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Effectiveness of Thought Speed Manipulation among Young Adults

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ABSTRACT

Background: Thought speed is defined as number of thoughts one has for per unit of time. Fast Thought speed has been associated with elated mood, increased energy, arousal compared to slow thought speed. **Objective:** To study the effectives of thought speed manipulation technique in Indian Context. **Method:** Paced reading of Velten Mood Induction was used, 3 types of different statements (elation, depressive and neutral) were given to the participants in the fast and slow pace. Totally six different conditions were created. Stimulus were presented using Microsoft Power point. Perceived thought speed questionnaire and PANAS were to administered (Pre and Post Test). **Results:** Showed no significant differences when comparing pre and post test in all six conditions. **Conclusion:** Further improvement were to made in methodology when the stimulus is presented in non-native language.

Keywords: *Thought Speed, Manipulation*

INTRODUCTION

Thought speed is defined as the number of thoughts, one has per unit of time (Yang & Pronin, 2018). There is enough evidence in the literature to state the link between various psychiatric disorders and thought speed.

People with mania experience racing thoughts (Hanwella & de Silva, 2011; Mansell & Pedley, 2008) and become less concentrated on a particular thing (Camelo et al., 2013) rather they have multiple ideas popping up. Racing thoughts can also predict the manic episode (Correll et al, 2014). People with depression experience the other end of the thought speed spectrum, where sluggishness is seen in their thinking, to put in other words, their thoughts are slowed down (Caligiuri & Ellwanger, 2000). Thought speed is not always associated with Psychiatric conditions. When people consume substances like cocaine, amphetamines (Asghar et al., 2003) or even coffee (Childs & de Wit, 2006) they feel their thoughts are racing fast. When you are asked to generate ideas in a stipulated time, you may think at a faster pace (Pronin, 2008). Through systematic mood induction procedures, human mood can be altered but not everyone is susceptible to mood induction. There is a growing body of evidence showing the influence of mood on cognitive domains (Storbeck & Clore, 2005). Likewise, the effects of thought speed on the cognitive domain has been investigated.

Researchers (Pronin & Jocobs, 2008) proposed the concept of Mental Motion to address the effects of thought speed. According to the mental motion model, there are the two components are– thought speed and thought variability, where it can have independent as well combined effects. Thought speed is referred to the speed of your thoughts and variability refers to repetition or varied content. This model predicts condition-specific symptoms. For instance: Repetition of the same thought at a fast pace may lead to anxiety (Pronin & Jacobs, 2018). Experimental manipulation of people's thought speed led to producing different psychological states.

Researchers (Pronin & Wegner, 2006) manipulated people's to participant`s thought speed through paced reading and found accelerated thought speed produced a high level of elated mood, feeling of power, positive emotion and high energy compared to participants in the decelerated thought speed condition. Varies studies have reported the same findings and consistent results have been found in understanding the relationship between thought speed and mood (Pronin et al. 2008; Duff & Sar, 2015). The effects of thought speed have been seen in other cognitive domains as well, individuals showed increased purchasing interest to buy when their thoughts were accelerating (Duff & Sar, 2015). When participants were made to undergo thought speed manipulation, participants in the fast thought speed reported to have increased risk-taking behaviour, (Chandler & Pronin, 2012), they have scored high in Remote Associates Test (Insight Creativity Task) when compared to neutral condition faster compared to the slow thought speed condition (Yang & Pronin, 2018) and differences in arousal level were also seen. Thought acceleration was linked with a higher level of physiological arousal. Repetitive thoughts led to produce depression or it can maintain depression (Watkins, 2008).

The combinational effects of thought speed and variability were explained by the mental motion model, whereas slow, repetitive thought leads to depression and fast, non-repetitive (variability) leads to mania.

