THE PHENOMENA AND DYNAMISM OF MAGICAL THINKING: DEVELOPING A MAGICAL THINKING SCALE

Reiko NAKAMA¹⁾ and Atsushi OSHIO²⁾

¹⁾*Hyogo University of Teacher Education, Japan*

²⁾*Waseda University, Japan*

The purpose of this study is to examine the concept of “magical thinking”. “Magical Thinking Followers” are persons who believe in the effect of thinking. This research will contrast magical thinking to the ideas of positive psychology, construct the scale to measure it and investigate its benefits and pitfalls.

With the aid of three surveys comprising data of 306 and 382 Japanese undergraduate students, a scale was developed. The scale was made of two factors: “a positive set of thinking and results,” and “a negative set of thinking and results.” Internal efforts of control to be positive were positively related to both of the two factors. Positive daily activities were positively related to a positive set. Dichotomous thinking was positively related to a negative set. Results implied that Magical Thinking Followers were more motivated to be positive persons partly depending on a naive dichotomous pattern of thinking mechanism.

Key words: magical thinking, magical thinking followers, efforts of being a positive person, dichotomous thinking, positive psychology

INTRODUCTION

According to Seligman (2002a), psychology isn’t solely responsible for the study of diseases, weaknesses and damages, but also incorporates the study of human growth and behavior, i.e., strength, virtue, education, insight, love and so on. To highlight the latter, Seligman came up with a new movement of “positive psychology”. Positive psychology is more than wishful thinking and self-deception but instead it tries to adapt the best scientific method for problems that human behavior presents in all its complexities (Seligman, 2002a).

One of the biggest fruits of positive psychology is visible within our physical well-being (e.g., Danner, Snowdon, & Friesen, 2001; Fredrickson, Mancuso, Branigan, & Tugade, 2000; Moskowitz, 2003). Many studies have shown the correlation between positive beliefs and physical health. Chida and Steptoe (2008) carried out a meta-analytic method examining 70 studies and suggested that positive psychological well-being had a favorable effect on the survival of healthy and unhealthy people. The influence of positive emotions on our lives is not only seen within physical health but also impact our psychological well-being (Diener, Suh, Lucas, & Smith, 1999; Harker & Keltner, 2001).

Correspondence concerning this article should be addressed to Reiko Nakama, Ph.D., Associate Professor, Graduate School of Education, Hyogo University of Teacher Education, 942-1, Shimokume, Kato city, Hyogo prefecture 673-1494, Japan (e-mail: nakama@hyogo-u.ac.jp).

This is seen through friendship development (Vaugh & Fredrickson, 2006), marital satisfaction (Harker & Keltner, 2001) and higher incomes. (Diener, Nickerson, Lucas, & Sandvik, 2002). A meta-analysis of more than 300 cross-sectional, longitudinal and experimental studies supported the claim that life success not only engenders positive affect, but that positive affect also engenders life success (Lyubomirsky, King, & Diener, 2005). Positive attributes such as being satisfied with life, being hopeful, optimistic and having a sense of humor showed similar results (Scheier & Carver, 1992; Segerstrom, Taylor, Kemeny, & Fahey, 1998).

Some thinkers may argue that pursuits of positive beliefs and attributes lead to hedonism. This idea gave us opportunities to reconsider the power of positive beliefs or personality. According to Mill (1863/1992, p. 121): "It is better to be a human being dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied."

However, positive emotions have the possibility to enrich our quality of lives. Fredrickson (1998, 2001) reviewed studies examining the influence of positive emotion on our cognitive process and summarized as followed: People experiencing positive emotion (a) offer more unusual cognitive associations, (b) create and use more inclusive cognitive categories, and (c) perform better on standard tests of creative thinking. Fredrickson positively interpreted that "positive emotions broaden the scope of cognition" (Fredrickson, 1998, p. 309). Fredrickson (1998), in her "broaden-and-build model" of positive emotions,¹ mentioned that not only do the positive emotions share the feature of broadening an individual's momentary thought, but they also appear to share the feature of building the individual's personal resources, from physical to social. In essence, feeling positive is being positive. As Bertrand Russell said, "The good life, as I conceive it, is a happy life. I do not mean that if you are good you will be happy—I mean that if you are happy you will be good." (Russell, 1961/2009, p. 680)

