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Research Paper

An Adaptive Metacognitive Perspective on Procrastination Among Adolescents

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ABSTRACT

The present study aimed to elucidate effects of adaptive metacognition on academic procrastination. The sample consisted of 100 undergraduate students (50 boys and 50 girls) chosen from D.D.U. University, Gorakhpur Uttar Pradesh, India. The participants were individually administered Hindi version of Positive Metacognition and Meta-emotions Questionnaire and Academic Procrastination Scale. The participants falling below Mean-1SD and above Mean+1SD on the facets of positive metacognitions and meta-emotions were respectively designated as low and high scorer participants were screed out. The effects of levels (low & high) of positive metacognitions and meta-emotions on genders (boys and girls) were analyzed by applying 2 × 2 ANOVA (2 genders × 2 levels of facets of positive metacognitions & positive meta-emotions). Results revealed non-significant main effect of "Gender" on any behavioral measures (AP-1 and AP-2), on the other significant main effect of (i) levels of PMCEQ-H1 on AP-2 (ii) Levels of PMCEQ-H2 on AP-2 (iii) Levels of PMCEQ-H3 on AP-1. Mean comparison revealed that low scorer as compared to high scorer manifested higher levels of AP-1 and AP2 and non-significant interaction effect of 'Gender X Levels of sub factor of PMCEQ-H on AP-1 and AP-2'.

Keywords: *Adaptive Metacognition, Academic Procrastination, PMCEQ*

Adaptive metacognition is both self-enhancing as well as constructive. Beer and Moneta's (2010) revealed in adaptive metacognition and meta-emotion theory "Absence of positive aspects in maladaptive meta-cognition theory is not a sufficient asset for an individual to succeed when tackling a problematic situation". The key components of a successful resolution are metacognitive beliefs that support the identification of realistic and adaptable goal restructuring, meta-emotions of interest and curiosity in one's own primary emotional responses to challenges, and metacognitive beliefs help to regulate S-REF activity based on the strategic demands of the situation. The authors further contend that meta-emotions of interest and curiosity in one's own emotional reactions to difficult circumstances are necessary for such adaptive metacognitive dependence.

Procrastination is a behavior pattern characterized by a failure to regulate one's own actions. It entails delaying the beginning or end of a task (Ferrari & Tice, 2000; Ferrari, 2001).

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Academic procrastination is among the most prevalent forms of situational procrastination (Can & Zeren, 2019), recognized as the obstruction or postponement of academic work that needs to be completed. It appears that there are determinants of this behavior, including: impeded productivity, unjustified, and unreasonably postpones tasks (Mahmoud, 2015; Uzun Özer& Sarıcaoğlu, 2014). Therefore, delay, anxiety, productivity, and irrationality can all be considered characteristics of procrastination. People who procrastinate tend to ignore their fears and let them fester, which has led to a host of social issues ranging from the environment to health. Academic procrastination may be related to students' work avoidance goal orientation and self-efficacy (Wolters, 2003).

REVIEW OF LITERATURE

Studies examining the connection between mental awareness and other variables may be found in the literature. Self-efficacy, problem-solving, anxiety, epistemological beliefs, reading skills, questioning skills, learning approaches, academic achievement, gender, age, education level, seniority, and grade level are some of the prominent variables that have been identified (Bars, 2016; Bedir, 2017; Oğuz & Kutlu-Kalender, 2018; Sezgin, Bakır, & Gündoğdu, 2019).Procrastination was found to be significantly and negatively correlated with self-efficacy for self-regulated learning (Tan et al., 2008). Research indicates that students who possess a high level of self-efficacy for self-regulated learning tend to engage in minimal academic procrastination and have high expectations for their academic performance.

Numerous studies have shown a strong correlation between students' procrastination and their awareness of their cognitive process. Results showed a negative correlation between procrastination and metacognition awareness (Wolters, 2003; Howell & Watson, 2007). It was found that when students were not aware of their own thought processes and strategies (planning, monitoring, and evaluating), procrastination increased. Several researches (McCown, Petzel & Rupert, 1987; Johnson & Bloom, 1995; Ferrari & Dovidio, 2000; Ferrari, 2001) examined how people who procrastinate are unable to plan and organize their learning and, as a result, are unable to finish the assignments within the allotted time. It was determined that students knew very little about the metacognitive techniques they used to fulfill their academic obligations.