Adaptive theory (Yang & Pronin, 2018) states as faster thought speed leads to increased positive mood, arousal, and creative problem-solving ability which indeed acts as an action needed for survival (Pronin, 2013) and this is termed an "activation state". And decreased thought speed would oppositely produce effects. Like the fight or fight response, the adaptive theory states that the

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activation of accelerated thought leads to myriad cognitive, affective and physiological processes (Pronin, 2013; Yang & Pronin, 2018). Fast thinking leads to the firing of the dopaminergic system which leads to motivation to attain the goal and faster internal clock. speed are a few associated with increased dopamine activation. The ability to become in sync with the external cause is associated with physiological arousal and psychological processing, whereas increased thought speed is associated with this and causes changes in us, research evidence shows us that increased respiration rate and arousal were seen when the participants were made to listen to faster music (Khalfa et al., 2008). Even EEG recordings have shown us changes in different thought speeds (Duff et al., 2015). Emotional and cognitive changes were seen after thought speed manipulation.

Thought speed manipulation techniques were also used to treat individuals with depression (Kaite Yang et al., 2014). Whereas when researchers made individuals with mild to moderate levels of depression read Elation statements at a faster pace, they reported a more positive mood compared to the state before manipulation.

Because of increased interest in understanding the effects of thought speed on various psychological constructs. It is important to test the effectiveness of the thought speed manipulation technique in the Indian context to go further in the area of understanding the effects of thought speed.

The present research tries to evaluate the effectiveness of thought speed manipulation technique, this research utilizes one of the widely used manipulation tool, paced reading of Velten Mood Induction Statements. A 2 X 3 (Thought Speed vs Valence) was used. All 3 types of statements – Elation, Depressive and Neutral were taken into this research and all 3 were presented in fast and slow manner. So, there are totally 6 conditions. Example – Elation statements in fast and slow pace. The study utilized validated self-reported measures.

METHOD

The aim of the study is to see the effectiveness of thought speed manipulation. Data was collected from young adults who were currently residing in India within the age group of 18 to 25 Years. Participants were from Non-Psychology background. Participants who are physically challenged and participants with Psychiatric Illness – recently got diagnosed (for past 6 months) were not considered for this study. As, the present study's area of interest is on non-clinical population. Research shows us that difficulties in cognitive processes are seen in Psychiatric illness (Kang et al., 2014). Convenience Sampling was used for the study. Research Ethics Committee of Kristu Jayanti College has approved this study. And every participant gave their acceptance through written informed consent. A sample of 78 were collected, after analyzing the data only 55 (29 Males and 26 Females) were found to be eligible for the study. Data from 23 participants were excluded as they had made some errors they missed few responses in data sheet in data sheet (Ex. Missing one or two columns in PANAS (or) choosing two options for same questions). Between subject group design was used for the study.

The hypotheses of the study were:

H_1 – There is significant differences in pre and post test scores for thought speed and mood (All conditions).

a. There are significant differences in pre and post test scores in thought speed and mood in fast elation condition.
b. There are significant differences in pre and post test scores in thought speed and mood in slow elation condition.
c. There are significant differences in pre and post test scores in thought speed and mood in fast depressive condition.
d. There are significant differences in pre and post test scores in thought speed and mood in slow depressive condition.
e. There are significant differences in pre and post test scores in thought speed and mood in fast neutral condition.
f. There are significant differences in pre and post test scores in thought speed and mood in slow neutral condition.

The tools used for the study were i.) **Velten Mood Induction Statements:** These statements are given by Emmett C.Velten, there are totally three sets of statements– Elation, depression and neutral. Each set of statements are used to evoke mood states and in each mood statements there are totally 60 statements. ii.) **Perceived Thought Speed:** "Sometimes people have the feeling that their thoughts are coming slowly, and other times people feel that their thoughts are 'racing'. What did you feel was the speed of your thoughts, as you were reading the statements on the computer screen? This question was answered on a 9 – point scale, anchored at 1(Very slow), 5 (moderate speed), and 9 (very fast). iii.) **PANAS:** This is a self-report questionnaire, which is used to assess affect level. The questionnaire consists of 20 different emotions, the subject has to respond how they are feeling now in 5-point Likert scale it has two sub domains in it – positive and negative. Internal consistency was reported between 0.86 - 0.90 for positive affect and 0.84 -0.87 for negative affect. Test-

retest reliability was reported as 0.79 for positive affect and .81 for negative affect (Watson et al., 1988).

Descriptive statistics was used to view the data in simpler form and for easy understanding. In descriptive statistics – mean, median, range and standard deviation were taken into consideration.