Although we can insist that there are favorable results of positive affect or emotions, discussion in scientific fields have attracted counterarguments (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Ellsworth & Smith, 1988; Lazarus, 2003; Sweeny, Carroll, & Shepperd, 2006; Tennen & Affleck, 1987). It points to the inconsistency of results (Vickers & Vogeltanz, 2000), or reference to pseudo-positivity and unrealistic optimism (McKenna, 1993; Weinstein, 1980). Additionally, Lazarus (2003) criticized studies showing the dichotomous frame of positive and negative. For instance, Seligman (2002b) summarized that persons with positivity are healthier, more successful, more sociable and live more fulfilling lives. Lazarus criticized the implicit message of positive psychology as a call to separate positive from negative. He argued that we cannot separate positive and negative, the polarity represents two sides of the same coin of life.

There is still another arguing point. Revelations of positive psychology suggest that positive emotions or disposition have endorsed ancient wisdoms. The relationship between positive emotions and health has been anecdotal from the ancient thinking: "A

¹ She has emphasized that these resources are more durable than the transient emotional states that led to their acquisition. By consequence, then, the often incidental effect of experiencing a positive emotion is an increment in durable personal resources that can be drawn on later in other contexts and in other emotional states.

good laugh makes you healthy” (Swedish proverb); “The joyfulness of man prolongeth his days” (Bible, Ecclesiasticus. 30: 22); “Mirth and merriment ... bears a thousand harms and lengthens life” (Shakespeare). The idea that positive emotions are good for our health is similar to folk wisdom (Tugade, Fredrickson, & Barrett, 2004). Those kinds of wisdom are often refuted by scientific empirical evidences, but studies on positive psychology have obtained many results supporting them. Seligman (2002a, p. 4) has said that the quest of positive psychology did not rely on wishful thinking, self-deception or hand waving. However, great deal of studies showed that being positive is good and leads people to success. This may be related to the concept of the law of attraction: “think positively, and positive things will come to you” (Ehrenreich, 2009, p. 59). Studies of positive psychology were not always simple and sometimes offered complicated results (Segerstrom, 2006), but they might have offered scientific support to the belief of magical positive thinking: the challenges are all internal and easily overcome through an effort of the will (Ehrenreich, 2009, p. 51). We call those who believe in the power of positive thinking “Magical Thinking Followers (MTFs)”.

Magical Thinking Followers can be often motivated to do things more positively, because they believe that everything will go well if they believe so (hypothesis 1). Even before the rising movement of positive psychology, Taylor (1989) strongly proposed that our well-being was supported not because of objectively good experiences but because of subjectively good perception of the experiences. Brown (1993) has insisted that our good self-evaluation comes from the subjective holistic belief system, not from the objective atomistic cognitive process. In earlier years, Rogers (1951) illustrated that our experimental world changed when our perceptual process changed. Magical Thinking Followers may have some advantages in life.

Nonetheless, there might be something wrong with MTF. We anticipate three dark sides:

First, it will be followed by excluding negative people physically and psychologically. Ehrenreich (2009) cited ideas of popular psychology where individuals are encouraged to avoid or exclude negative people. She further questioned that “it is not easy to abandon the whiny toddler, the colicky infant, or the sullen teenager ... there are other annoying people who might actually have something useful ... There seems to be a massive empathy deficit, which people respond to by withdrawing their own. No one has the time or patience for anyone else’s problem.” (pp. 55–56). If they exclude negative persons in order to be a positive person, it will promote the phenomenon that is seen as, “psychological discrimination.”

In addition, MTFs would always be watching and controlling their internal states excessively to be a positive person. Segerstrom (2006), says “positivity” doesn’t mean superficial ideals, such as “keep smiling”, but includes a broader realm such as gratitude, love, joy, delight, hope and sincerity. However, people smile to display positive atmosphere, depending on their belief systems, which results in positivity.

