FACTORS INFLUENCING ATTITUDES TOWARD ASTROLOGY AND MAKING RELATIONSHIP DECISIONS AMONG THAI ADULTS

Sasiwimon Temcharoenkit¹ Donald A. Johnson²

Received: 14th November 2019 Revised: 7th February 2021 Accepted: 31st March 2021

Abstract: This research analysed the impact of astrology on personal relationship decision making in Thailand. There were two objectives: 1) to examine Thai people's attitudes and behaviour toward fortune tellers, and 2) to examine the impact of fortune telling on decisions about matters of love. Data were collected using an online survey from 253 Thai people. The majority of the sample respondents (58%) were in the 29-39 age range, 50.4 percent were female, and most of the respondents were university graduates (55% with a bachelor's degree and 32% with a master's degree). The results indicated that Thai females in the sample have a stronger belief in fortune telling, which held a direct impact on their decision making in their love life. In contrast, Thai males have comparatively less interest in astrology. In consideration of the literature, it was hypothesised that there would be a different impact of fortune telling on single and married people's decision making about relationship decisions, but no significant difference was found, which suggests that there is an equal impact of astrology on both single and married people. Educational level also did not predict attitude toward nor the use of fortune tellers. Nevertheless, consulting fortune tellers was very popular among this Thai sample. Everyone reported that they consult a fortune teller at least once or twice a year.

Keywords: Attitudes about Fortune Tellers; Astrology; Consumer decisions; Consumer behavior

Introduction

This research examines the role of astrology and fortune telling in the decision-making process of Thai people. Decision making can be defined briefly as the cognitive process of evaluating different options and choosing a

¹ M.S., Student, Graduate School of Human Sciences, Assumption University, 2018.

² Senior lecturer, Department of Counseling Psychology, Graduate School of Human Sciences, Assumption University, Thailand. jdonald@au.edu

specific option in a particular domain (Nicholas, 2017). Astrology or fortune telling has long been reported to contribute to the diverse needs of people, whether it is about money, love, or the lost loved ones. People find answers to their queries or concerns in the predictions of fortune tellers and continue consulting once satisfied (Bauman, 2019). In general, fortune telling has been associated with the decision-making process of individuals. There seems to be constant stress on choosing wisely, i.e., the familial and mythic mortality offers no leniency to make a wrong move (Sloan, 2018). A plethora of literature is focused on investigating the phenomenon based on the differences in cultures and beliefs or symbolic systems, while multiple notations have been employed as 'fortune telling', 'magic', 'divination', 'astrology', etc. (Crockford, 2018; Jung-Kim, 2017; Harte, 2018; Homola, 2013; Kovalenko, 2019). Thus, there is strong evidence for the role of fortune-telling in the decision-making processes of people from different cultures, suggesting that it can play a role in the decision process.

Research has shown that fortune telling plays different roles in different societies, and not all societies welcome fortune telling in either public or private decisions. Crockford (2018) has researched the prevalence of astrology in American social life while claiming its rejection across the political and scientific arena. Jung-Kim (2017) has documented the preferences of South Koreans towards fortune telling, highlighting the interests of women over men. Harte (2018) reviewed the superstitious observations in English folk culture while stressing the need for mitigating such beliefs. Homola (2013) studied fortune telling in Taiwanese' society, reporting increased interests even in contemporary Taiwan. Kovalenko (2019) reported that 68% of Ukrainian individuals have a belief in horoscopes even in this age of technological advancements. Reviewing the relevant databases, it is noted that the research area significantly lacks in exploring the daily life commitments of individuals that would make them consult the fortune tellers. Besides, it is also noted that the literature of Thailand is not extensive in this field of study. Thus, even though there is a general understanding that fortune telling can play a role in the decision process, it is not well understood exactly what role it plays for Thai culture and people specifically. This is an interesting question because, as noted above, fortune telling, and astrology appears to be a factor in everything from private life decisions to public and political activities in Thailand.

Therefore, the current study intends to mitigate this knowledge gap and has investigated the role of fortune telling in daily life commitments of Thai people, specific to their relationships. Aside from this, there also exists the personal interest of the researchers to explore the beliefs and behavior of individuals in a society where fortune-telling prevails.

Research Objectives

This research aimed to investigate factors influencing attitudes toward astrology and making relationship decisions among Thai adults. The two objectives were:

- 1. To examine Thai people's attitudes and behaviors toward fortune tellers.
- 2. To examine all factors Thai people, use that influence them making relationship decisions.