Inferential statistics was used to get more precise of the data and to find conclusion about the data used. In Inferential statistics – Wilcoxon Signed Rank Test was used. Analysis was done using IBM SPSS.

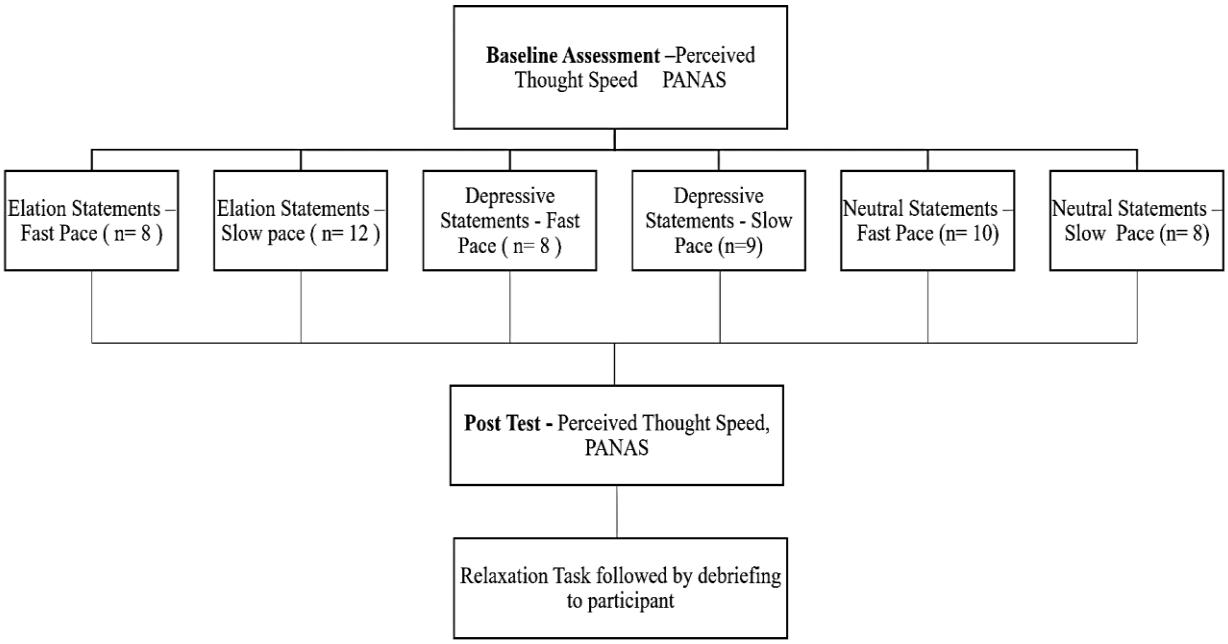
PROCEDURE

Structure of the experiment

In order to see the effects, first from the participants: consent to participant in the study was taken, then basic demographic details were collected and their base line mood and thought speed was assessed via PANAS and perceived thoughts speed subjective rating scale. After the completion of base line assessment (Pretest) , participants were made to seat in front a laptop and following instruction were given for Mood and thought speed induction,

"Once you get started, you will see a series of statements presented one word at a time on the screen. Read each word of each sentence aloud as it appears. Don't worry if it takes you a few sentences before you get used to it. If it's okay with you, I'm also going to tape record this for our records. Okay, I'll stay here until you get the hang of it, and then I'll come back when you're done with this part of the study. When you're ready to begin, click the mouse once, and the study will begin. And remember, as soon as words start to come up on the screen, you should be reading them". (Pronin & Wegner, 2006)

There are totally six different conditions – Elation Mood (Fast and Slow), Depressive Mood (Fast and Slow) and a Neutral Mood (Fast and Slow). Each participant was made to go through one of them.



Content Manipulation

The statements that were given to participants were adopted from Velten's (1968) procedure for mood induction. It consists of three sets of different mood induction statements – Elation, Depressive and Neutral Statements. Each particular mood induction consists of 60 statements. In this present study, we have used 59 statements in elation and depressive. One statements that talks about thought speed was deleted for the study (Pronin & Wegner, 2006). Each mood induction condition starts with neutral statements and slowly gets into respective mood induction and participants were not informed about the particular mood condition they are going to get.

