their character mentions and had better prediction accuracy. It is likely that thoughts reflecting personal life experiences and knowledge about the real world (e.g., stereotypes or schemas) or the story world (e.g., genre schemas; Busselle & Bilandzic, 2008) help audience members to more easily consider the perspectives of various media characters with different motivations and goals and facilitate the construction of more accurate situation models.

We used Twitter as part of a modified thought-listing technique to observe how the participants monitored multiple characters throughout a narrative. It is likely that the participants did not tweet every single thought that they had during the show, especially when their focus switched rapidly between characters. As a result, the number or diversity of character mentions in the tweets may underestimate the amount of character-related thoughts that the participants experienced during a show. Nevertheless, the data of our study suggest that vicarious interaction, as noted by Horton and Strauss (1957), is common during TV viewing. More than 69% of the participants mentioned at least two characters in at least one of their tweets. Our study further supports the idea that audience members respond to TV dramas differently when they interact with a greater diversity of characters.

We used a modified version of Carter’s signaled stopping technique (Carter et al., 1973) and asked the question “What are you thinking?” to prompt discussion during each commercial break. Although this procedure has been used to assess thoughts in previous research, it is possible that the use of a question to prompt discussion during the commercial break may have unintentionally prompted the participants to respond

with a question. For exploratory purposes, we compared the data with Twitter data from another study (McDonald, Lin, Anderegg, Na, & Dale, 2014) in which the naturally occurring, public tweets regarding 20 TV series across four broadcast TV networks were collected over the course of 2 months. Among the total number of 474,394 tweets, 58,165 tweets (approximately 12.2%) were questions. In the current study, among the total number of 3,274 tweets in our data, 388 tweets (11.9%) were questions. The use of a question to prompt discussion in our study yielded a percentage of questions raised that was similar to naturally occurring tweets collected online. As a result, it is unlikely that phrasing our prompt as a question unintentionally primed the participants to respond with a question.

The current research attempts to connect the research in the situation models of narrative with the research that explores media experiences. The results of our study indicate that the way audience members process narrative information may have an impact on their media experiences. The sense of being engaged in the narrative world may depend on how well audience members grasp the information necessary for comprehending narrative events. Making accurate predictions about the future plots indicates that an individual's mental mapping is aligned with the flow of the narrative world. If audience members cannot construct mental representations that progress with the narrative flow, they may not attain a flowlike experience when watching TV dramas. It is also possible that being able to predict the story lines accurately fulfills audience members' psychological needs of competence as suggested by self-determination theory, which is shown to enhance engagement when watching TV dramas (Adachi, Ryan, Frye, McClurg, & Rigby, 2018).

The results of our study indicate that the way audience members interact with media characters may be more complicated than was previously understood. As disposition-based theories suggest, audience members may evaluate the goals of the protagonist and the antagonist in a narrative, and their gratifications from media use may depend on the wellness of liked characters and the misery of disliked characters (Zillmann, 1996). Audience members may develop strong feelings toward the protagonist or the antagonist and identify with them. Nevertheless, their evaluations and feelings toward other characters in the narrative may also impact audience members' viewing experiences. Conversations between a group of characters may provide insights on how the narrative will unfold, and a relatively minor character's misfortune may elicit a sense of empathic feeling toward this character. All of these elements constitute the coherence of the narrative world in which audience members enter, and they contribute to gratifying media experiences.

One important caveat when considering the data presented in this study is that the cross-sectional nature of the research design does not permit causal relationships to be established. Based on the research of the situation models of narratives, we assume that a higher diversity of character mentions indicates

a more comprehensive situation model construction, which may lead to better comprehension and higher media engagement. However, it is possible that the relationship may be cyclical, such that higher narrative engagement better motivates audience members to interact with more media characters, which facilitates engagement. Our data do not reveal patterns of change on narrative engagement and the diversity of character mentions across episodes, which does not permit further assessment of causal relationships over time. It is possible that examining the changes across three episodes would not provide a sufficient time frame to observe the patterns of change. Future research should examine the changes between variables, their causal relationship, and other possible intervening variables over a longer timeframe.

