

The Relationship between Mind-Body Dualism and Personal Values

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Abstract

Dualists view the mind and the body as two fundamental different “things”, equally real and independent of each other. Cartesian thought, or substance dualism, maintains that the mind and body are two different substances, the non-physical and the physical, and a causal relationship is assumed to exist between them. Physicalism, on the other hand, is the idea that everything that exists is either physical or totally dependent of and determined by physical items. Hence, all mental states are fundamentally physical states. In the current study we investigated to what degree Swedish university students’ beliefs in mind-body dualism is explained by the importance they attach to personal values. A self-report inventory was used to measure their beliefs and values. Students who held stronger dualistic beliefs attach less importance to the power value (i.e., the effort to achieve social status, prestige, and control or dominance over people and resources). This finding shows that the strength in laypeople’s beliefs in dualism is partially explained by the importance they attach to personal values.

Keywords: mind-body problem, dualism, physicalism, personal values

1. Introduction

The philosophical problem of whether the body can be distinguished from the mind is known as the mind-body problem (Revonsuo, 2009). Among the various approaches to the problem, two main schools of thought have emerged: dualism and monism. We admit the existence of multiple differences between dualistic and monistic philosophies (for an introduction, see Farthing, 1992; Revonsuo, 2009). However, for pragmatic reasons, in this paper we describe only the fundamental features of the two schools.

Robinson (2012, p. 1) defines dualism as “...the theory that the mental and the physical—or mind and body or mind and brain—are, in some sense, radically different kinds of thing”. Dualists maintain that the mental and the physical, while equally real, cannot be “absorbed” into each other. Cartesian thought, or substance dualism, advances the idea that mind and matter involve different kinds of substances; the body belongs to the physical world whereas the mind belongs to the non-physical world. Events that involve the physical and the mental are assumed causally related in both directions (Descartes, 2012). Property dualism asserts that although the world consists of only one substance, this substance has two kinds of properties: physical and mental. For a review of property dualism, see Lycan (2013). For further discussion of dualism, see Chalmers (1997, 2010), Eeckels (2012), and Plantinga (2006).

Monism is the theory that claims only one substance exists although monists disagree about the exact nature of that substance. Some monists, who support materialism, also known as physicalism, posit the universe consists only of physical things. Other monists, who support idealism, posit that the universe consists only of non-physical things (Revonsuo, 2009). Still other monists, the neutral monists, argue that physical and non-physical are descriptions that refer to the same thing, although in two different ways. By this, they mean that the physical and non-physical are merely aspects of the same thing.

Many philosophers reject dualism in favor of some sort of physicalism (e.g., Armstrong, 2002; Churchland, 2013; Crick, 1979; Dennett, 1989; Place, 2003). A survey of contemporary professional philosophers found that 56.5% supported physicalism as the best explanation of the mind-body relationship. Of the others, 27.1% supported non-physicalism, and 16.4% supported other philosophical views (Bourget & Chalmers, 2014).

While research on the views of non-philosophers (laypeople) on the mind-body relationship is sparse, a few studies exist. In research conducted among undergraduate university students in the United States, Stanovich (1989) found that 50% of the students conceived of the mind as a special and currently unknown form of energy in contact with the brain. Moreover, 49% of the students agreed with the classical Cartesian view that the mind, interacting with the brain, causes behavior. However, 22.6% of the students thought that minds and bodies are independent and only temporarily “attached”. In a survey of participants (consisting mostly of psychiatrists) at the Brazilian Congress of Psychiatry of 2014, Moreira-Almeida and Araujo (2015) found that 72% of the participants did not agree with the idea that everything in the universe consists only of matter, and 47% did not agree with the idea that the mind, the I or phenomenal experience, is a product of brain activity. In their research, Demertzi et al. (2009) found that the majority of students at the University of Edinburgh mainly agreed with the dualistic view that the mind and the body are separate entities. In the same study, these researchers also found that among a sample of Belgian health-care workers, over a third favored the dualistic view of the mind and the body.

Some research suggests that laypeople have not thought much about the relationship between the mind and the body, and are rather easily persuaded to one view or another by exposure to a discussion of the mind-body problem (Moreira-Almeida & Araujo, 2015) and by exposure to results from neuroscientific research (Preston, Ritter, & Hepler, 2013).