Speed Manipulation

These statements were presented to participants in Microsoft PowerPoint and the statements were presented in timed manner. This study utilizes the method used by Pronin & Wegner (2006) with some modification, adding one second after completion of appearance of a statement in screen in fast condition the statements were presented in large size (Arial 44), each letter was made to appear one by one and for this particular speed was set – each letter move at the speed for 40ms (fast condition) and

170ms (slow condition). Between slides speed was fixed by taking the longest sentences in the particular mood condition and adding a one seconds for fast condition and for slow condition four seconds. Then, posttest assessment was given – PANAS and Perceived Thought Speed.

RESULTS

Table 1: *Shows comparison of scores between Pre and Post treatment on Positive Affect, Negative Affect and Thought Speed in Neutral Fast using Wilcoxon Signed Rank Test*

Variables	Pre Test		Post Test		Z	Asymp.Sig
	M	SD	M	SD		
Positive Affect	35.10	5.38	38.00	7.18	-1.78	0.07
Negative Affect	15.90	3.24	16.80	3.79	-0.83	0.40
Thought Speed	6.20	1.31	5.70	1.82	-0.68	0.49

As the table above shows, that pre and post-test effects of positive , negative affect and thought speed are not significant (p = 0.07, 0.4, 0.49) . Hence, the manipulation technique didn't show any statistically significant results.

Table 2: *Shows comparison of scores between Pre and Post treatment on Positive Affect, Negative Affect and Thought Speed in Neutral Slow using Wilcoxon Signed Rank Test*

Variables	Pre Test		Post Test		Z	Asymp.Sig
	M	SD	M	SD		
Positive Affect	31.50	6.27	28.50	5.34	-1.36	0.17
Negative Affect	20.00	5.63	17.25	4.97	-1.55	0.12
Thought Speed	5.50	2.39	4.50	1.51	-1.23	0.21

The table above shows, that pre and post-test effects of positive , negative affect and thought speed are not significant (p = 0.17 , 0.12 , 0.21) . Hence, the manipulation technique didn't show statistically significant results.

Table 3: *Shows comparison of scores between Pre and Post treatment on Positive Affect, Negative Affect and Thought Speed in Elation Slow using Wilcoxon Signed Rank Test*

Variables	Pre Test		Post Test		Z	Asymp.Sig
	M	SD	M	SD		
Positive Affect	35.83	6.01	36.83	7.13	-0.42	0.67
Negative Affect	18	3.56	15.50	4.38	-2.23	0.02
Thought Speed	6.42	1.31	6.08	2.50	-0.36	0.71

The above table shows, that pre and post-test effects of positive , negative affect and thought speed are not significant (p = 0.67 , 0.02 , 0.71). Hence, the manipulation technique didn't show statistically significant results.

Table 4: *Shows comparison of scores between Pre and Post treatment on Positive Affect, Negative Affect and Thought Speed in Elation Fast using Wilcoxon Signed Rank Test*

Variables	Pre Test		Post Test		Z	Asymp.Sig
	M	SD	M	SD		
Positive Affect	36	7.61	38.5	7.44	-0.84	0.39
Negative Affect	20.75	7.68	19.13	9.49	-0.91	0.36
Thought Speed	5.38	0.74	7	1.77	-2.23	0.26

The above table shows, that pre and post-test effects of positive, negative affect and thought speed are not significant (p = 0.39, 0.36, 0.26). Hence, the manipulation technique didn't show statistically significant results.

Table 5: *Shows comparison of scores between Pre and Post treatment on Positive Affect, Negative Affect and Thought Speed in Depressive Fast using Wilcoxon Signed Rank Test*

Variables	Pre Test		Post Test		Z	Asymp.Sig
	M	SD	M	SD		
Positive Affect	38.25	5.06	36.87	7.88	-0.85	0.39
Negative Affect	18	7.01	19.75	7.34	-1.02	0.30
Thought Speed	5.88	2.41	7.75	1.58	-1.68	0.09

The above table shows, that pre and post-test effects of positive, negative affect and thought speed are not significant (p = 0.39 , 0.3 ,0.92). Hence, the manipulation technique didn't show statistically significant results.

