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« Do gaming and reading have a common relationship to empathy and theory of mind? »

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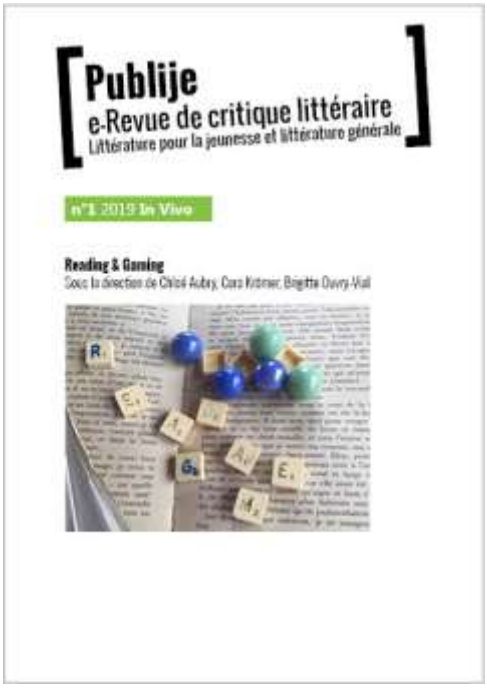

Abstract

Based on transportation theory, research shows that reading fiction affects empathy. Also, there are studies that show how reading fiction affects theory of mind. In a similar line, some research show that playing non-violent video games that include storytelling may have prosocial benefits and also affects theory of mind. We are therefore interested in further clarification of the relationship between reading and game playing on the one hand and empathy and theory of mind on the other.

Keywords
Reading, gaming, theory of mind, empathy

Résumé
Basée sur la *transportation theory*, la recherche montre que la lecture de fiction affecte l'empathie. Il y a également des études démontrant comment la lecture de fiction affecte la théorie de l'esprit. De même certaines recherches montrent que jouer à des jeux-vidéos non-violents avec des éléments narratifs peut favoriser la sociabilité et affecte également la théorie de l'esprit. Nous nous intéressons donc à un éclaircissement complémentaire de la relation entre la lecture et le jeu-vidéo d'un côté et entre l'empathie et la théorie de l'esprit de l'autre côté.

Mots-clés
Lecture, jouer (gaming), théorie de l'esprit, empathie

Based on transportation theory, research shows that reading fiction affects empathy[1]. As Bal & Veltkamp[2] point – if a person is reading a fictional novel and is during this process emotionally transported in the story, their empathy increases. Empathy refers to our ability to understand or feel what another person is experiencing, from that person's perspective. Two basic types of empathy are affective or emotional empathy and cognitive empathy.

Emotional empathy is when we feel what another person is feeling both physically and emotionally. We feel someone's pain or joy, for example, as if it is our own. This mechanism of emotional contagion depends on the mirror neuron system.

Cognitive empathy refers to the capacity to understand another person's perspective or mental states – what someone is thinking for example. This type of empathy is often confused with theory of mind ability. It is interesting that, when it comes to research on reading fiction, there are studies that show how reading fiction affects theory of mind[3].

Theory of mind refers to our understanding of mental states – beliefs, desires, intentions, thoughts, perceptions etc. It also refers to our understanding of emotions. Theory of mind is a metarepresentational ability – representation of a representation. Humans use this ability to ascribe mental states to themselves and other people, and based on these metarepresentations we try to explain and predict human behavior. If someone goes to the kitchen and reaches for a chocolate from a cupboard, we assume they wanted some chocolate (desire) and they believed there is some chocolate in the kitchen cupboard (belief) so we explain their behavior based on desires and beliefs that we attribute to them.

Since the cognitive empathy and theory of mind concepts are quite similar, the point that we want to elaborate is the need to differentiate more closely between them, especially when it comes to research dealing with the relationship of reading fiction and empathy and/or theory of mind.