Some studies focus on the characteristics of people who have strong dualistic views. Demertzi et al. (2009), for example, found that younger participants and women were more likely to hold dualistic beliefs. Other studies have confirmed Demertzi et al.’s conclusion that religious beliefs are positively correlated with dualistic beliefs, and that beliefs in psi-phenomenon (e.g., clairvoyance, telepathy, psychic phenomena, and precognition) are associated with stronger dualistic beliefs (Riekki, Lindeman, & Lipsanen, 2013; Svensen, White, & Caird, 1992). Studies have also found that belief in an afterlife is positively correlated with belief in dualism (Riekki et al., 2013; Thalbourne, 1996). Stanovich (1989) found that among less religious people, the belief in dualism was positively associated with the belief in extrasensory perception. Svensen et al. (1992) found that people who score higher on the personality trait neuroticism hold stronger dualistic beliefs.

Dualistic beliefs have also been positively correlated with the tendency to mentalize (i.e., to infer and think about others’ mental states and emotions). Willard and Norenzayan (2013) used the item “I am good at predicting how someone will feel” as an indicator of the ability and tendency to mentalize. Heflick, Goldenberg, Hart, and Kamp (2015) found that thinking about personal mortality increases the belief in an afterlife among people who believe more strongly in the dualism of the mind and body.

2. Personal Values

Rokeach (1973, p. 5) defines a personal value as follows: “A value is an enduring belief that a specific mode of conduct or end-state is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence”. Schwartz’s circle value model, presented in Figure 1, has lots of empirical support (Knafo, Roccas, & Sagiv, 2011; Schwartz, 1992; Schwartz & Bardi, 2001; Schwartz et al., 2012; Seligman, Olson, & Zanna, 2013). The ten values and their motivational goals, as presented by Schwartz and Bardi (2001, p. 270), are listed below.

- Power (social status and prestige, control or dominance over people and resources)
- Achievement (personal success through demonstrating competence according to social standards)
- Hedonism (pleasure and sensuous gratification for one self)
- Stimulation (excitement, novelty, and challenge in life)
- Self-direction (independent thought and action—choosing, creating, exploring)
- Universalism (understanding, appreciation, tolerance, and protection for the welfare of all people and for nature)
- Benevolence (preservation and enhancement of the welfare of people with whom one is in frequent personal contact)
- Tradition (respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self)
- Conformity (restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms)

- Security (safety, harmony, and stability of society, of relationships, and of self)

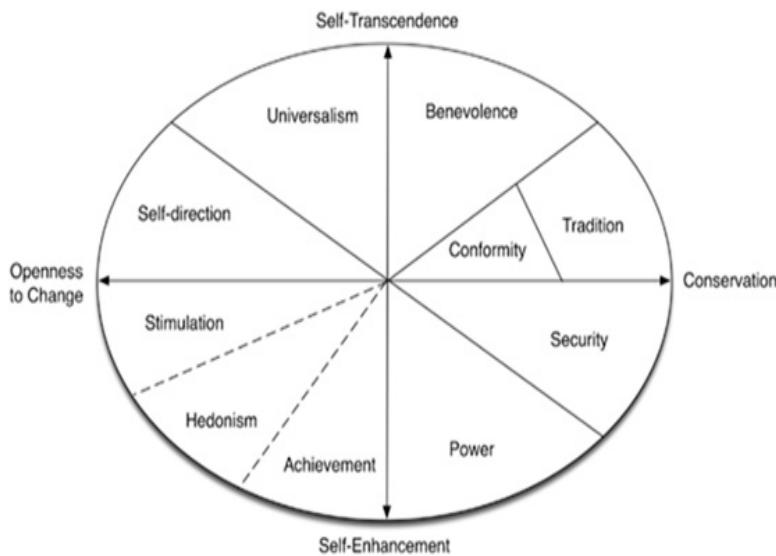


Figure 1. Schwartz's value model (1992, p. 14)

The values in the Schwartz model are located along two axes. The vertical axis, with endpoints "Self-Transcendence" and "Self-Enhancement", presents the range of valuing others' interests over self-interest to valuing self-interest over others' interests. The horizontal axis, with endpoints "Conservation" and "Openness to Change", presents the range of valuing security, traditions, and conformity to valuing self-direction and stimulation.