Table 6: *Shows comparison of scores between Pre and Post treatment on Positive Affect, Negative Affect and Thought Speed in Depressive Slow using Wilcoxon Signed Rank Test*

Variables	Pre Test		Post Test		Z	Asymp.Sig
	M	SD	M	SD		
Positive Affect	35.67	6.51	34.44	10.33	-0.59	0.55
Negative Affect	20.56	5.19	21.78	9.56	-0.29	0.76
Thought Speed	5.89	1.05	6.44	1.81	-1.06	0.28

The above table shows, that pre and posttest effects of positive , negative affect and thought speed are not significant (p = 0.55 , 0.76 , 0.28) . Hence, the manipulation technique didn't show statistically significant results.

DISCUSSION

The present study's aim was to see the efficiency of new manipulation technique. In this section we will highlight the potential reasons that led to that led to non-production of significant results in manipulation of the induction procedure to cause change in post-test. The non effectiveness to induction technique can be attributed to methodological weakness and other issues. The present used (Pronin., 2006) MIP, with certain modification, which didn't work as we expected and this could be due to small sample size. As, higher the sample

size increases the accuracy of the research (Andrade., 2020). Whereas the current study has a total of 55 participants and approximately 10 ± 2 in each six conditions. For some individual's mood induction technique won't response (Rottenberg., 2018), it can due to personality factors, they may have trait which is high in resisting negative experiences (Kashdan et.al., 2006) and can be due to response bias, they may be unwilling to report their sad mood. (Rottenberg et al., 2018).

Differences in affect level processing leads to non-response to MIP (Brenner et.al, 2000). Some researchers have altered the manipulation time for participant till they reach the mood induction criteria (Liotti et al. 2000), this present study didn't utilize this method.

In the present study, the research used Velten Mood Induction Procedure in fast and slow pace (Pronin, 2006), which was presented to participants in a foreign language.

Research suggests that emotional differences were felt when people converse in other foreign language. Example: Praying, lying and I love you were felt differently when people say in native and in a foreign language (Pavlenko, 2005; Dewaele, 2010). This study shows how humans are more receptive in terms of feeling emotion when it comes to a native and foreign language. This level of being receptive is seen in other studies as well where children who attend school with a strong foundation in their mother tongue develops stronger literacy abilities (Baker., 2000; Cummins., 2000). In a review paper by Pavlenko (2012), mentioned there is an emotional advantage for native language compare with foreign language. This was seen when in a European study, when advertising slogans were written in respondent`s native language, he/she felt more emotional connection than written in foreign language. (Puntoni et al., 2009). Earlier research has also stated when people read words in native and foreign language. They responded more emotional for native words (Anooshian & Hertel, 1994). When it comes to processing of words, reduced emotionality has been seen in foreign language, that they use emotional words to interfere with processing (Colbeck & Bowers, 2012). Reduced emotionality for foreign language was seen in studies (Keysar et al., 2012; Costa et al., 2014) where participants made more rational decision when evaluating a vignette written in another foreign language.

These above stated evidence shows the potential cause why the MIP didn't response as expected. But this can't be concluded by the effects of emotional dominance in native language. In India, around a quarter of Indian children go to Private schools, significant of them are taught in English medium (Ahmed, 2021; Acharya, 2021). Research shows that people who are bilinguals, was not proficient in their native language showed same level of electro dermal response in emotional words when presented with both native and foreign language. (Harris et al., 2006). In the current study, significant of the participants are bilinguals and completed their schooling in English medium. At the same time, people who are strong and proficient in their native language / first language showed increased skin conductance response for childhood reprimands in native language than in foreign language. This study suggests that when a native language is strong then increased emotionality can be seen at the same time foreign language is less proficient (Degner et.al., 2010) When a language was acquired in early stage of life, learned via immersion, reflects increased level of emotional resonances than a foreign language. Early language and emotional regulation system both develops at same time. (Bloom & Beckwith, 1989). Thus, it is possible that early learned language is tightly connected to emotional system. (Caldwell – Harris, 2014). It is not that second language can't make us emotional, it can when it is used frequency and when learned via immersion rather than in school (Dewaele, 2010; Degner et al., 2011).