First we will look at some of the studies on the association between reading fiction and

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[1] MAR R. et al. Bookworms versus nerds: « Exposure to fiction versus non-fiction, divergent associations with social ability, and the simulation of fictional social worlds »„ *Journal of Research in Personality*, vol. 40, 2006, p. 694-712 ; JOHNSON D. R., « Transportation into a story increases empathy, prosocial behavior, and perceptual bias toward fearful expressions », *Personality and Individual Differences*, vol. 52, 2012, p. 150-155; BAL P. M., VELTKAMP M., « How does fiction influence empathy? An experimental investigation on the role of emotional transportation » , *PLoS ONE*, vol. 8 / 1, 2013; DJIKIC M., OATLEY K., MOLDOVEANU, « Reading other minds: Effects of literature on empathy », *Scientific study of literature* , vol. 3 / 1, 2013, p. 28-47; STANSFIELD J., BUNCE L. « The Relationship Between Empathy and Reading Fiction: Separate Roles for Cognitive and Affective Components », *Journal of European Psychology Students*, vol. 5 / 3, 2014, p. 9–18.

[2] BAL P. M., VELTKAMP M., *op. cit.*

[3] KIDD D.C., CASTANO E., « *Reading Literary Fiction Improves Theory of Mind* », *Science*, vol. 342, 2013, p. 377-380.

empathy. Mar et al.[4] found that reading fiction predicts empathy which they measured using the 'Reading the Mind in the Eyes Test' developed by Simon Baron-Cohen et al.[5], which the authors in fact described as an advanced theory of mind test. Therefore, we could say that Mar et al.[6] measured cognitive empathy. The result indicated to a positive association between reading fiction and cognitive empathy.

Johnson[7] ran a study on how transportation in the story affected empathy and prosocial behavior. He used Batson, Early & Salvarni's[8] measure of affective empathy and the results showed that deeper transportation into the story lead to higher affective empathy, and later to better chances of engaging in prosocial behavior.

Bal & Veltkamp[9] found that reading fiction affects empathy. In their research they measured empathy using the Empathic concern scale[10] which means they in fact measured emotional empathy.

Djikic, Oatley & Moldoveanu[11] employed three measures of empathy in their research. Two were from the Davis's Interpersonal Reactivity Index[12] which measure both emotional and cognitive empathy. In addition, they also used 'Reading the Mind in the Eyes Test'[13]. They found different associations between reading fiction and cognitive and emotional empathy.

Stansfield & Bunce[14] really made a step further and used two subscales of the Davis's Interpersonal Reactivity Index[15], measuring emotional and cognitive empathy as traits. Furthermore, they also used 'Reading the Mind in the Eyes Test'[16] to measure story-induced cognitive empathy, and The Affective Empathy Index[17] to measure story-induced affective (emotional) empathy. They found different associations of exposure to fiction with trait empathy

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[4] MAR R. et al., *op. cit.*
[5] BARON-COHEN S., WHEELWRIGHT W., HILL J., RASTE Y., PLUMB I., *The "Reading the Mind in the Eyes" Test revised version: A study with normal adults, and adults with Asperger syndrome or high-functioning autism.*
[6] MAR R. et al. *Bookworms versus nerds: Exposure to fiction versus non-fiction, divergent associations with social ability, and the simulation of fictional social worlds.*
[7] JOHNSON D. R., *Transportation into a story increases empathy, prosocial behavior, and perceptual bias toward fearful expressions.*
[8] BATSON C.D., EARLY S., SALVARANI G., « Perspective taking: Imagining how another feels versus imagining how you would feel », *J. Child Psychol. Psychiatry*, vol. 42, 2001, p. 241–251.
[9] BAL P. M., VELTKAMP M., *How does fiction influence empathy? An experimental investigation on the role of emotional transportation.*
[10] DAVIS M.H., « Measuring individual differences in empathy: Evidence for a multidimensional approach », *Journal of Personality and Social Psychology*, vol. 44, 1983, p. 113-126.
[11] DJIKIC M., OATLEY K., MOLDOVEANU, *op. cit.*
[12] DAVIS M.H., *op. cit.*
[13] BARON-COHEN S., WHEELWRIGHT W., HILL J., RASTE Y., PLUMB I., *op. cit.*
[14] STANSFIELD J., BUNCE L., *op. cit.*
[15] DAVIS M.H., *op. cit.*
[16] BARON-COHEN S., WHEELWRIGHT W., HILL J., RASTE Y., PLUMB I., *op. cit.*
[17] BATSON C.D., EARLY S., SALVARANI G., *op. cit.*

vs. story-induced emotional and cognitive empathy. To be more exact, they found that exposure to fiction was associated with trait cognitive, but not affective empathy, but experience of being transported was associated with story-induced affective empathy.