Metacognition demonstrates a vital role in learners' educational lives (Flavell, 1979). Generally speaking, awareness and perceptual control are the two main components of metacognition. Awareness of perception also encompasses features of declaration, method, and condition; however, strategies for organizing, supervising, and assessing cognitive actions are included in control of perception (Baker & Brown, 1984). Students who are more conscious of their metacognition processes struggle to turn in their academic assignments on time (Lau & Chan, 2003). Their inability to complete academic assignments successfully impedes their performance on those assignments by default (Silver, 1974; Silver & Sabini, 1981).

According to a study by Fernie and Spada (2008), learners' procrastinating behavior was significantly impacted adversely by metacognition; students had a lower propensity to put things off when they were highly aware of their metacognition. Furthermore, the findings of multiple empirical studies indicated that improvements in the cognitive-behavioral approach-based group counseling process, which aims to decrease academic procrastination, coincide with behavioral, mental, and cognitive changes (Stead, Shanahan, & Neufeld, 2010; Rice, Neimeyer, & Taylor, 2011; Ozer, Demir, & Ferrari, 2013). This leads one to the

assumption that while adaptive cognitive processes like positive metacognitions and meta-emotions, a useful concept for guiding cognition and keeping track of cognitive processes and outcomes, and may have positive effects on academic procrastination.

Numerous indirect researches have been conducted in line with the current findings, but no direct investigations have been conducted in relation to the current study. The available literature is scanty on the intervening effects of adaptive metacognitions on procrastination in adolescents.

As such, the present study has been undertaken with manifold **objective** –

- To examine the effect of 'gender' (boys and girls), and 'levels' (low and high) of the facets of adaptive metacognitions separately, on the measures of procrastination in adolescents in Indian cultural milieu.

Hypotheses

To meet the aforementioned objectives following hypothesis are being proposed:

- The main effects of gender (girls and boys) on the behavioral measures are exploratory in nature.
- High as compared to low scorers on the facets of adaptive metacognitions would manifest lower indices on the measures of procrastination.
- The effects of two factor interactions between gender and levels of facets of Adaptive metacognitions (gender X levels of facets of adaptive metacognitions) on measures of procrastination are exploratory in nature. It is expected that two factor interaction effects would be in conformity to the main effects of the independent variables on the measures the dependent variables.

METHODOLOGY

Sample

One hundred boys and girls (17 to 21 years old) respondents (50 boys and 50 girls) with at least intermediate qualification from Gorakhpur district of Uttar Pradesh were sampled by purposive sampling procedure for the conduct of the present study. A number of extraneous variables like ecological background, socio-economic status, age, gender, religion, marital status, employment status and family structure were recorded with the objective to equate/ match the sample to obtain representative sample for the conduct of the study.

Design of Research

To achieve the objective, low scorer (Mean – 1 SD) and high scorer (Mean + 1 SD) participants on the sub-factors of adaptive metacognitions, besides the 'gender' (boys and girls), were screened out and their corresponding scores on the measures of procrastination (dependent variables) was analyzed by employing 2 X 2 factorial designs (2 Gender x 2 Levels of facets of adaptive metacognitions) on the measures of the procrastination)**.**

Behavioral Measures

The study under report has employed Hindi version of the behavioral measures of (i) Positive Metacognitions and Meta-emotions Questionnaire (PMCEQ-H; Jaiswal et al., 2017) and (ii) Academic Procrastination Scale (Meshram, 2023).

Positive Metacognition and Meta-emotions Questionnaire (PMCEQ-H; Jaiswal et al., 2017)**:** The Hindi version of Positive Metacognition and Positive Meta-emotions

Questionnaire an 18-item questionnaire based on the original Beer PMCEQ, was created in Hindi (2011). Three features are measured by PMCEQ-H: "Confidence in Setting Flexible and Feasible Hierarchies of Goals (PMCEQ-H1)," "Confidence in Interpreting Own Emotions Restraining from Immediate Reaction and Mind-Setting for Problem-Solving (PMCEQ-H2)" and "Confidence in Extinguishing Perseverative Thoughts and Emotions (PMCEQ-H3)". According to the CFA, the PMCEQ-H has good construct validity and a fair and adequate model fit. The three PMCEQ-H factors had split-half reliability and Cronbach's alphas ranged from 0.65 to 0.80 (Jaiswal et al., 2017).