CONCLUSION

The aim of the study is to see the efficiency of manipulation technique. The results showed manipulation technique didn't work effectively. The reason could be methodological weakness or difference in processing of emotion content in foreign language. Further, scrutiny needed for this manipulation technique if it in non-native language. With further scrutiny in the method, this method can be used to study the effects of thought speed on other various cognitive domains. The limitations of the study would be the sample size was relatively small and the results were based on those and only young adults were called for the study and the study results were based on them.

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REFERENCES

Acharya, A. (2021). Preference of English medium instruction rises in South India except Karnataka. The Federal. https://thefederal.com/education/preference-ofenglish-medium-instruction-rises-in-south-india-except-karnatakAhmed, M. H. (2021, August 18). Telangana: Around 73 percent students study in English medium schools. The Siasat Daily. https://www.siasat.com/ telangana-around-73- percent-students-study-in-english-medium-schools-2179547/

Amabile, T. M. (1982). Social psychology of creativity: A consensual assessment technique. Journal of Personality

and Social Psychology, 43(5), 997–1013. https://doi.org/10.1037/0022-3514.43.5.997

Anooshian, L. J., & Hertel, P. T. (1994). Emotionality in free recall: Language specificity in bilingual memory. Cognition & Emotion, 8(6), 503–514. https://doi.org/10.1080/02699939408408956

Asghar, S. J., Tanay, V. a. I., Baker, G. B., Greenshaw, A. J., & Silverstone, P. H. (2003). Relationship of plasma amphetamine levels to physiological, subjective, cognitive and biochemical measures in healthy volunteers. Human Psychopharmacologyclinical and Experimental, 18(4), 291–299. https://doi.org/10.1002/hup.480

Bloom, L., & Beckwith, R. (1989). Talking with Feeling: Integrating Affective and Linguistic Expression in Early Language Development. Cognition & Emotion, 3(4), 313–342. https://doi.org/10.1080/02699938908412711

Brenner, E. (2000). Mood Induction in Children: Methodological Issues and Clinical Implications. Review of General Psychology, 4(3), 264–283. https://doi.org/10.1037/1089-2680.4.3.264

Caligiuri, M. A., & Ellwanger, J. H. (2000). Motor and cognitive aspects of motor retardation in depression. Journal of Affective Disorders, 57(1–3), 83–93. https://doi.org/10.1016/s0165-0327(99)00068-3

Chandler, J., & Pronin, E. (2012). Fast Thought Speed Induces Risk Taking. Psychological Science, 23(4), 370–374. https://doi.org/10.1177/0956797611431464

Childs, E., & De Wit, H. (2006). Subjective, behavioral, and physiological effects of acute caffeine in light, nondependent caffeine users. Psychopharmacology, 185(4). https://doi.org/10.1007/s00213-006-0341-3

Colbeck, K. L., & Bowers, J. S. (2012). Blinded by taboo words in L1 but not L2. Emotion, 12(2), 217–222. https://doi.org/10.1037/a0026387

Correll, C. U., Hauser, M., Penzner, J. B., Auther, A. M., Kafantaris, V., Saito, E., Olvet, D. M., Carrión, R. E., Birmaher, B., Chang, K. D., DelBello, M. P., Singh, M. K., Pavuluri, M. N., & Cornblatt, B. A. (2014). Type and duration of subsyndromal symptoms in youth with bipolar I disorder prior to their first manic episode. *Bipolar Disorders*, *16*(5), 478–492. https://doi.org/10.1111/bdi.12194

Costa, A., Foucart, A., Hayakawa, S., Aparici, M., Apesteguia, J., Heafner, J., & Keysar, B. (2014). Your Morals Depend on Language. PLOS ONE, 9(4), e94842. https://doi.org/10.1371/journal.pone.0094842

Cummins, J. (2001). Bilingual Children and mother tongue: Why is it important for education? Sprogforum, 7(19), 5–20

Dewaele, J. (2010). Emotions in Multiple Languages. In Palgrave Macmillan UK eBooks. Palgrave Macmillan. https://doi.org/10.1057/9780230289505

Dewaele, J. (2010). Emotions in Multiple Languages. In Palgrave Macmillan UK eBooks. Palgrave Macmillan. https://doi.org/10.1057/9780230289505

Hanwella, R., & De Silva, V. (2011). Signs and symptoms of acute mania: a factor analysis. BMC Psychiatry, 11(1). https://doi.org/10.1186/1471-244x-11-137

Harris, C. L., Gleason, J. B., & Aycicegi, A. (2006). When is a first language more emotional? Psychophysiological evidence from bilingual speakers. Bilingual education and bilingualism, 56, 257.