Astrology Theory. The literature offers no exact or direct interpretation of the theoretical basis of astrology, regardless of it being a historical phenomenon. There exists an extensive literature on ancient astrology; still, the theory of astrology in modern terms cannot be found (Barton, 2002; Beck, 2008; Maternus, 2005). Grim (1982) has argued astrology has no theoretical underpinnings while claiming it to be a study rather than a theory. McRitchie (2006) has regarded it as the black box of astrology that yields confusing inferences about astrology. It is stressed that the overall process of fortune telling has either been based on intuitions, deception, or delusion since there exists no clear interpretation of the astrological interpretations. The phenomenon has received huge debates from astrologers and skeptics, mainly for Western astrology to be multi-valanced. More specifically, the interpretations are argued to be vague and made by combining astronomical factors in almost any form (Tarnas 2006; Lewis, 2003; Phillipson, 2000). It is argued that astrology is not simply the study of celestial bodies but carries the investigation of cyclic events through logical inferences of their positions within the symmetries.

McRitchie (2006) has theorized astrology within the microcosmic and macrocosmic framework of environmental symmetry. The cosmic symmetry instills the considerations for perceived directions and concentric boundaries for unifying the smaller and larger worlds. For the microcosmic symmetry, behavioral circumstances serve as the boundary, while the macrocosmic symmetry carries the cyclic events of planets as its boundary. Such a nonintuitive implication of astrology enables the fortune tellers to consider the microcosmic events in relation to the macrocosmic events for making predictions about one's future; whereas microcosmic events refer to the circumstances of an individual and macrocosmic events refer to the celestial environments that surround the individuals. It is noted that understanding the symmetrical impact of the celestial environment on the individual's life eventually forms the theoretical basis of astrology (McRitchie 2006). Thus, it is critical for the astrologers to have knowledge about the planetary properties and also the individual characteristics while making predictions within the astrological frame of reference.

Cognitive Behavior Theory. Epstein (1998) and Glick, Gottesman and Jolton (1989) have explained a significant correlation between cognitive behavior and belief in astrology. Considering the cognition impacts, the authors have noticed that even the skeptics tend to reflect a change in their beliefs, once they have had an encounter with accurate astrological predictions. Angel and Arulchelvan (2016) have reported on the contribution of superstitious beliefs, community laws, rituals, and other elements supplementing conventional cognitive processes that are eventually transformed across the generations. It is stressed that individuals' behavior is significantly influenced by group behavior. Lindeman (1998) has already validated cognition to direct belief in astrology while taking social motives and the experiential thinking of individuals as the critical functions.

Glick and Snyder (1986) have argued that astrology has no scientific evidence but is still a prevailing phenomenon throughout history. A strong inference for cognitive psychology is made in this regard, i.e., individuals tend to oversimplify certain things while strengthening their superstitious beliefs. It is highlighted that individuals tend to develop illusory correlations between the events and their beliefs if there exists a certain level of co-occurrence. The cooccurrence of weird behavior and the full moon is presented as an example of such belief. Glick and Snyder (1986) have referred to it as a self-fulfilling prophecy since these individuals have no considerations for assessing the credibility of those beliefs.

Impacts of Astrology on Decisions in Matters of Love. The researchers have assured the accomplishment of the study objectives by testing the validity of the hypotheses that define the objectives of the study. The dependent variable is *belief in fortune tellers*, which is defined following Walton (2010) as a view on fortune telling that is stable, not easily changed, but which may be stronger and weaker, and which influences an individual's actions. There are three independent variables, which were defined using standard demographic categories. These variables were: gender (male, female); marital status (single, married, separated/divorced/widowed); and education level (secondary school, high school, certificated, Bachelor, Masters, Doctoral).

The following were the research hypotheses:

H1: There is a significant difference in belief in fortune tellers between genders (males and females). This hypothesis was developed based on the knowledge gap in defining the impact of predictions of fortune tellers on a male's decisions about love. The studies of Homola (2013, 2018) have reported a significant impact of fortune telling on the love decisions made by females. Shein, Li, and Huang (2014) have clearly articulated females' concern about relationships, while males' tend to focus their concerns on their career. Likewise, Wuthnow (1976), Bauer and Durant (1997), and Torgler (2007) have reported females as the real believers in astrology as compared to males.