As mentioned, beliefs of Magical Thinking Follower will produce a new discrimination, and lead to an excessive suppression of natural feelings (hypothesis 2 and 3).

Secondly, MTFs' belief system seems to be based on a bipolar dichotomous thinking, "positive" vs. "negative." According to Oshio (2009), dichotomous thinking relates to the propensity to think of things in terms of binary opposition: "black or white," "good or bad," or "all or nothing" and it may have advantages for quick decision making. However, dichotomous thinking has also been related to negative psychological outcomes and personality disorders: eating disorder symptoms, depression and perfectionism (e.g., Beck, Freeman, & Davis, 1990; Byrne, Allen, Dove, Watt, & Nathan, 2008). MTFs may have attitudes of dichotomous thinking more than non-MTFs (hypothesis 4) and it means they have potentials to limit their field of visions.

Thirdly, there would be excessive expectations. Some MTFs may inflate their expectations because they believe the more they expect, the more they get (hypothesis 5). It may harm relationships and lessen their responsibility.

PURPOSE OF THIS STUDY

In this study, we will develop a new scale on the belief system of MTF (Magical Thinking Follower) for general use in psychological studies. The scale will explore their relationship with daily activities, attitudes toward social relationship, dichotomous thinking style and the degree of expectation of others. The belief system of MTF is a sort of side-product of positive psychology rooted from old anecdotal wisdom. If MTF has clear dis/advantages, we need to know where the junction is in order to make use of the results of positive psychology.

Our hypotheses are the following:

1. The score of MTF will be positively related to daily activities touching ideas of positive psychology or the law of attraction.
2. The score of MTF will be positively related to attitudes that avoid or exclude negative thinking persons.
3. The score of MTF will be positively related to attitude that control inner positivity.
4. The score of MTF will be positively related to the dichotomous thinking style.
5. The score of MTF will be positively related to dependent and demanding attitudes.

METHOD

Overview

This study was conducted in two steps. In the first step, we aimed at selecting items for the MTF scale and examining the reliability of the MTF scale. The second step, examined the relationship of MTF and other variables depending on the hypotheses. Three surveys were conducted for the research. An overview of participants for each survey is presented in Table 1.

All three surveys were conducted at university classes. There were 302 participants (71 males and 231 females) who took part in both the second and third surveys. In the first survey, three participants had missing values in DTI and they were excluded from the data for the second step analysis. Other participants with missing values were excluded in each analysis. We used SPSS 12.0 ver. for all analyses.

Table 1. Research Steps and Number of Participants

Survey	n^a	Age	Period	Participants' attribute
1	306 ($M = 114$; $F = 192$)	19.9 ($SD = 1.1$) range: 18–24	January, 2010	Japanese undergraduate Students
2	383 ($M = 86$, $F = 297$)	19.9 ($SD = .98$) range: 18–25	June, 2011	Japanese undergraduate Students
3	382 ($M = 107$, $F = 275$)	19.9 ($SD = .97$) range: 18–24	June, 2011 (1 week after the second survey)	Same students group with the 2nd survey

^{a)} We have shown the number of participants who answered all items on MTF scale in each survey.

Materials

Magical Thinking Follower Scale (MTF scale): This scale was designed by the authors to assess the beliefs of “Magical Thinking Follower” in general. To prepare the items, descriptions of the power of positive thoughts were sourced from books. In order to get general discourse about being positive, we chose general books on “business,” “career building,” “way of living,” “religion” and “fortune-telling.” We picked up contents of ideas or tips used to make life happier, improve oneself, or make dreams come true. We gathered 207 items at first and then batched them together along with the KJ-method (Kawakita, 1967). There were many categories with various meanings and along with the idea of “magical thinking,” categories unrelated to it were excluded. Finally, 15 items were compiled for the MTF scale. MTF scale was scored on a 6-point scale (ranging from 1 = strongly disagree to 6 = strongly agree). Participants checked the most appropriate choice for each question. Those 15 items were used in all three surveys.