Kaite Yang et al., 2014). And please add the reference in the reference session - Yang, K., Friedman-Wheeler, D. G., & Pronin, E. (2014). Thought Acceleration Boosts Positive Mood Among Individuals with Minimal to Moderate Depressive Symptoms. *Cognitive Therapy and Research,* 38(3), 261–269. https://doi.org/10.1007/s10608-014-9597-9

Kashdan, T. B., Barrios, V., Forsyth, J. P., & Steger, M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. Behaviour Research and Therapy, 44(9), 1301–1320. https://doi.org/10.1016/j.brat.2005.10.003

Keysar, B., Hayakawa, S., & An, S. G. (2012). The Foreign-Language Effect. Psychological Science, 23(6), 661–668. https://doi.org/10.1177/0956797611432178

Khalfa, S., Roy, M., Rainville, P., Bella, S. D., & Peretz, I. (2008). Role of tempo entrainment in psychophysiological differentiation of happy and sad music? International Journal of Psychophysiology, 68(1), 17–26. https://doi.org/10.1016/j.ijpsycho.2007.12.001

Liotti, M., Mayberg, H. S., Brannan, S. K., McGinnis, S. M., Jerabek, P. A., & Fox, P. T. (2000). Differential limbic–cortical correlates of sadness and anxiety in healthy subjects: implications for affective disorders. Biological Psychiatry, 48(1), 30–42. https://doi.org/10.1016/s0006-3223(00)00874-x

Mansell, W., & Pedley, R. (2008). The ascent into mania: A review of psychological processes associated with the development of manic symptoms. Clinical Psychology Review, 28(3), 494–520. https://doi.org/10.1016/j.cpr.2007.07.010

Murray, G., & Johnson, S. L. (2010). The clinical significance of creativity in bipolar disorder. Clinical Psychology Review, 30(6), 721–732. https://doi.org/10.1016/j.cpr.2010.05.006

Pavlenko, A. (2006). Emotions and Multilingualism. Cambridge University Press. https://doi.org/10.1017/cbo9780511584305

Pavlenko, A. (2012). Affective processing in bilingual speakers: Disembodied cognition? International Journal of Psychology, 47(6), 405–428. https://doi.org/10.1080/00207594.2012.743665

Pronin, E. (2013). When the Mind Races. Current Directions in Psychological Science, 22(4), 283–288. https://doi.org/10.1177/0963721413482324

Pronin, E., & Wegner, D. M. (2006). Manic Thinking. Psychological Science, 17(9), 807– 813. https://doi.org/10.1111/j.1467-9280.2006.01786.x

Pronin, E., Jacobs, E. R., & Wegner, D. M. (2008). Psychological effects of thought acceleration. Emotion, 8(5), 597–612. https://doi.org/10.1037/a0013268

Puntoni, S., De Langhe, B., & Van Osselaer, S. M. J. (2009). Bilingualism and the Emotional Intensity of Advertising Language. Journal of Consumer Research, 35(6), 1012–1025. https://doi.org/10.1086/595022

Rosser, B. W. C., & Wright, K. (2016). The Impact of Thought Speed and Variability on Psychological State and Threat Perception: Further Exploration of the Theory of Mental Motion. Cognitive Therapy and Research, 40(4), 453–467. https://doi.org/10.1007/s10608-016-9753-5

Rottenberg, J., Kovacs, M., & Yaroslavsky, I. (2018). Non-response to sad mood induction: implications for emotion research. Cognition & Emotion, 32(3), 431–436. https://doi.org/10.1080/02699931.2017.1321527

Watson, D. I., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. Journal of Personality and Social Psychology, 54(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Yang, K., & Pronin, E. (2018). Consequences of Thought Speed. In *Advances in Experimental Social Psychology*. Elsevier BV. https://doi.org/10.1016/bs.aesp.2017.10.003