Researchers have associated personal values, or more precisely the importance attached to such values, with a number of variables. Among these variables are the following: preferences and the willingness-to-pay for Fairtrade certified products (Doran, 2009, 2010; Grankvist & Kajonius, 2015; Ma & Lee, 2012); ecocentric and anthropocentric environmental philosophies (Grankvist, 2015; Nordlund & Garvill, 2002; Schultz & Zelezny, 1999); political views (Cochrane, Billig, & Hogg, 1979; Schwartz, Caprara, & Vecchione, 2010); attitudes towards genetically modified food products (Dreezens, Martijn, Tenbült, Kok, & De Vries, 2005); intentions to visit major recreational attractions (Pitts & Woodside, 1986); attitudes toward e-shopping (Jayawardhena, 2004); political orientation on a left-right scale (Piurko, Schwartz, & Davidov, 2011); militaristic attitudes (Cohrs, Moschner, Maes, & Kielmann, 2005) and gender (Beutel & Marini, 1995; Dietz, Kalof, & Stern, 2002; Schwartz & Rubel, 2005).

3. A Hypothesis

Because personal values explain variation in a number of these variables we think it is reasonable to hypothesize they explain variance in the strength of belief in dualism. No previous studies on associations between values and beliefs in dualism have however been found. Women, and those who have a stronger tendency to mentalize, have nevertheless been found more likely to hold dualistic beliefs (Demertzis et al., 2009; Willard & Norenzayan, 2013). We know from other studies that women are more likely to view altruistic values as more important (Beutel & Marini, 1995; Dietz, Kalof, & Stern, 2002; Schwartz & Rubel, 2005). Mentalizing, that is infer, think and "feel" how someone else will feel, furthermore intuitively seems more related to altruistic than egoistic values. With these arguments we hypothesize the non-altruistic values achievement and power will be found negatively with associated with beliefs in dualism. We furthermore hypothesize that beliefs in dualism will be positively associated with the altruistic values universalism and benevolence, found opposite to non-altruistic values.

4. Method

4.1 Participants and Procedure

The 137 participants in this study were Swedish university students enrolled in human resources courses (83% female and 17% male) in 2014 and 2015. Participation in the research was voluntary, and anonymity was guaranteed. The participants were between 19 and 45 years of age, with a mean age of 26 years.

4.2 Instruments

We used five statements from Preston et al. (2013) to measure the degree of belief in mind-body dualism. We used a seven-point Likert scale with endpoints of “Do not agree at all” and “Totally agree”. Agreement with the first and second statements implied disbelief in dualism. Agreement with the remaining three statements implied belief in dualism. Next scores from the first and second statements were reversed. After that, for all statements, higher scores implied a stronger belief in mind-body dualism. The statements are:

- 1) The mind is equivalent to the brain.
- 2) One's thoughts, personality, preferences, and choices are all just a product of brain functions.
- 3) A person's soul persists after one dies.
- 4) The mind interacts with the brain, but is separate from brain.
- 5) The mind is a non-physical property.

The internal reliability, measured by Cronbach's alpha, for these five statements was .54, with corrected item-total correlations ranging from .22 to .39. For a discussion of and justification for the use of short questionnaires, see Yarkoni (2010). For a critical discussion of strict cut-offs for Chronbach alphas, and arguments for the more liberal concept of acceptable reliability in preliminary research (see Lance, Butts, & Michels, 2006). The mean across the five statements presented above was used to measure of the degree of belief in mind-body dualism.

The Portrait Value Questionnaire IV (PVQ-IV; Schwartz, 2009), which is a 40-item, self-report questionnaire, was used to measure the importance attached to personal values as determined by the resemblance of a respondent to the described portrait. Items were scored on a six-point Likert scale, ranging from “Not like me at all” to “Very much like me”. The internal reliability of the value type scales was as follows: universalism .76 (6 items), benevolence .70 (4 items), tradition .63 (4 items), conformity .76 (4 items), security .59 (5 items), power .54 (3 items), achievement .85 (4 items), hedonism .69 (3 items), stimulation .75 (3 items), and self-direction .66 (4 items). Following Schwartz's (2009) recommendation, each respondent's mean ratings for all values were calculated and then used to control for the tendency to respond at the left or right end of the scale.

5. Results

A statistically significant negative correlation was found between belief in dualism and the power value. In addition, a positive, although not statistically significant, correlation was found between the value universalism (located opposite to the power value in Schwartz's (1992) value model) and dualism (see Table 1). These correlations with the axis of endpoints “Self-Transcendence” and “Self-Enhancement” are, in line with our hypothesis, and relevant as explanations of the degree of belief in mind-body dualism. Respondents who attach more importance to the power value, located at the “Self-Enhancement” endpoint, were less likely to hold dualistic beliefs. Respondents who attach more importance to the universalism value, located opposite to the “Self-Transcendence” endpoint, were more likely to hold dualistic beliefs.