H2: Belief in fortune tellers is significantly different between marital statuses (single, married, divorced/separated/widowed). This hypothesis carries significant support from the studies of Bauer and Durant (1997), Wuthnow (1976), Torgler (2007), and Shein, Li, and Huang (2014). These studies have discussed the impact of marital status on the individual's preferences for consulting fortune tellers.

H3: Belief in fortune tellers is significantly different between educational levels (Secondary School, Certificated, Bachelors, Masters, Doctoral degrees). This hypothesis is based on contradictory study findings across the literature. For instance, Torgler (2007) found no analytical significance for individuals' education level on their beliefs towards astrology, while Shein, Li, and Huang (2014) reported great preferences for astrological considerations among highly educated individuals. On the other hand, Wuthnow (1976) found a higher probability of visiting fortune tellers among individuals with a low level of education. Bauer and Durant (1997) regarded education level as the mediator of the phenomenon, while Sugarman, Impey, Buxner, and Antonellis (2011) investigated only the impact of scientific knowledge on the decisions of individuals to visit fortune tellers.

H4: Attitude toward astrology and fortune telling in relationship matters is significantly influenced by Locus of Control beliefs and gender. This final hypothesis has been supported by several research studies. For example, the research by Suttithum (2015) found a relationship between attitude toward the fortune teller and relationship decision making behavior. The data were collected from 57 Thai consumers who had consulted a fortune teller in two big fortune events through 15 fortune teller services. Moreover, Bas and Kubilay (2016) studied the effect of astrology toward decision making of woman. They found that attitudes toward astrology have an effect on consumer decision making in women. Thus it can be concluded that a belief

in chance should lead to a positive attitude toward astrology and fortune telling and should significantly influence decision making behavior.

Conceptual Framework

The conceptual framework of the study was developed based on the research hypotheses (illustrated in the figure below). For investigating the impact of predictions of fortune teller on the decisions in matters of love between males and females, support from the findings of Homola (2013), Homola (2018), Shein, Li, & Huang (2014), Wuthnow (1976), Bauer and Durant (1997), and Torgler (2007) has been taken. Likewise, the impact of relying on predictions of a fortune teller in terms of the current relationship/marital status of people takes into account the findings of Bauer and Durant (1997), Wuthnow (1976), Torgler (2007), and Shein, Li, and Huang (2014). In the same manner, the studies of Torgler (2007), Shein, Li, and Huang (2014), Wuthnow (1976), Bauer and Durant (1997), and Sugarman, Impey, Buxner, and Antonellis (2011) have directed the scope of investigating the impact of people.



Figure 1. Conceptual Framework

Method

Sample/Participants. The goal was to obtain at least 200 respondents to our online survey on the impact of belief in astrology on making a relationship decision, through convenience sampling. Thai consumers were targeted who had an interest in the field of study, i.e., beliefs associated with fortune telling.

Those who had either direct or indirect experience in using astrology services were asked to participate in this research through a self-administered survey.

Measures. The questionnaire was designed and developed based on the framework and hypotheses. In addition, two portions of Atlas and Levinson's (1981) Internality, Powerful Others, and Chance (L, P, C) Scales were included: The Internality Scale and the Chance Scale. The questionnaire scale (Belief toward Fortune Teller) was tested for internal consistency using Cronbach's alpha, which was found to be .945; the Locus of Control Internality scale had a Cronbach's alpha of .70, and the Locus of Control Chance Scale has a Cronbach's alpha of .74. Since the score of .94 for belief toward fortune teller was quite high, it can be concluded that the identified set of items are closely related and are highly internally consistent to measure the impact of astrology or fortune telling on the human decision making in a personal relationship.

Findings

Descriptive Results. The results revealed that male and female respondents were almost equal in number. The sample contained 50.4% females and 49.6% males. When considering the age of the survey participants, the majority of the sample (58%) were in the 29-39 age range, followed by the 18-28 years of the age range. Very few (6%, 2% and 3%) were in the age ranges of 40-50, 50-60. and over 60 years old age groups. The respondents were asked to indicate their marital status, and the majority (73%) were single, while 24% were married; the remainder was either divorced, separated, or widowed. When participants were asked to reveal their educational background, it was found that the majority (55%) had completed a bachelor's degree, 32% had done a master's degree, while only 4% had completed high school only, and 2% had a doctoral degree. It was discovered that 29% of the participants were employees at private firms, 13% marked their occupation as a civil servant, 21% reported they were business owners, and 19% were students. All the respondents had had a consultation with a fortune teller within the past year, with 80.2% visiting one 1-2 times per year, 14.2% every 3 months, 4.7 percent every month, and 0.8% every 1-2 weeks.

