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# DIMENSIONAL SIMILARITIES AND DIFFERENCES BETWEEN ANGERNESS AND FORGIVENESS IN MALE AND FEMALE BY MAGNITUDE ESTIMATION METHOD

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## ABSTRACT

The present study was designed to center around emotion measurement issues by line number estimations techniques and the relationship of anger and forgiveness emotions with appraisal dimension. Study made an attempt to identify the interval (0 interval and 24 hours interval) and emotion effect on line, number estimations. Data were collected from the U.G. students; subject has to respond on their past emotional experiences on the basis of appraisal dimension, by line and number estimation techniques. In-depth interview with respondents' generated descriptive data. The data were analyzed with the help of multivariate analysis of variance (MANOVA). In the present study effect of interval was found on appraisal dimension and line, number estimations. Emotions were inversely proportional to all variables. Differences are found in interval, higher differences are found in no interval condition. And the emotion condition are not effective for the subject responses, there were no differences found on any dimensions. The present study also found the one type of interaction effects, was not significant. Interaction effect of interval x emotion was not significant in any dimension. The findings of study have important implications for the measurement of emotions that how emotion measure in a better way by the magnitude scale. The research also shows the relationship of emotions with the appraisal dimensions.

**KEYWORDS:** Appraisal Dimensions, Angerness, Forgiveness and Magnitude Estimation

## INTRODUCTION

An **emotion** is a term for a mental and physiological state associated with a wide variety of feelings, thoughts, and behavior. Emotions are subjective experiences, or experienced from an individual point of view. Emotion is often associated with mood, temperament, personality, and disposition. Conceptions of human nature derive from beliefs about human emotion.

Emotions are rooted in appraisals. At the most general level, *emotion appraisals* involve evaluative judgments of whether an event is good or bad and whether people's current actions and environment correspond to their personal goals and expectations (Carver & White, 1994; Davidson, 2004; Higgins, 1997; Russell, 2003). The study of emotion - eliciting appraisals, or the "meaning making" processes that give rise to different emotions (Clore & Ortony, 2008; Roseman, 1991, 1984; Roseman, Spindel, & Jose, 1990; Roseman, Wiest, & Swartz, 1994; Scherer, 1997; Scherer & Wallbott, 1994; Smith & Ellsworth, 1985), was the intellectual offspring of two literatures: (1) research on stress and health, particularly Lazarus' s (1991) reframing of specific stresses as emotion appraisals, and (2) the study of attribution, achievement motivation, and emotion (Weiner, 1985) and its documentation that successes and failures could lead to different emotions depending on how outcomes are interpreted.

Discrete approaches to emotion appraisals focus on the coherent themes, or *core-relational themes* in Lazarus's words (1991) that give rise to the experience of emotions and that differentiate emotions from one another. *Discrete approaches to appraisal* help to illuminate sources of individual variation in emotion — for example, why an angry person appraises ongoing events in ways that lead to a life rife with frustration and hostility (Rosenberg, 1998). Discrete emotion - eliciting appraisals can be captured in spontaneous discourse and relate to emotion-specific experiences and facial expressions (Bonanno & Keltner, 2004). Yet discrete approaches to appraisal fail to yield simple explanations of the similarities among emotions (e.g., between anger and fear) and do not readily explain rapid transitions between emotional states (Ellsworth, 1991).

By *dimensional approaches to appraisal* presuppose that core dimensions of appraisal, when combined, give rise to specific emotions (e.g., Ellsworth & Smith, 1988; Smith & Ellsworth, 1985). In their review of numerous studies of the semantic content of emotions, Smith and Ellsworth (1985) derived eight dimensions that capture the appraisal processes that lead to various emotions (see also Scherer, 1997). These appraisal dimensions can be thought of as the basic units of meaning that people ascribe to events.

Guided by dimensional approaches, studies of emotion - related recall (Ellsworth & Smith, 1988; Smith & Ellsworth, 1985) have documented that each emotion is defined by a fairly distinct pattern of appraisal (for critiques of this methodology, see Parkinson & Manstead, 1992). For example, interest is associated with appraisals of increased pleasantness, the desire to attend, the sense that situational factors are producing events, a perceived need to expend effort, moderate certainty about future outcomes, and little sense of obstacles or the illegitimacy of events.

Moreover, certain appraisal dimensions are central to the differentiation of clusters of emotions (Smith & Ellsworth, 1985). For example, agency, a combination of control and responsibility, differentiates anger, sadness, and guilt. In the face of a negative event, blaming others produces anger, believing that the situation is responsible produces sadness, and self - blame produces guilt (see also Weiner, 1985).