Table 1. Pearson product-moment correlation coefficients of the ten Personal Values with Beliefs in Mind Brain Dualism (N = 137)

	Personal values									
	BE	UN	SD	ST	HE	AC	PO	SE	CO	TR
Belief in Mind Brain Dualism	.11	.13	-.14	.10	-.04	.05	-.19	-.09	-.02	.01

Note. BE = benevolence, UN = universalism, SD = self-direction, ST = stimulation, HE = hedonism, AC = achievement, PO = power, SE = security, CO = conformity, TR = tradition. Correlations $|r| > .17$ are statistically significant at the .05 level, two-tailed.

6. Discussion

We found the respondents with stronger beliefs in dualism rated the power value as less important than respondents with weaker beliefs in dualism. That is, those respondents with stronger non-dualistic, or materialistic, views of the mind-body relationship rated the power value as more important. The power value emphasizes the effort to attain social status and prestige as well as control of and dominance over people and resources. A stronger belief in the mind as nothing more than processes in the physical brain was thus positively associated with a stronger emphasis on achieving goals such as social prestige and control and dominance.

At a more general level we found that the philosophical views of the respondents (i.e., laypeople) on the mind-body relationship were partly a function of the importance attached to personal values. Their views on this relationship, which probably are not very developed, are possibly rather easily altered by additional information. Such information may be, for example, a discussion on the mind-body issue (Moreira-Almeida & Araujo, 2015) or evidence from neuroscience research (Preston et al., 2013). The views of professional philosophers, however, are probably much more elaborated and not easily altered. We reached no conclusion on whether professional philosophers' views on the mind-body relationship are influenced by the importance they attach to personal values. However, if the importance attached to personal values has some explanatory power among professional philosophers, it may be that philosophical opinions are affected, or even partially caused, by personal values. Future studies should explore if and to what extent professional philosophers' opinions on the mind-body relationship are explained by the importance they attach to personal values.

References

- Armstrong, D. M. (2002). *A materialist theory of the mind*. London, New York: Routledge.
- Bourget, D., & Chalmers, D. J. (2014). What do philosophers believe? *Philosophical Studies*, 170(3), 465-500. <http://dx.doi.org/10.1007/s11098-013-0259-7>
- Beutel, A. M., & Marini, M. M. (1995). Gender and values. *American sociological review*, 436-448. <http://dx.doi.org/10.2307/2096423>
- Chalmers, D. J. (1997). *The conscious mind: In search of a fundamental theory*. Oxford: Oxford Paperbacks.
- Chalmers, D. J. (2010). *The character of consciousness*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/acprof:oso/9780195311105.001.0001>
- Churchland, P. M. (2013). *Matter and consciousness*. Cambridge, MA: MIT Press.
- Cochrane, R., Billig, M., & Hogg, M. (1979). Politics and values in Britain: A test of Rokeach's two-value model. *British Journal of Social and Clinical Psychology*, 18(2), 159-167. <http://dx.doi.org/10.1111/j.2044-8260.1979.tb00320.x>
- Cohrs, J. C., Moschner, B., Maes, J., & Kielmann, S. (2005). Personal values and attitudes toward war. *Peace and conflict, Journal of Peace Psychology*, 11(3), 293. http://dx.doi.org/10.1207/s15327949pac1103_5
- Crick, F. H. (1979). Thinking about the brain. *Scientific American*, 241(3), 219-232. <http://dx.doi.org/10.1038/scientificamerican0979-219>
- Demertzi, A., Liew, C., Ledoux, D., Bruno, M. A., Sharpe, M., Laureys, S., & Zeman, A. (2009). Dualism persists in the science of mind. *Annals of the New York Academy of Sciences*, 1157(1), 1-9. <http://dx.doi.org/10.1111/j.1749-6632.2008.04117.x>
- Dennett, D. C. (1989). *The intentional stance*. Cambridge, MA: MIT Press.
- Descartes, R. (2012). *Discourse On method, meditations and principles: Descartes: Discourse On on method*. UK: Hachette Digital.
- Dietz, T., Kalof, L., & Stern, P. C. (2002). Gender, values, and environmentalism. *Social Science Quarterly*, 83(1), 353-364. <http://dx.doi.org/10.1111/1540-6237.00088>
- Doran, C. J. (2009). The role of personal values in fair trade consumption. *Journal of Business Ethics*, 84(4), 549-563. <http://dx.doi.org/10.1007/s10551-008-9724-1>
- Doran, C. J. (2010). Fair trade consumption: In support of the out-group. *Journal of Business Ethics*, 95(4), 527-541. <http://dx.doi.org/10.1007/s10551-010-0437-x>
- Dreezens, E., Martijn, C., Tenbült, P., Kok, G., & De Vries, N. K. (2005). Food and values: An examination of values underlying attitudes toward genetically modified-and organically grown food products. *Appetite*, 44(1), 115-122. <http://dx.doi.org/10.1016/j.appet.2004.07.003>