In addition, there may be other variables that should be accounted for. One direction for future research is to explore how other individual-level characteristics, such as trait perspective taking, media use experiences, or viewing motives influence vicarious interaction. For example, people with a greater ability to consider the perspective of other people may be able to relate to the character perspectives when following multiple characters simultaneously. Future research should also measure genre preferences. The three TV dramas chosen in this study can be categorized into different subgenres, namely, adventure/fantasy drama, police/crime drama, and musical drama. It is possible that adventure/fantasy drama fans who watched *The River* may be more engaged in the show than the participants who are not adventure/fantasy fans. The adventure/fantasy drama fans may also make predictions about future story events better than nonfans based on their previous viewing experiences. Genre preferences could, therefore, be a potential moderator of the relationship between prediction accuracy and narrative engagement and are worth further examination. Media viewing experiences or genre preferences may also influence the construction of situation models. The participants who frequently view dramas of a specific genre may activate a schema and knowledge for the narrative, which could help with the construction of situation models. In addition, studies have shown that generating inferences and the construction of comprehensive situation models consumes cognitive resources; therefore, people with low working memory resources and/or people who fail to find clues or casual connections in plots are less likely to comprehend narratives well (Linderholm, 2002). People who fail to make accurate predictions may not be unable to construct accurate and elaborated situation models, and thus their engagement may suffer.

One limitation of this study is that we collected the thoughts related only to three TV dramas. Although we have included dramas with various genres and story lines, it is possible that different patterns of vicarious interaction and engagement may emerge during the viewing of different types of narratives. For example, dramas such as *Game of Thrones* contain complex story lines that feature many characters. Constructing a more elaborate situation model by following and updating the

information provided by multiple characters in a complex story line may be essential to obtaining narrative engagement. Audience members who have higher working memories or who have prior story schemas that help them obtain information from the narratives may find it easier to monitor a larger number of media characters in the narratives and identify clues from complicated plots. In this case, the diversity of character mentions and prediction accuracy may assert stronger predictive power on narrative engagement for the narratives of this type. Future research could explore how audience members interact with characters in narratives with a large number of media characters.

Another limitation of this study is that although comprehension is essential in assessing a well-established situation model, we did not measure comprehension directly, such as assessing whether the participants could answer questions about the characters or the plot correctly after they watched each episode. We did not provide comprehension tests after viewing because the questions may have directed the participants' attention to the questions asked and may have impacted their natural viewing pattern for the following week. Although we measured prediction accuracy from tweets, prediction inferences are only one part of comprehension (Frank, Koppen, Noordman, & Vonk, 2003). Future research should explore other aspects of comprehension, such as understanding of the plot or conversations in the narrative.

Finally, it is possible that the character limit associated with Twitter may have limited the types and length of the thoughts provided by the participants. The participants were allowed and encouraged to use as many tweets as necessary to convey their thoughts. Nevertheless, the norms associated with tweeting and tweet-length may have influenced the amount of content included in the tweets.

Our study provides evidence of a common yet rarely explored audience activity: vicarious interaction with multiple characters. While viewing a narrative, audience members relate to multiple characters, a process that generates different media experiences and reactions. The results of this study provide insight into future entertainment media research. For example, the way that audience members interact with their "favorite" character may not afford a complete understanding of their media experiences. Rather, it is likely that following and assessing multiple characters throughout a narrative helps shape audience members' media experiences and overall narrative engagement.

FUNDING

This work was supported by the Ministry of Science and Technology, Taiwan (MOST 106-2628-H-194-001-SS3).