All the above mentioned research was aimed at investigating the relationship between reading fiction and empathy. But, as mentioned earlier, there are also studies aimed at investigating the association of theory of mind and reading. Interestingly, some of them use the same measures as the research on empathy. However there is at least one study that measured both affective and cognitive aspects of theory of mind. Kidd & Castano[18] showed that reading literary fiction improves affective and cognitive theory of mind. They used 'Reading the Mind in the Eyes Test'[19] as a measure of affective theory of mind. In addition they used an alternative measure of affective theory of mind – the Diagnostic Analysis of Nonverbal Accuracy 2 –Adult Faces test[20]. For cognitive theory of mind they measured a false belief task. But these researchers also used the Yoni test[21] for accessing both cognitive and affective theory of mind. Their findings, however, were not reconfirmed in three replication studies that showed no significant advantage in affective theory of mind (measured by 'Reading the Mind in the Eyes Test') for literary fiction compared to any other condition[22].

Finally, in a similar line as research on how reading fiction is associated with empathy and theory of mind, some research shows that playing non-violent video games that include storytelling may have prosocial benefits and also affect theory of mind[23]. Greitemeyer, Brauer and Osswald[24] conducted two experiments and showed that playing prosocial video games, compared to neutral ones, increases interpersonal empathy measured with a short affective empathy scale. Later, Borman and Greitemeyer[25] argue that previous research on video games neglected structural and contextual elements of the game, so they focused on the narrative part of games. They randomly assigned their participants into two groups. One group played a video game (*Gone Home*) rich in storytelling in which the player slips in the role of a female student

[18] KIDD D. C., CASTANO E., *op. cit.*
[19] BARON-COHEN S., WHEELWRIGHT W., HILL J., RASTE Y., PLUMB I., *op. cit.*
[20] NOWICKI S.Jr., *A manual for the Diagnostic Analysis of Nonverbal Accuracy 2*, Department of Psychology, Emory University, 2010.
[21] SHAMAY-TSOORY S. G., AHARON-PERETZ J., « Dissociable prefrontal networks for cognitive and affective theory of mind: A lesion study », *Neuropsychologia*, vol. 45, 2007, p. 3054–3067.
[22] PANERO et al. Does Reading a Single Passage of Literary Fiction Really Improve Theory of Mind? An Attempt at Replication*", Journal of Personality and Social Psychology*, vol. 111 / 5, 2016, p. 46-54.
[23] GREITEMEYER T., BRAUER M., OSSWALD S. „Playing Prosocial Video Games Increases Empathy and Decreases Schadenfreude*", Emotion*, vol. 10 / 6, 2010, p. 796-802; BORMANN D., GREITEMEYER T., "Immersed in virtual worlds and minds: Effects of in-game storytelling on immersion, need satisfaction, and affective Theory of Mind", *Social Psychological and Personality Science*, vol. 6, 2015, p. 646-652.
[24] GREITEMEYER T., BRAUER M., OSSWALD S., *op. cit.*
[25] BORMANN D., GREITEMEYER T., *op. cit.*

who comes home after spending a year abroad. The student find the house is empty and based on different clues needs to find out what has happened to her family. The key elements of the story are narrated by the student's sister. There were two conditions for this game – one in which participants were given the narrative ("story condition") and the other one in which the participant were asked to willfully ignore it ("ignore story condition"). The second group of participants played a neutral game with no narrative elements. After 20 minutes of gameplay, participant from both groups completed the 'Reading the Mind in the Eyes Test', as a measure of affective theory of mind. Results provide initial evidence that affective theory of mind can be enhanced by in-game storytelling. This effect was found only for the "story condition", in which the participants were actively engaged in the games narration. The authors propose that playing a video game rich in storytelling in which "players are forced to actively construct coherent narratives out of scattered information in order to understand and anticipate the events in the game" can be compared to reading fiction, and therefore it might have the same effect on affective theory of mind[26].