Academic Procrastination Scale (APS; Sakshee Meshram, 2023)**:** The Academic Procrastination Scale (Scielzo, 2015) is a pool of 25 item, the Hindi version of the scale that was developed by Sakshee Meshram (2023) was used which consist of two factors: "AP-1" and "AP-2". The APS has high internal consistency with Cronbach alpha of 0.94 indicating a high reliability.

Procedure

First of all, good rapport was established with the respondent, kept relaxed and pleasant in order to elicit the most frank or candid answers possible, advised not to dwell for any length of time on any given item, to give his overall reaction, were informed that there is no right or wrong answer to any item, and encouraged to respond rapidly and the way they really feel. The three behavioral measures were administered on the respondents in a random manner so as to overcome the problems of carry over, if any, of the response set(s) of the succeeding test on the preceding test and to find anonymous response of the respondent.

Statistical Analysis

Analyses of results include the analyses of two- way analyses of variance (2 X 2 ANOVA) to highlight main effects of 'gender' and levels of facets of adaptive metacognitions separately, on academic procrastination). Post hoc group comparisons was made by Tukey's test.

RESULTS

The obtained mean ± 1SD values for the measures of academic procrastination over the levels of analysis, 2 "Gender" (boys and girls) X 2 "Levels (low and high) of facet of Positive Metacognition and Meta-Emotion" are shown in Table -1.

Table-1: Mean ± SD values of measures of academic procrastination (academic procrastination-1 and academic procrastination-2) over the levels of 2 gender (boys and girls) and 2 levels (low and high) facets of PMCEQ-H

Facets of PMCEQ-H	Gender	Levels	Academic Procrastination-1	Academic Procrastination-2
PMCEQ-H1	Boys	High(11)	39.00 ±12.09	11.72 ±4.42
		Low(11)	37.09 ±11.00	16.00 ±5.13
	Girls	High(15)	37.86 ±12.12	12.53 ±6.15
		Low(07)	35.57 ±12.20	16.14 ±5.17
PMCEQ-H2	Boys	High(09)	35.22±13.28	11.66±6.12
		Low(10)	37.10±10.37	16.30±4.32
	Girls	High(11)	33.90±10.03	11.54±6.72
		Low(08)	39.12±13.24	17.12±3.13
PMCEQ-H3	Boys	High(16)	30.81±8.97	13.50±6.64
		Low(05)	46.20±8.59	12.20±4.08
	Girls	High(09)	32.33±13.12	15.44±6.32
		Low(12)	44.00±11.15	12.00±4.82

The 2 X 2 ANOVA (analysis of variance) was performed on the scores of the measures of AP (AP-1 and AP-2) and results (vide Table-2) revealed non-significant main effect of "Gender" on 'AP-1' (F (1/44) = 0.128, $p > 0.05$) and 'AP-2' (F (1/44) = 0.080 , $p > 0.05$), and interaction effect of 'Gender X Levels of PMCEQ-H1' on 'AP-1' (F (1/44) =0.003, p > 0.05) and 'AP-2' (F (1/44) =0.039, p > 0.05). Moreover, non-significant main effect of "Levels of PMCEQ-H1" on 'AP-1' (F (1/44) = 0.321, $p > 0.05$), whereas significant main effect of "Levels of PMCEQ-H1" on 'AP-2' (F (1/44) = 5.518, $p < 0.05$) was also revealed. Post hoc mean comparisons for significant levels effect for PMCEQ-H1 demonstrated that low scorer (Mean = 16.05, SD = 4.99) as compared to high scorer (mean = 12.20, SD= 5.40) manifested significantly higher levels of AP-2.