Commitment to daily activities: We set 23 free descriptive questions to measure commitment to various daily activities ranging from academic/interpersonal activities to spiritual/superstitious participation. Contents of each item are presented in Table 2. Participants were requested to write appropriate figures freely in each format. Those items were used in the first survey to examine the hypothesis 1.

Efforts of being a positive person: Items regarding efforts of being a positive person, (i.e., trying to always smile, avoiding negative situation or persons), were also made from the descriptions found in books. We focused on advices written in those books detailing the ways to control behavior or perceptions in order to be a positive person. Through the same way with MTF scale items, we finally get 7 items referring to effort to avoid negative situation and 10 items referring to effort to control internal status. Those items were used in the first survey to examine the hypothesis 2 and 3.

The Dichotomous Thinking: The Dichotomous Thinking Inventory (DTI; Oshio, 2009) was scored on a 6-point scale (ranging from 1 = strongly disagree to 6 = strongly agree). This scale consisted of 15 items from three factors: Preference for dichotomy (5 items, e.g., “All things work out better when likes and dislikes are clear.”), Dichotomous belief (5 items, e.g., “There are only ‘winners’ and ‘losers’ in this world.”), and Profit-and-loss thinking (5 items, e.g., “I want to clearly distinguish what is safe and what is dangerous.”). This scale was used in the first survey to examine hypothesis 4.

Dependency: In order to measure excessive dependency, we used the JIB-20 (Japanese Irrational Belief Test-20; Mori, Hasegawa, Ishikuma, Shimada, & Sakano, 1994). JIB-20 items consisted of self-expectation, problem avoidance, ethical blame, helplessness and dependence. It was scored on a 5-point scale (ranging from 1 = strongly disagree, 3 = neither agree nor disagree, 5 = strongly agree). This scale was used in the third survey to examine hypothesis 5. Although we requested participants to answer all 20 items, we dealt with only four items on dependency in this study.

Friends Expectation Scale: In order to measure the degree of expectations of others., we used Friends Expectation scale (Oshio, 1999). It was scored on 4-point Likert scale (1 = no to 4 = yes.) Three subscales are included in this scale: ‘expectation for understanding and trust,’ ‘expectation for concerning more about me,’ and ‘expectation for keeping distance from me.’ This scale was used in the third survey to examine hypothesis 5.

Table 2. Items of commitment with daily activities^{a)}

Contents of question items ^{b)}	Answer format
a. Activities for self-improvement	
a1. How many hours do you spend on studies unrelated to your assignments?	___ hour(s)/per week
a2. How much money do you invest in your dreams or goals?	___ yen/per month
a3. How many books have you read that refer to ways to actualize your dreams or goals in the last three months?	___ book(s)
a4. How many hours do you spend thinking about your future career and lifestyle?	___ hour(s)/per week
a5. How many times have you attended practice seminars or workshops aiming to change yourself or self-development?	___ time(s)
b. Activities to set and actualize goals	
b1. How many goals have you set for yourself in last one year?	___ (number)
b2. How many goals have been actualized by yourself in last one year?	___ (number)
b3. How many part-time jobs do you have now?	___ (number)
c. Social activities	
c1. How many drinking parties do you attend on average per month?	___ time(s)/per month
c2. How many times do you have lunch or dinner with your friends per week?	___ time(s)/per week
c3. How many friends do you have who can accept your spontaneous proposal?	___ (number)
c4. How much money do you spend on your social life?	___ yen/per month
c5. How many times do you exchange e-mails with your friends in a day?	___ time(s)/a day
d. Activities of spirituality or fortune-telling	
d1. How many times have you ever spent money to consult a fortune-teller?	___ time(s)
d2. How many books have you read relating to the subject of spirituality in the last three months?	___ book(s)
d3. How many times do you access the fortune telling web sites per week?	___ time(s)/per week
d4. How many times have you visited spots for spiritual upliftment?	___ time(s)
e. Academic activities	
e1. How many hours do you spend preparing and reviewing for your classes?	___ hour(s)/per week
e2. How many classes do you attend in a week?	___ class(es)/per week
f. Daily extracurricular activities	
f1. How much can you pay for practice seminars or workshop aimed at changing yourself or self-development? (*)	___ time(s)
f2. How many extracurricular activities or part-time jobs do you have in which you undertake responsibilities?	___
f3. How many clubs do you belong to now?	___
f4. How much money can you put towards fortune-tellers or psychological testers ? (*)	___ yen/per month

^{a)} We used items according to the result of a principal component analysis (Table 4) in order to make them understandable.