Hypothesis Testing Results

H1: Gender difference in belief in fortune tellers. Belief in the predictive ability of fortune tellers was found to be significantly different between genders (males vs. females). As shown in Table 1, the mean score for positive belief in fortune telling was significantly greater for females (M = 3.08, SD = 0.84) than males (M = 2.47, SD = 1.01) in matters of love. The independent sample t-test revealed that there is a significant difference in the mean score

between males and females, t = -5.237, df = 240.64, p < 0.001 level. The Levene's test for equality of variance was rejected in this case. In other words, females rely more on fortune tellers than males in their decisions in matters of love. Hence, the null hypothesis of H1 is rejected: belief in a fortune teller is significantly different between males and females.

22

ieiiing						
	Gender	Ν	Mean	Std.	Std. Error	
				Deviation	Mean	
Belief in	Male	125	2.4735	1.01326	.09063	
fortune telling	Female	128	3.0874	0.84116	.07435	

Table 1. Group Statistics of H1 – Gender differences in the belief of fortune telling

H2: Belief in fortune teller by marital status. The study evaluated whether there were any significant differences in belief in fortune telling with respect the marital status of the respondent (single, married. to divorced/separated/widowed). According to the descriptive statistics, the mean score of prediction of a fortune teller for Widow/ Separated (M = 2.84, SD 0.91) appears slightly higher than the other two groups (Single or Married). For assessing whether the difference is statistically significant, a one-way ANOVA was performed. This analysis showed that there was no significant difference between group means (F = .010, df = 2/250, p = .990). Hence, we failed to reject the null hypothesis that there are no significant differences in belief by marital status.

ienng						
Belief in					95% Co	nfidence
Fortune					Interval	for Mean
Teller	Ν	Mean	Std.	Std.	Lower	Upper
			Deviation	Error	Bound	Bound
Single	187	2.7803	0.94948	.06943	2.6433	2.9172
Married	62	2.7918	1.07759	.13685	2.5181	3.0654
Widowed/	4	2.8409	0.90719	.45360	1.3974	4.2845
Separated						
Total	253	2.7840	0.97794	.06148	2.6630	2.9051

Table 2. Group Statistics of H2 – Marital status differences on belief in fortune telling

H3: Belief in fortune teller by educational level. The study considered another demographic factor, education, to evaluate its relationship with the prediction of belief toward fortune teller score. Education had a total of six categories, where the individuals with the lowest level of education (secondary school)

appear to have the highest mean indicator of belief toward fortune telling (M = 3.72, SD = 0.899). It was followed by high school and certificated respondents. Here, it is important to determine whether this difference is statistically significant. One-way ANOVA was used to determine the significance of these mean differences. The result reveals that the F-value was not statistically significant (F = 0.686, df = 6/246, p = 0.661). It means that the difference in the predictive ability of fortune tellers between the six education groups is insignificant. In other words, there is no relationship between education level and the prediction of a fortune teller on decisions in the matters of love when considering the fine-grained categories used here. We also looked at whether there was a difference between those who possessed at least a Bachelor's degree (combining Bachelor, Masters and Ph.D. groups) with those who did not (combining the high school graduates with those with certificates from programs requiring less than a Bachelors level of study). The two-group means were M = 2.99, (SD = 0.935, n = 18) for those with less than a Bachelor degree, and M = 2.78, (SD = 0.987, n = 226) for those with a Bachelor degree or higher. There was no significant difference between groups (t = 0.855, p = 0.393).

H4: Prediction of attitude toward using a fortune teller in decision making about a romantic relationship. The final stage of the analysis was the prediction of attitude toward using the fortune teller in matters concerning a romantic relationship, using multiple linear regression analysis. The predictor variables were gender, the Internality scale of Levenson's Locus of Control measure, and the Chance scale of Levenson's Locus of Control measure. The Internality scale did not meet the minimum p=.05 level of significance to enter the equation as a predictor, but both gender and the LOC Chance did. Table 3 shows the results of the final regression model, and Table 4 shows the coefficients for the regression of the dependent variable of attitude toward using a fortune teller by the predictor variables gender and LOC belief in chance. Belief in chance and gender (being female) were able to explain slightly more than one-third (34.0%) of the total variance for attitude toward using a fortune teller in a relationship decision. Therefore, gender and belief in chance can significantly influence the decision to use a fortune teller in matters of love.