REFERENCES

- Adachi, P. J., Ryan, R. M., Frye, J., McClurg, D., & Rigby, C. S. (2018). "I can't wait for the next episode!" Investigating the motivational pull of television dramas through the lens of self-determination theory. *Motivation Science*, 4(1), 78–94.
- Albrecht, J. E., & O'Brien, E. J. (1993). Updating a mental model: Maintaining both local and global coherence. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19(5), 1061–1070. doi:10.1037/0278-7393.19.5.1061
- Baker, L. (1989). Metacognition, comprehension monitoring, and the adult reader. *Educational Psychologist*, 1(1), 3–38. doi:10.1007/BF01326548
- Bond, B. J., & Calvert, S. L. (2014). Parasocial breakup among young children in the United States. *Journal of Children and Media*, 8, 474–490.
- Brunyé, T. T., Ditman, T., Mahoney, C. R., & Taylor, H. A. (2011). Better you than I: Perspectives and emotion simulation during narrative comprehension. *Journal of Cognitive Psychology*, 23(5), 659–666. doi:10.1080/20445911.2011.559160
- Brunyé, T. T., Mahoney, C. R., & Taylor, H. A. (2010). Moving through imagined space: Mentally simulating locomotion during spatial description reading. *Acta Psychologica*, 134(1), 110–124. doi:10.1016/j.actpsy.2010.01.003
- Busselle, R., & Bilandzic, H. (2008). Fictionality and perceived realism in experiencing stories: A model of narrative comprehension and engagement. *Communication Theory*, 18(2), 255–280. doi:10.1111/j.1468-2885.2008.00322.x
- Carter, R. F., Ruggels, W. L., Jackson, K. M., & Hefner, M. B. (1973). Application of signaled stopping technique to communication research. In P. Clarke (Ed.), *New models for mass communication research* (pp. 15–43). Beverly Hills, CA: SAGE.
- Caughey, J. L. (1978). Artificial social relations in modern America. *American Quarterly*, 30(1), 70–89. doi:10.2307/2712280
- Charts, M. (2013). *U.S. consumers seen behind the curve in live social chatter about TV*. Retrieved from <http://www.marketingcharts.com/wp/television/us-consumers-seen-behind-the-curve-in-live-social-chatter-about-tv-28006/>
- Davis, M. H., Soderlund, T., Cole, J., Gadol, E., Kute, M., Myers, M., & Weihing, J. (2004). Cognitions associated with attempts to empathize: How do we imagine the perspective of another? *Personality and Social Psychology Bulletin*, 30(12), 1625–1635.
- Duval, S., & Wicklund, R. A. (1972). *A theory of objective self-awareness*. New York, NY: Academic Press.
- Ellis, G. J., Streeter, S. K., & Engelbrecht, J. D. (1983). Television characters as significant others and the process of vicarious role taking. *Journal of Family Issues*, 4(2), 367–384. doi:10.1177/019251383004002007
- Fincher-Kiefer, R. (1996). Encoding differences between bridging and predictive inferences. *Discourse Processes*, 22(3), 225–246. doi:10.1080/01638539609544974
- Frank, S. L., Koppen, M., Noordman, L. G. M., & Vonk, W. (2003). Modeling knowledge-based inferences in story comprehension. *Cognitive Science*, 27, 875–910.
- Garrod, S. C., & Sanford, A. J. (1990). Referential processes in reading: Focusing on roles and individuals. In D. A. Balota, G. B. Flores d'Arcais, & K. Rayner (Eds.), *Comprehension processes in reading* (pp. 465–485). Hillsdale, NJ: Erlbaum.
- Gavelek, J. R., & Raphael, T. E. (1985). Metacognition, instruction, and the role of questioning activities. In D. L. Forrest-Pressley & G. K. MacKinnon (Eds.), *Metacognition, cognition and human performance* (pp. 105–118). Orlando, FL: Academic Press.
- Gernsbacher, M. A. (1995). The structure-building framework: What it is, what it might also be, and why. In B. K. Britton & A. C. Graesser (Eds.), *Models of text understanding* (pp. 289–311). Hillsdale, NJ: Erlbaum.