^{b)} Items with (*) were negatively rotated for each principal component.

Table 3. Factor Loadings of Magical Thinking Follower (with promax rotation)

Contents of items	Rotated factor pattern	
	I	II
a positive set of thoughts and results ("Positive set") factor		
Life depends on our mentality.	.71	-.05
If you look at things through another frame, it will change how you feel.	.65	-.20
When we think about things positively, things will go in a positive direction.	.62	.19
Through living positively, luck will come.	.62	.19
Having your ideal image, you can better approach it.	.56	.07
Others respond according to my attitude.	.52	-.23
Keeping your image successful, you can actually succeed.	.52	.21
If you desire something from the bottom of your heart, it will be realized.	.51	.07
a set of negative thoughts and results ("Negative set") factor		
If you expect the worst, you will get the worst.	-.21	.87
If your mind is overtaken by negative feelings, worse things will come.	.02	.67
If you have some image to fail, you will really fail.	-.11	.64
If you keep feeling sympathy towards other's pessimistic thoughts, your luck will run out.	.14	.54
Inter-factor correlations	I	.58

RESULTS

Construction of the MTF scale

With data from survey 1 and 2, an exploratory maximum likelihood factor analysis with Promax rotation was conducted for the 15 items of the MTF scale². Based on attenuation of eigenvalue (4.8, 1.6, 1.2, 1.0) and the possible meanings of each two factors were elicited. Three items with lower factor loadings than 5.00 were eliminated. Again, an exploratory maximum likelihood factor analysis with Promax rotation for 12 items revealed two factors. Table 3 shows the final factor loadings and inter-factor correlations of the MTF scale. For the first factor, eight items referring to attitude to being positive were highly loaded and named "a positive set of thoughts and results" (in short, "Positive set"). The second factor, four items referring to negative attitude were highly loaded and named "a set of negative thoughts and results" (in short, "Negative set").

Reliabilities with Cronbach's alpha of each factor were .82 (positive set) and .74 (negative set). Both alpha coefficients were good and reliabilities of each factor were certificated. We summed up items within each factor and calculated averaged scores of

² There were neither floor effects nor ceiling effects among the 15 items.

each subscale. The values of them were 4.45 ($SD = 0.66$; positive set), 3.83 ($SD = 0.79$; negative set). The two subscales of MTF showed moderate correlations with each other ($r = .47, p < .001$).

With matching data from survey 2 and 3, test-retest reliability was examined. Correlational coefficients were $r = .75$ (positive set) and $r = .73$ (negative set). Considering the length of the period, one week, we can't say those values were satisfactory high to support test-retest reliability undoubtedly. But we don't have to say they were too low to support it. Those fuzzy values might have come from the character of this scale. This scale is about the belief system. It won't be as instable as affects that can change depending on each event. However, it won't be as stable as personality neither because it may be influenced by getting some important ideas, opinions, people, etc. Giving those conditions, those values were acceptable.

Relationship scores of MTF and other valuables

Do MTFs have stronger commitment to daily activities? Prior to the analysis, the scores of daily activities were calculated based on the following procedure. Distributions of some raw scores were greatly skewed and far from the normal distribution because of free descriptive answer style. We needed to arrange raw scores to new scores based on 3 phases or 2-point phases according to the shape of distribution of raw scores. All rank correlation coefficients between new scores and original scores in each item were from .85 to 1.00, and the new scores reflected the original scores. With those new 23 scores, a principal component analysis with promax rotation was conducted (Table 4). We dealt with principal component scores of each.

To examine hypothesis 1, correlation coefficients between scores of MTF and scores of commitment to daily activities were calculated (Table 5).