Table 3. Multiple Linear Regression of Consulting Fortune Teller forRelationship Decisions with Predictors of Gender and LOC Chance Scale

Model	Mult R	Adj. R Square	SE	F	Sig.
Attitude toward Fortune Teller	.588	.340	0.693	65.919	.0001

	В	SE	β	t	Sig.
(Constant)	.116	.235		.495	.621
LOC Chance	.731	.075	.510	9.710	.0001
Gender	.338	.089	.198	3.773	.0001

Table 4. Coefficients of Significant Predictors of Attitude towardFortune Teller

Finally, using linear regression we found a significant relationship between attitude toward astrology and fortune telling and decision making about a romantic relationship. We constructed a scale from four items in the questionnaire that measured how often the respondent had consulted a fortune teller over the past year about love or a relationship problem. The correlation between a positive attitude toward fortune telling and the frequency of consulting a fortune teller about love or a relationship problem was r = .578. The adjusted r^2 accounted for 33.1% of the total variance (p < .001). Therefore, it can be concluded that attitude toward astrology and fortune telling did significantly influence seeking advice about how to solve problems in a romantic relationship.

Discussion and Conclusion

From a general perspective, people usually stick to their traditional beliefs and values, and find it difficult to leave those traditional beliefs behind. A plethora of studies have led to the conclusion that many people strongly believe the sociohistorical perspective of consulting with astrologers before making an important life decision. In the process of visiting fortune tellers, the female population has been found to be more involved as compared to the male population (Homola, 2018; Shein, Li, and Huang, 2014; Torgler, 2007; Rice, 2003). Explicitly, people have a number of different needs and concerns that they want to consult with astrologers. Nevertheless, it has been argued that people with a lower educational level are more interested in astrology as compared to those with a high educational level. However, the present study failed to find any such difference between educational levels for preference for consulting fortune tellers. This could be due to a number of limitations such as cultural differences, or the relatively small number of people in the sample with less than a bachelor's degree. That people were found to be relatively equally involved in consulting fortune tellers, regardless of their educational level.

Moreover, while analyzing the impact of a fortune teller on the decision making in matters of love, the results and discussion of the present study revealed blended information. Specifically, it was observed from the literature and previous studies that people consult astrologers while making decisions in their love life. However, the present study rejected the notion and presented mixed results, with greater involvement by gender and not involving marital status. It can be concluded that the female population in Thailand has a stronger belief in fortune telling, which holds a direct impact on their decision making in their love life. In contrast, the male gender has comparatively less interest in astrology in Thailand. In consideration of the literature, it was hypothesized that there would be a different impact on single people and married people's decision making in love life. Nevertheless, after measuring inferential statistics, we were not able to find any significant differences between these categories, which suggests that there is an equal impact of astrology on both singles' and family people's lives.

Succinctly, it was by the present thesis that fortune telling, or astrology is a sociohistorical perspective among the people of Thailand. They believe in the capabilities of the predictions of the astrologers and do believe in fortune telling; however, they also report that they do not let this belief in astrology greatly impact their decision making. The study also ultimately rejected the existing notion that educational level impacts people's decision to visit astrologers.

REFERENCES

- Angel, D. A., & Arulchelvan, S. (2016). Exploring superstition's impingement on conventional cognition. Asian Journal of Research in Social Sciences and Humanities, 6(8), 1706-1723.
- Atlas, J.D., Levinson, S.C. (1981), 'It-clefts, informativeness and logical form', *Radical Pragmatics*, 38, 1-61.
- Barton, T. (2002). Ancient astrology. London: Routledge.
- Bas, M. & Kubilay, Y. (2016). The Effect of Astrology on Women's Buying Behavior. *Journal of business Research Turk*, 8(3), 283-303.
- Bauer, M., & Durant, J. (1997). Belief in astrology: a social-psychological analysis. *Culture and Cosmos: A Journal of the History of Astrology* and Cultural Astronomy, 1(1), 55-71.
- Bauman, V. (2019, March 15). Good fortunes: The U.S. psychic industry has grown 52% since 2005 to reach \$2.2billion in revenue last year thanks to wider acceptance of the supernatural, the report finds, *Daily mail*. Retrieved from https://www.dailymail.co.uk/news/article-6814487/Good-Fortunes-U-S-psychic-industry-grew-52-2005-reach-2-2billion-revenue-year.html.
- Beck, R. (2008). *A brief history of ancient astrology* (Vol. 4). Singapore: Blackwell Publishing.