- Graesser, A. C., Singer, M., & Trabasso, T. (1994). Constructing inferences during narrative text comprehension. *Psychological Review*, *101*(3), 371–395. doi:10.1037/0033-295X.101.3.371
- Hawkins, R. P., Pingree, S., Fitzpatrick, M. A., Thompson, M., & Bauman, I. (1991). Implications of concurrent measures of viewer behavior. *Human Communication Research*, *17*(3), 485–504.
- Hoffner, C. (1996). Children's wishful identification and parasocial interaction with favorite television characters. *Journal of Broadcasting and Electronic Media*, *40*, 389–402.
- Holland, N. N. (1975). *Five readers reading*. New Haven, CT: Yale University Press.
- Honeycutt, J. M., Choi, C. W., & DeBerry, J. R. (2009). Communication apprehension and imagined interactions. *Communication Research Reports*, *26*(3), 228–236. doi:10.1080/08824090903074423
- Horton, D., & Strauss, A. (1957). Interaction in audience-participation shows. *The American Journal of Sociology*, *62*(6), 579–587. doi:10.1086/222106
- Johnson, J. M. Q., & Patnoe-Woodley, P. D. (2016). Exploring the influence of parasocial relationships and experiences on radio listeners' consumer behaviors. *Communication Research Reports*, *33*(1), 40–46. doi:10.1080/08824096.2015.1117440
- King, A. (1989). Effects of self-questioning training on college students' comprehension of lectures. *Contemporary Educational Psychology*, *14*(4), 366–381. doi:10.1016/0361-476X(89)90022-2
- King, A. (1991). Improving lecture comprehension: Effects of a metacognitive strategy. *Applied Cognitive Psychology*, *5*(4), 331–346.
- Kurby, C. A., & Zacks, J. M. (2008). Segmentation in the perception and memory of events. *Trends in Cognitive Sciences*, *12*, 72–79.
- Kurby, C. A., & Zacks, J. M. (2012). Starting from scratch and building brick by brick in comprehension. *Memory & Cognition*, *40*(5), 812–826. doi:10.3758/s13421-011-0179-8
- Linderholm, T. (2002). Predictive inference generation as a function of working memory capacity and causal text constraints. *Discourse Processes*, *34*(3), 259–280.
- Magliano, J. P., Dijkstra, K., & Zwaan, R. A. (1996). Generating predictive inferences while viewing a movie. *Discourse Processes*, *22*(3), 199–224. doi:10.1080/01638539609544973
- Magliano, J. P., Taylor, H. A., & Kim, H. J. J. (2005). When goals collide: Monitoring the goals of multiple characters. *Memory & Cognition*, *33*(8), 1357–1367. doi:10.3758/BF03193368
- McDonald, D. G., & Dimmick, J. (2003). The conceptualization and measurement of diversity. *Communication Research*, *30*(1), 60–79. doi:10.1177/0093650202239026
- McDonald, D. G., Lin, S.-F., Anderegg, J. J., Na, K., & Dale, K. R. (2014). *Time, tweets, uses, and gratifications: The dynamic nature of television viewing orientations*. Paper presented to the annual conference of International Communication Association, Seattle, WA.
- McDonald, D. G., Sarge, M., Lin, S.-F., Collier, J., & Potocki, B. (2015). A role for the self: Media content as triggers for autobiographical memories. *Communication Research*, *42*(1), 3–29. doi:10.1177/0093650212464771
- McQuail, D., Blumler, J. G., & Brownm, J. (1972). The television audience: A revised perspective. In D. McQuail (Ed.), *Sociology of mass communication* (pp. 135–165). Middlesex, UK: Penguin.
- Niehaus, J., & Young, R. M. (2014). Cognitive models of discourse comprehension for narrative generation. *Literary and Linguistic Computing*, *29*(4), 561–582.
- Noh, S., & Stine-Morrow, E. A. L. (2009). Age differences in tracking characters during narrative comprehension. *Memory & Cognition*, *37*(6), 769–778. doi:10.3758/MC.37.6.769
- Nussbaum, M. C. (1986). *The fragility of goodness: Luck and ethics in Greek tragedy and philosophy*. Cambridge, UK: Cambridge University Press.
- Oatley, K. (1995). A taxonomy of the emotions of literary response and a theory of identification in fictional narrative. *Poetics*, *23*(1), 53–74. doi:10.1016/0304-422X(94)P4296-S
- Oatley, K. (1999). Meeting of minds: Dialogue, sympathy, and identification in reading fiction. *Poetics*, *26*(5), 439–454. doi:10.1016/S0304-422X(99)00011-X