Generally looking, the relationship between MTF and daily activities were not strongly supported. It meant that positive belief system can't always lead to positive activities. Only within the contexts of self-improvement, setting and actualizing goals, and spiritual activities, relationships were significantly positively correlated. As we mentioned in the introduction, we referred to books on self-improvement, setting and actualizing goals and spirituality when designing the MTF scale. It is possible that those results have occurred by this procedure. The result also implies that people would be influenced by the belief of MTF through contact with related materials. The belief of MTF may sometimes encourage people to improve themselves and sometimes also encourage superstitious acts.

Considering the possibility of nonlinear relationship, we got three groups along with MTF scores through cluster analysis (Ward method, Square Euclid distance) and compared activity scores among these groups; a group with high MTF score, a group with middle MTF score, and a group with low MTF score. Only one result showed the difference of setting scores and actualizing goals; scores of high MTF group was higher than middle MTF group.

As a whole, hypothesis 1 was slightly supported.

Do MTFs make more effort to control their internal status and avoid negative

Table 4. Principal-component loadings of daily activities (with promax rotation)

Contents of items ^{a),b)}	Rotated principal component pattern					
	I	II	III	IV	V	VI
a. Activities for self-improvement						
a1. Time for study unrelated to assignments	.713	-.119	.007	.047	.252	.098
a2. Money for dreams or goals	.698	.023	.149	-.091	-.068	-.034
a3. Books for dreams or goals	.693	-.002	.002	.090	.112	.030
a4. Thinking about future career and lifestyle	.478	.141	-.008	.001	-.183	-.134
a5. Seminars or workshops attended	.476	.134	-.151	.135	-.067	.019
b. Activities to set and actualize goals						
b1. The number of setting goals	.072	.884	-.125	-.027	.170	-.105
b2. The number of actualizing goals	.040	.836	.043	-.111	.116	-.081
b3. The number of part-time jobs	-.108	.439	.047	.042	-.146	.396
c. Social activities						
c1. Frequency of drinking parties	.182	-.039	.671	-.046	-.088	-.077
c2. Frequency of lunch/dinner with friends	-.054	-.140	.662	-.208	.068	.185
c3. The number of friends receiving spontaneous proposal	.002	-.009	.582	.104	.099	.155
c4. Money for social life	.056	.053	.537	-.034	-.280	-.159
c5. Frequency of e-mails exchange	-.227	.103	.465	.164	.106	.092
d. Activities of spirituality or fortune-telling						
d1. Money to consult a fortune-teller	.127	-.321	.030	.677	-.118	-.050
d2. Books about spirituality	.060	-.009	-.208	.646	-.076	.237
d3. Frequency of fortune consulting	-.129	.070	.132	.514	.297	-.249
d4. Frequency of visiting spots for spiritual upliftment	.040	.113	-.027	.501	-.032	.021
e. Academic activities						
e1. Time on assignments	.196	.115	-.019	-.007	.778	.047
e2. The number of classes	-.121	.124	.014	-.070	.733	.047
f. Daily extracurricular activities						
f1. Money for practice seminars or workshop (*)	.070	.316	-.041	-.010	-.160	-.646
f2. The amount of job responsibilities	.020	.313	.125	.189	-.181	.465
f3. The number of belonging clubs	.151	.128	.277	-.014	.084	.449
f4. Money for fortune-tellers or psychological testers (*)	-.054	.016	.188	.409	-.002	-.410
Inter-correlations among components	I	—	.192	.115	.088	-.007
	II		—	.286	.224	-.078
	III			—	.178	-.029
	IV				—	-.013
	V					—
						-.006

^{a)} The full contents of items were refereed at Table 2.

^{b)} Items with (*) were negatively rotated for each principal component.