- Crockford, S. (2018). A mercury retrograde kind of day: Exploring astrology in contemporary new age spirituality and American social life. *Correspondences*, *6*(1), 47-75.
- Epstein, S. (1998). Cognitive-experiential self-theory. In D. F. Barone, M. Hersen, & V. B. Hasselt (Eds.), *Advanced Personality* (pp. 211-238). Berlin, Germany: Springer Science & Business Media.
- Glick, P. and Snyder, M., (1986). Self-fulfilling prophecy: The psychology of belief in astrology. *Humanist*, 46(3), 20-25.
- Glick, P., Gottesman, D., & Jolton, J. (1989). The fault is not in the stars. *Personality and Social Psychology Bulletin*, *15*(4), 572–583.
- Godden. (2004). Sample Size Formulas, available at http://williamgodden.com/samplesizeformula.pdf, Retrieved Nov. 7, 2019.
- Grim, P. (Ed.). (1982). *Philosophy of Science and the Occult*. Albany, NY: State University of New York Press.
- Harte, J. (2018). Superstitious observations: Fortune-telling in English folk culture. *Time and Mind*, 11(1), 67-88.
- Homola, S. (2013). Pursue good fortune and avoid calamity: The practice and status of divination in contemporary Taiwan. *Journal of Chinese Religions*, *41*(2), 124-147.
- Homola, S. (2018). Caught in the language of fate: The quality of destiny in Taiwan. *HAU: Journal of Ethnographic Theory*, 8(1-2), 329-342.
- Jung-Kim, J. (2017). 13 Women and Divination in Contemporary Korea. In *Coping with the Future* (pp. 392-407). Netherlands: Brill Publisher.
- Kovalenko, N. (2019). Basic astronomy: Common misconceptions and public beliefs according to the audience survey at Kyiv Planetarium. In *EPJ Web of Conferences* (Vol. 200, p. 1023). EDP Sciences.
- Lewis, J. R. (2003). *The Astrology Book: The Encyclopedia of Heavenly Influences.* US: Visible Ink Press.
- Lindeman, M. (1998). Motivation, cognition, and pseudoscience. *Scandinavian Journal of Psychology*, *39* (4), 257-265.
- Maternus, J. F. (2005). *Ancient Astrology: Theory and Practice*. Bel Air, Maryland: Astrology Center of America.
- McRitchie, K. (2006). Astrology and the Social Sciences: Looking inside the black box of astrology theory. *Correlation*, 24(1), 5-20.
- Nicholas, M. (2017). *The little black book of decision making: Making complex decisions with confidence in a fast-moving world.* Hoboken, NJ: Capstone.
- Phillipson, G. (2000). *Astrology in the year Zero*. London, UK: Flare Publications.

- Rice, T. W. (2003). Believe it or not: Religious and other paranormal beliefs in the United States. *Journal for the Scientific Study of Religion*, 42(1), 95-106.
- Shein, P. P., Li, Y. Y., & Huang, T. C. (2014). Relationship between scientific knowledge and fortune-telling. *Public understanding of science*, 23(7), 780-796.
- Sloan, T. (2018). *Life choices: Understanding dilemmas and decisions*. New York: Routledge.
- Sugarman, H., Impey, C., Buxner, S., & Antonellis, J. (2011). Astrology beliefs among undergraduate students, *Astronomy Education Review*, 10(1), 1-9.
- Suttithum, T. (2015). Commercial Application of Astrology for Business, Master Thesis, Faculty of Commerce and Accountancy, Thammasat University, Thailand.
- Tarnas, R. (2006). *Cosmos and Psyche: Intimations of a new world view*. New York: Penguin.
- Torgler, B. (2007). Determinants of superstition. *The Journal of Socioeconomics*, *36*(5), 713–733.
- Walton, D. (2010). A dialogue model of belief, *Argument and Computation*, *1*(1), 23-46.
- Wuthnow, R. (1976). Astrology and marginality, *Journal for the Scientific Study of Religion, 15*(2), 157-168.