- Oatley, K. (2011). Character, action, incident: Mental models of people and their doings. In *Such stuff as dreams: The psychology of fiction* (pp. 81–106). West Sussex, UK. doi:10.1002/9781119970910.ch4
- Otero, J. (2009). Question generation and anomaly detection in texts. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 47–59). New York, NY: Routledge.
- Provalis Research. (2010). *WordStat*. Montreal, Canada: Author. Version 6.1 [Computer Software].
- Riedl, M. O., & Young, R. M. (2010). Narrative planning: Balancing plot and character. *Journal of Artificial Intelligence Research*, 39, 217–268. doi:10.1613/jair.2989
- Salgado, S., Nienstedt, H. W., & Schneider, L. (2014). Consensus or discussion? An analysis of plurality and consonance in coverage. In R. G. Picard (Ed.), *The euro crisis in the medial journalistic coverage of economic crisis and European institutions* (pp. 103–124). London, UK: I. B. Tauris.
- Scott-Rich, S., & Taylor, H. A. (2000). Not all narrative shifts function equally. *Journal of Memory & Cognition*, 28, 1257–1266.
- Smallwood, J., McSpadden, M., & Schooler, J. W. (2008). When attention matters: The curious incident of the wandering mind. *Memory & Cognition*, 36(6), 1144–1150. doi:10.3758/MC.36.6.1144
- Tan, E. S. H. (2008). Entertainment is emotion: The functional architecture of the entertainment experience. *Media Psychology*, 11(1), 28–51. doi:10.1080/15213260701853161
- Therriault, D. J., & Rinck, M. (2007). Multidimensional situation models. In F. Schmalhofer & C. Perfetti (Eds.), *Higher level language processes in the brain: Inference and comprehension processes* (pp. 311–327). Mahwah, NJ: Erlbaum.
- Tian, Q., & Hoffner, C. A. (2010). Parasocial interaction with liked, neutral, and disliked characters on a popular TV series. *Mass Communication and Society*, 13(3), 250–269. doi:10.1080/15205430903296051
- Todd, A. R., Simpson, A. J., & Tamir, D. I. (2016). Active perspective taking induces flexible use of self-knowledge during social inference. *Journal of Experimental Psychology: General*, 145(22), 1583–1588. doi:10.1037/xge0000237
- van Dijk, T., & Kintsch, W. (1983). *Strategies of discourse comprehension*. New York, NY: Academic Press.
- Visch, V., & Tan, E. (2008). Narrative versus style: Effect of genre-typical events versus genre-typical filmic realizations on film viewers' genre recognition. *Poetics*, 36, 301–315. doi:10.1016/j.poetic.2008.03.003
- Vorderer, P., Knobloch, S., & Schramm, H. (2001). Does entertainment suffer from interactivity? The impact of watching an interactive TV movie on viewer's experience of entertainment. *Media Psychology*, 3(4), 343–363.
- Wood, J. V., Saltzberg, J. A., & Goldsamt, L. A. (1990). Does affect induce self-focused attention? *Journal of Personality and Social Psychology*, 58(5), 899–908. doi:10.1037/0022-3514.58.5.899
- Zillmann, D. (1996). The psychology of suspense in dramatic exposition. In P. Vorderer, W. J. Wulff, & M. Friedrichsen (Eds.), *Suspense: Conceptualizations, theoretical analyses, and empirical explorations* (pp. 199–231). Mahwah, NJ: Lawrence Erlbaum Associates.
- Zwaan, R. A. (2004). The immersed experienter: Toward an embodied theory of language comprehension. In B. H. Ross (Ed.), *The psychology of learning and motivation* (pp. 35–62). New York, NY: Academic Press.
- Zwaan, R. A., & Radvansky, G. A. (1998). Situation models in language comprehension and memory. *Psychological Bulletin*, 123, 162–185. doi:10.1037/0033-2909.123.2.162