Table 5. Correlation coefficients between MTF and daily activities (n = 303)

	Self-improvement	Set and actualize goals	Social activities	Spiritual activities	Academic activities	Daily extracurricular activities
Positive set	.20***	.14*	.10	.12*	-.03	.04
Negative set	-.04	-.03	-.04	.08	.03	-.01

*** $p < .001$, * $p < .05$

Table 6. Correlation coefficients between MTF and effort score (n = 303)

	Avoidance of negative situation	Control of internal status
Positive set	.57***	.24***
Negative set	.26***	.29***

*** $p < .001$, * $p < .05$

situations? The Cronbach's alpha coefficient of 7 items relating to efforts to avoid negative situation was .64. To sum up, it was not so high but not too low. And there weren't any items lowering alpha coefficients. Therefore, we calculated the average scores of 7 items as avoidance of negative situation score. The Cronbach's alpha coefficient of 10 items relating to efforts to control their internal status was .86 and it was satisfactory high. Therefore, we calculated the average scores of 10 items as control of internal status score.

To examine hypothesis 2 and 3, correlation coefficients between scores of MTF and scores of those two were examined (Table 6).

Both positive and negative set were significantly positively correlated both scores of making effort to being a positive person. Therefore hypothesis 2 and 3 were supported.

Do MTFs have more attitudes of dichotomous thinking? Cronbach's alpha coefficients of DTI were high enough, in each subscales (Preference for dichotomy: .75; Dichotomous belief: .78; Profit-and-loss thinking: .71). To examine hypothesis 4, correlation coefficients between scores of MTF and scores of DTI were examined (Table 7).

MTF was significantly positively related with the dichotomous thinking, especially negative set. Positive set was also significantly positively related with preference for dichotomy. Therefore, hypothesis 4 was generally supported. It was worthy to note that the relationship with DTI was significantly positive especially with negative set.

Do MTFs have more dependency or expectations for others? Cronbach's alpha coefficients of Dependency Scale (.72) and two of three subscales of Friend Expectation Scale were high (expectation for understanding and trusting me: .80; expectation for keeping distance from me: .71.). One of a subscale on expectation for concerning more about me was not high (.63) and item of No. 15 make consistency lower. Therefore, we

Table 7. Correlation coefficients between MTF and DTI (n = 303)

	Preference for dichotomy	Dichotomous Belief	Profit-and-loss thinking
Positive set	.14*	-.04	.09
Negative set	.25***	.28***	.20**

*** $p < .001$, ** $p < .01$

Table 8. Correlation coefficients between MTF and Dependency, Friends Expectation Scale (n = 303)

	Dependency	Understand and trust	concern	Keep distance
Positive set	.01	.15**	.15**	-.07
Negative set	.18**	.12*	.11*	-.02

*** $p < .001$, ** $p < .01$

excluded the item for analysis and Cronbach's alpha coefficient after this procedure was .67.

To examine hypothesis 5, correlation coefficients between scores of MTF and scores of dependency and friends' expectation scale were examined (Table 8).

We could find some significant relationships among MTF and Dependency/Friends Expectation Scale, but the correlation coefficients were subtle. The increased attitude of MTF doesn't surely mean they expect more of others although it is possible. Hypothesis 5 was only slightly supported. Comparison among the three groups with high, middle and low MTF scores did not show more significant scores than above.

DISCUSSION

In this study, we conceptualized the term "Magical Thinking Follower (MTF)" as those with the belief systems that thoughts can cause results. The characteristics of MTFs were investigated and showed to have both advantages and disadvantages throughout their lives. We hypothesized that MTFs would have more positive attitude towards daily activities, more effort to be a positive person in their interaction, more dichotomous thinking and more expectations of others. Results showed that there is a relationship between MTF and positive attitude toward some daily activities, effort to be positive and dichotomous thinking.

We discovered two main results which relate to the impact of MTFs beliefs on their future.

One of the main results showed that self-improvement activities, setting and actualizing goals, spiritual upliftment activities were slightly but significantly related positively with MTF. However, academic activities or social activities were not significantly related. Those variables would be important to fulfill their present lives. It's

possibly that MTFs' future will be related to their beliefs but it was not directly linked. Variables related to MTF were directly linked to positive future. Those relationships would come from the methodological process. Items of MTF scales were set from books on "business," "career building," "way of living," "religion" and "fortune-telling." The main contents of those books explored future planning. However it also implied that when planning their future they will be influenced by magical power of belief system.