2 X 2 ANOVA (analysis of variance) revealed non-significant main effect of "Gender" on 'AP-1' (F (1/38) =0.009, $p > 0.05$) and 'AP-2' (F (1/38) =0.040, $p > 0.05$), and interaction effect of 'Gender X Levels of PMCEQ-H2' on 'AP-1' (F (1/38) =0.192, $p > 0.05$) and 'AP-2' (F (1/38) =0.072, $p > 0.05$). Moreover, non-significant main effect of "Levels of PMCEQ-H2" on 'AP-1' (F (1/38) =0.869, $p > 0.05$), whereas significant main effect of "Levels of PMCEQ-H2" on 'AP-2' (F (1/38) =8.391, $p <0.05$) was also revealed. Mean comparisons for significant levels effect for PMCEQ-H2 demonstrated that low scorer (Mean = 16.67, SD = 3.75) as compared to high scorer (mean = 11.60, SD= 6.30) manifested significantly higher levels of AP-2, however, male and female did not differ significantly from each on any other with respect to AP-1 and AP-2.

2 X 2 ANOVA (analysis of variance) was performed on the scores of the measures of AP (AP-1 and AP-2) and results revealed non-significant main effect of "Gender" on 'AP-1' (F (1/42) =0.009, $p > 0.05$) and 'AP-2' (F (1/42) =0.194, $p > 0.05$), and "Levels of PMCEQ-H3" on 'AP-2' (F (1/42) =1.434, $p > 0.05$), whereas significant main effect of "Levels of PMCEQ-H3" on 'AP-1' (F (1/42) =14.331, $p < 0.05$) was also revealed. Results also manifested non-significant interaction effect of 'Gender X Levels of PMCEQ-H3' on 'AP-1' (F (1/42) =0.271, $p > 0.05$) and 'AP-2' (F (1/42) =0.293, $p > 0.05$). Post hoc mean comparisons for significant levels effect for PMCEQ-H3 demonstrated that low scorer (Mean = 44.64, SD = 10.24) as compared to high scorer (mean = 31.36, SD= 10.40) manifested significantly higher levels of AP-1.

DISCUSSION

The current study was done to evaluate the effect of facets of positive metacognitions and meta-emotions (adaptive metacognitions) on academic procrastination. Nonetheless, there aren't many researches in the literature looking into the connection between academic procrastination and mental awareness. A low-level and negative association between mental awareness and academic procrastination was revealed by certain studies (Çırıkçı, 2016; Vural & Gündüz, 2019), whereas some studies (Wong, 2012) indicated a moderate and unfavourable relationship**.** Studies on metacognition have shown that students' success in learning activities is significantly and favourably correlated with their understanding of their own mental processes (Mevarech & Fridkin, 2006; Vrugt & Oort, 2008).

Studies have shown that students' metacognition plays a major part in their academic achievement. The findings indicated that students' metacognition has a positive relationship with academic achievement (Taehee, Shinho & Heejun, 1998; Coutinho, 2007). Students who performed well on academic assignments had strong metacognition skills. There is an alternative viewpoint that suggests how students think determines whether they will succeed or fail in school. Studies have shown that students who perform above average in academic

activities and receive good grades also possess a strong understanding of metacognition. Conversely, students who perform below average on assignments and receive low scores have little comprehension of their own metacognition processes (Dunning, Johnson, Kruger & Ehrlinger, 2003; Young & Fry, 2008). In 2013, Narang and Saini carried out a study to examine how learners' educational achievement is impacted by metacognitive awareness. The academic performance of Ludhiana State's elementary and secondary school pupils was examined. The analysis's findings showed that a large number of contributors outperformed expectations due to their awareness of thought processes. Studies (Rezvan, Ahmad & Abedi, 2006; Sarvanakumar & Mohan, 2007) have also shown that learning about metacognition processes and strategies positively affects individuals' learning activities, and that slow learners can benefit from these strategies as well. Parcel (2005) carried out a study to determine how metacognitive awareness affects students' academic achievement. The results showed that when students received virtual instruction in metacognitive strategies, their performance on post-tests in educational activities increased.

According to Howell et al. (2006), academic procrastination was linked to both disorganization and lower usage of cognitive (students' use of rehearsal, elaboration, and organization strategies) and metacognitive (students' use of planning, monitoring, and regulating strategies) strategies. Additionally, Howell et al. (2006) demonstrated that academic procrastination is significantly predicted by the use of cognitive and metacognitive strategies as well as disorganization.

It is expected that the results of this study will add to the existing body of knowledge, and this may lead to further understanding to reduction academic procrastination.

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Conflict of Interest

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