- Eccles, J. C. (2012). *How the self controls its brain*. Springer Science & Business Media.
- Farthing, G. W. (1992). *The psychology of consciousness*. Upper Saddle River, NJ: Prentice-Hall, Inc.
- Grankvist, G. (2015). Attitudes towards fairtrade principles and environmental views among the inhabitants of a rural Swedish town. *Psychology*, 6(13), 1661. <http://dx.doi.org/10.4236/psych.2015.613162>
- Grankvist, G., & Kajonius, P. (2015). Personality traits and values: A replication with a Swedish sample. *International Journal of Personality Psychology*, 1(1), 8-14.
- Heflick, N. A., Goldenberg, J. L., Hart, J., & Kamp, S. M. (2015). Death awareness and body-self dualism: A why and how of afterlife belief. *European Journal of Social Psychology*, 45(2), 267-275. <http://dx.doi.org/10.1002/ejsp.2075>
- Jayawardhena, C. (2004). Personal values' influence on e-shopping attitude and behaviour. *Internet Research*, 14(2), 127-138. <http://dx.doi.org/10.1108/10662240410530844>
- Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported cutoff criteria what did they really say? *Organizational research methods*, 9(2), 202-220. <http://dx.doi.org/10.1177/1094428105284919>
- Lycan, W. G. (2013). Is property dualism better off than substance dualism? *Philosophical Studies*, 164(2), 533-542. <http://dx.doi.org/10.1007/s11098-012-9867-x>
- Knafo, A., Roccas, S., & Sagiv, L. (2011). The value of values in cross-cultural research: A special issue in honor of Shalom Schwartz. *Journal of cross-cultural psychology*, 42(2), 178-185. <http://dx.doi.org/10.1177/0022022110396863>
- Ma, Y. J., & Lee, H. H. (2012). Understanding consumption behaviours for fair trade non-food products: Focusing on self-transcendence and openness to change values. *International Journal of Consumer Studies*, 36(6), 622-634. <http://dx.doi.org/10.1111/j.1470-6431.2011.01037.x>
- Moreira-Almeida, A., & Araujo, S. (n.d.). Does the brain produce the mind? A survey of psychiatrists' opinions. *Archives of Clinical Psychiatry (São Paulo) [online]*, 42(3), 74-75.
- Nordlund, A. M., & Garvill, J. (2002). Value structures behind proenvironmental behavior. *Environment and Behavior*, 34(6), 740-756. <http://dx.doi.org/10.1177/001391602237244>
- Pitts, R. E., & Woodside, A. G. (1986). Personal values and travel decisions. *Journal of Travel Research*, 25(1), 20-25. <http://dx.doi.org/10.1177/004728758602500104>
- Piurko, Y., Schwartz, S. H., & Davidov, E. (2011). Basic personal values and the meaning of left-right political orientations in 20 countries. *Political Psychology*, 32(4), 537-561. <http://dx.doi.org/10.1111/j.1467-9221.2011.00828.x>
- Place, U. T. (2003). *Identifying the mind: Selected papers of UT Place*. Oxford: Oxford University Press.
- Plantinga, A. (2006). Against materialism. *Faith and Philosophy*, 23(1), 3-32. <http://dx.doi.org/10.5840/faithphil20062316>
- Preston, J. L., Ritter, R. S., & Hepler, J. (2013). Neuroscience and the soul: Competing explanations for the human experience. *Cognition*, 127(1), 31-37. <http://dx.doi.org/10.1016/j.cognition.2012.12.003>
- Riekki, T., Lindeman, M., & Lipsanen, J. (2013). Conceptions about the mind-body problem and their relations to afterlife beliefs, paranormal beliefs, religiosity, and ontological confusions. *Advances in Cognitive Psychology*, 9(3), 112. <http://dx.doi.org/10.5709/acp-0138-5>
- Robinson, H. (2012). "Dualism". In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2012 ed.). Retrieved from <http://plato.stanford.edu/archives/win2012/entries/dualism>
- Revonsuo, A. (2009). *Consciousness: The science of subjectivity*. East Sussex, UK: Psychology Press.
- Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- Schultz, P. W., & Zelezny, L. (1999). Values as predictors of environmental attitudes: Evidence for consistency across 14 countries. *Journal of Environmental Psychology*, 19(3), 255-265. <http://dx.doi.org/10.1006/jevp.1999.0129>
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25(1), 1-65. [http://dx.doi.org/10.1016/S0065-2601\(08\)60281-6](http://dx.doi.org/10.1016/S0065-2601(08)60281-6)