Now in Japan, there is market for books, seminars that deals with the belief system of MTF. Information about the need to control internal status positively will be studied in order to get positive results. The Japanese economy has a chronic depression and employment conditions are tough. With such situation, people try to control internal world to feel happier. And with today's situation pushes us to acquire it. There is also a possibility that MTF are cognizant of this, and they make preparation for their future. In any case, focusing on internal world will be connected with MTF and those kinds of activities. At the same time, people would become MTFs more through such activities.

In addition, it means that MTF is different from positivity or optimism. Those with positive attitude can act more effectively when facing challenging tasks, issues or problems (e.g., Argyle, 1987; Bandura, 1977, 1986; Diener, 1984). While positivity was considered to motivate people generally, beliefs of MTF function differently. The beliefs of MTF will depend on the contexts in order to interpret meaning of their daily activities as meaningful. However, it should be noted that there is a relationship between MTF and efforts to be a positive person. In order to get or keep positive/optimistic attitude, the belief system of MTF would work. If people can keep being positive by efforts, it will be hypothesized that MTF can assist with the development of positivity (Fredrickson, 1998). We need further study on whether there are any positive results with the beliefs of MTFs. The relationship between MTF and actual social status: annual income, career status, should be examined.

The second main result was that MTF, especially a negative set of thought was significantly related with dichotomous thinking although the coefficients were low. "A negative set of thought and result" may facilitate scary taboo of negative thinking when it was followed by dichotomous thinking. This result showed that those with this belief may try to suppress their negative thoughts because they are conscious of them. Studies on thought suppression have shown that the more it is suppressed, the more thought occupies consciousness (paradoxical effect of thought suppression; Wegner, Schneider, Carter, & White, 1987). Those distortions in metacognitive processes have been observed in depressed individuals (Beck, 1967), chronic worriers (Wells, 1994) and in those with phobias (Thorpe & Salkovskis, 1995). They were overwhelmed with uncontrolled negative feelings. This process will be supported by dichotomous thinking: meaning they strongly reject negative feelings, while some can think neutral or positive even with negative feelings because their belief systems do not completely separate positive and negative. Those with excessive beliefs of MTF may have mental diseases because of the combination between MTF and dichotomous thinking. This is one disadvantage of MTF.

In this study, we discovered some results to distinguish the two dimensions, "a positive set of thought and result," and "a negative set of thought and result." A positive

set has implied some possibilities of the advantages of MTF and a negative set has implied some possibilities of the disadvantages of MTF. However, those two sets are significantly related to each other. When we believe a positive thought shall lead to a positive result, a scary set of thought and result may follow it.

In addition, even a positive side of MTF may be interpreted as a negative side. Excessive control of the internal world may lead to suppress natural mindset. As mentioned in the introduction, Segerstrom (2006) said that “positivity” does not mean superficial ideals, such as “keep smiling.” She found that persons with really positive behavior can pay attention not only to positive stimulus but also negative stimulus. Originally, experiencing negative emotion or thinking, to a certain degree, is natural and inevitable for human beings. Nevertheless if he/she believes it causes bad results, he/she will have to do his/her best to avoid it and endless effort to control himself/herself to be positive. Hochschild (1983) revealed that people who always demand to be positive are likely to get stressed and wear out their affects. When people try to control themselves, they must engage in endless task of watching themselves.

Oppositely, even a negative side of MTF may be interpreted as a positive side. Norem (2001), considered that people with the belief that things are not simple gives a great deal of attention to negative affects or negative thoughts. Thinking the worst encourages them and they get higher performance with a negative perspective. Moreover, Japan has a tradition of finding beauty in transience as expressed with *mono no aware* (“the sadness or pathos of things”) according to the Buddhist concept of *mujokan*, the consideration of the impermanence of worldly things. This suggests the possibility of an alternative way for the development of human beings.

The unclear results of this study might have come from such controversial characteristics of MTF. We recommend that we need to take the interaction between MTF and other variables into consideration, as such, examine the effects of MTF on varying personalities.

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(Manuscript received 8 May, 2012; Revision accepted 15 June, 2013)