In conclusion, although there are studies pointing to an association between empathy and/or theory of mind, and reading and playing video games including storytelling the mechanisms underlying such associations need further clarification.

We live in an age in which reading is becoming more and more connected to digital devices which are often similar if not the same as the ones used for playing video games (e.g. tablets can have Kindle apps installed). Therefore we are interested in further investigation of the relationship between reading, especially reading on digital devices, and game playing on the one hand and empathy and theory of mind on the other.

[26] *Ibid.*

Bibliography

BAL P. M, VELTKAMP M., « How does fiction influence empathy? An experimental investigation on the role of emotional transportation », *PLoS ONE*, vol. 8 / 1, 2013.

BARON-COHEN S., WHEELWRIGHT W., HILL J., RASTE Y., PLUMB I., « The "Reading the Mind in the Eyes" Test revised version: A study with normal adults, and adults with Asperger syndrome or high-functioning autism », *J. Child Psychol. Psychiatry*, vol. 42, 2001, p. 241–251.

BATSON C.D., EARLY S., SALVARANI G., « Perspective taking: Imagining how another feels versus imagining how you would feel », *Personality & Social Psychology Bulletin*, vol. 23, 1997, p. 751-758.

BORMANN D., GREITEMEYER T., « Immersed in virtual worlds and minds: Effects of in-game storytelling on immersion, need satisfaction, and affective Theory of Mind », *Social Psychological and Personality Science*, vol. 6, 2015, p. 646-652.

DAVIS M.H., « Measuring individual differences in empathy: Evidence for a multidimensional approach », *Journal of Personality and Social Psychology*, vol. 44, 1983, p. 113-126.

DIJKIC M., OATLEY K., MOLDOVEANU M., « Reading other minds: Effects of literature on empathy », *Scientific study of literature* , vol. 3 / 1, 2013, p. 28-47.

GREITEMEYER T., BRAUER M., OSSWALD S. „Playing Prosocial Video Games Increases Empathy and Decreases Schadenfreude*", Emotion*, vol. 10/6, 2010, p. 796-802.

JOHNSON D. R., « Transportation into a story increases empathy, prosocial behavior, and perceptual bias toward fearful expressions », *Personality and Individual Differences*, vol. 52, 2012, p. 150-155.

KIDD D.C., CASTANO E., « Reading Literary Fiction Improves Theory of Mind », *Science*, vol. 342, 2013, p. 377-380.

MAR R.A., OATLEY K., HIRSH J., PAZ J. dela, PETERSON J.B., « Bookworms versus nerds: Exposure to fiction versus non-fiction, divergent associations with social ability, and the simulation of fictional social worlds », *Journal of Research in Personality*, vol. 40, 2006, p. 694-712.

NOWOCKI S. Jr., « A manual for the Diagnostic Analysis of Nonverbal Accuracy *2.* Unpublished manuscript », Department of Psychology, Emory University, 2010.

PANERO M.E., WEISBERG D.S., BLACK J., GOLDSTEIN T.R., BARNES J.L., BROWNELL H., WINNER E., « Does Reading a Single Passage of Literary Fiction Really Improve Theory of Mind? An Attempt at Replication », *Journal of Personality and Social Psychology*, vol. 111 / 5, 2016, p. 46-54.

SHAMAY-TSOORY S. G., AHARON-PERETZ J., « Dissociable prefrontal networks for cognitive and affective theory of mind: A lesion study », *Neuropsychologia*, vol. 45, 2007, p. 3054–3067.

STANSFIELD J., BUNCE L. « The Relationship Between Empathy and Reading Fiction: Separate Roles

for Cognitive and Affective Components », *Journal of European Psychology Students*, vol. 5 / 3, 2014, p. 9–18.