- Schwartz, S. H. (2009). *Draft users manual: Proper use of the Schwarz Value Survey*. Auckland, New Zealand: Centre for Cross Cultural Comparisons. Retrieved from <http://crossculturalcentre.homestead.com/>
- Schwartz, S. H., & Bardi, A. (2001). Value hierarchies across cultures taking a similarities perspective. *Journal of Cross-Cultural Psychology*, 32(3), 268-290. <http://dx.doi.org/10.1177/0022022101032003002>
- Schwartz, S. H., & Boehnke, K. (2004). Evaluating the structure of human values with confirmatory factor analysis. *Journal of Research in Personality*, 38(3), 230-255. [http://dx.doi.org/10.1016/S0092-6566\(03\)00069-2](http://dx.doi.org/10.1016/S0092-6566(03)00069-2)
- Schwartz, S. H., & Rubel, T. (2005). Sex differences in value priorities: Cross-cultural and multimethod studies. *Journal of personality and social psychology*, 89(6), 1010. <http://dx.doi.org/10.1037/0022-3514.89.6.1010>
- Schwartz, S. H., Caprara, G. V., & Vecchione, M. (2010). Basic personal values, core political values, and voting: A longitudinal analysis. *Political Psychology*, 31(3), 421-452. <http://dx.doi.org/10.1111/j.1467-9221.2010.00764.x>
- Schwartz, S. H., Cieciuch, J., Vecchione, M., Davidov, E., Fischer, R., Beierlein, C., ... Demirutku, K. (2012). Refining the theory of basic individual values. *Journal of personality and social psychology*, 103(4), 663. <http://dx.doi.org/10.1037/a0029393>
- Seligman, C., Olson, J. M., & Zanna, M. P. (2013). *The psychology of values: The Ontario Symposium* (Vol. 8). Psychology Press.
- Smart, J. J. C. (n.d.). The Mind/Brain Identity Theory. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2014 ed.). Retrieved from <http://plato.stanford.edu/archives/win2014/entries/mind-identity>
- Stanovich, K. E. (1989). Implicit philosophies of mind: The dualism scale and its relation to religiosity and belief in extrasensory perception. *The Journal of Psychology*, 123(1), 5-23. <http://dx.doi.org/10.1080/00223980.1989.10542958>
- Svensen, S., White, K., & Caird, D. (1992). Replications and resolutions: Dualistic belief, personality, religiosity, and paranormal belief in Australian students. *The Journal of Psychology*, 126(4), 445-447. <http://dx.doi.org/10.1080/00223980.1992.10543378>
- Thalbourne, M. A. (1996). Belief in life after death: Psychological origins and influences. *Personality and Individual Differences*, 21(6), 1043-1045. [http://dx.doi.org/10.1016/S0191-8869\(96\)00167-5](http://dx.doi.org/10.1016/S0191-8869(96)00167-5)
- Willard, A. K., & Norenzayan, A. (2013). Cognitive biases explain religious belief, paranormal belief, and belief in life's purpose. *Cognition*, 129(2), 379-391. <http://dx.doi.org/10.1016/j.cognition.2013.07.016>
- Yarkoni, T. (2010). The abbreviation of personality, or how to measure 200 personality scales with 200 items. *Journal of Research in Personality*, 44(2), 180-198. <http://dx.doi.org/10.1016/j.jrp.2010.01.002>

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