Dimensional accounts of emotion appraisal have generated several lines of inquiry. These accounts identify mechanisms by which emotions influence different cognitive processes and pinpoint likely emotional processes associated with different central nervous system regions (Davidson, Pizzagalli, Nitschke, & Kalin, 2003; Ochsner, 2008). For example, the experience of anger involving high levels of agency has been associated with activation in the left - frontal regions of the cortex, an area of the brain thought to facilitate approach–related behavior (Harmon-Jones, Sigelman, Bohlig, & Harmon-Jones, 2003). Dimensional accounts also illuminate likely areas of cultural variation in emotion-related appraisals. For example, based on how cultures vary in their conceptions of human agency (Morris & Peng, 1994), similar events are likely to trigger different emotions in members of different cultures, probably because of differences in appraisal.

Discrete and dimensional approaches both assume that emotion-eliciting appraisals begin with simple appraisals and proceed to complex meaning - making attributions. Along these lines, a critical question that has emerged concerns *automaticity:* which emotion-eliciting appraisals are automatic - that is, fast, beyond deliberative control, and preconscious, that is, immediate; and which are more deliberative, controlled processes. Inspired by Zajonc's theorizing (1980), researchers now widely assume that an automatic, preconscious appraisal produces an evaluation of whether a stimulus is good or bad (LeDoux, 1996; Mischel & Shoda, 1995; Russell, 2003; Winkielman, Zajonc, & Schwarz, 1997). This system

gives rise to automatic affective reactions that motivate rapid approach or avoidance responses and core feelings of positivity or negativity (Barrett, 2006; Russell, 2003).

The literature on emotion appraisals is rich in theoretical development, but several areas of inquiry await empirical attention. Given critiques of self - report measures as assessments of online appraisals (Parkinson & Manstead, 1992), methods are needed to study the contents of appraisal processes as they occur. In addition, new questions have arisen concerning the semantic content of primary appraisals: Are primary appraisals attuned to the valence of a stimulus, its novelty, its salience, or its intensity? Are Attention, Certainty, Control, Pleasantness, Perceived obstacle, Legitimacy, and Anticipated effort dimensions, involved in automatic, primary appraisals? How can we measure the emotions? Is there any relation between emotions on different dimensions? Can discrete emotions be generated through automatic appraisals? To what extent do primary appraisals give rise to conscious experiences (Clore & Ortony, 2008; Winkielman, Knutson, Paulus, & Trujillo, 2007)? Answers to these questions will shed light on how emotions arise.

## METHODS

### Type of Research and Design

It is an exploratory experimental study using 2X2X2 MANOVA design. There are three IV's and two DV's.

### Participants

The sample consisted of 60 undergraduate college students, of The Prestige Institute of Management, Gwalior city (M.P.) randomly assigned in four treatment conditions, 15 students were randomly assigned to each treatment condition. The sample is divided into four groups on the basis of conditional time duration. Thirty students are taken for no interval condition, and same number are for interval (approximately 24 hours) condition.

### Procedure

For recording subject's responses they were given NEMT Test paper (Negative Emotions Measurement Test) it has two response pages for each emotion, each page for one emotion and eight appraisal dimensions. For two emotion subject are given two response pages. On each page subject has two estimates of an emotion on a particular dimension by using line estimation and number estimation. The reference line is 5 cm and reference number is 50 are given in page. Subjects were asked to estimate the magnitude of each dimension by drawing the line whose length is equal to the magnitude. In the same way subject has to give number which is assumed to be equal to the magnitude on a dimension.

### Instructions

To make the subject acquainted with the task an exemplar of actual stimulus-response cards used in actual study, stimulus is presented to him/her. In Emotion word sheet, as you can see it is an appraisal dimension word. This word tells something about when you engage in any activity or experience. In other words, this is one characteristic of your experience. The meaning of the word will be clear to us when we read the meaning given after it."

In Test paper, the reference line and reference number is given; you have to response according to those. In line if you feel this emotion on this dimension double than draw a 10 cm. line, if four time more than 20 cm. line or feel half of reference line than 2.5 cm line and so on. In number 50 is reference as line in number also you have to response according

to reference number if you feel double than write 100, if feel four time more than write 200, if feel half then 25 and so on. There for, responses will be 2×2×2 = 08 numbers of estimates of 2 emotions on 8 dimensions with 2 type of responses line and number.

**Data Collection**

For collecting the data, four groups selected randomly each group have15 subjects. A verbal consent was taken from the respondents after informing them the purpose of the study. They were assured that the information they provide will be kept confidential and used only for research purposes. Each subject was briefly interviewed to find out whether they met the criteria for inclusion in the sample. Thus a sample of 60 respondents aged between 18 to 22 years was selected. They were then handed over emotion and dimension written response pages to respond. They were helped if they had any difficulty regarding understanding or responding to the response pages items. Respondents were requested to respond honestly and to answer all the items. After they had completed all items they were thanked and the complete questionnaires were collected.

**Hypothesis**

**H.1:** In comparison to the interval condition there will be more similarity between Line and Number estimates in no interval condition.

**H.2:** There will be significant differences in between male and female's Line and Number estimates.

**H.3:** In comparison to male, female gives higher response in Line and Number estimates.

**H.3.1:** In anger condition male respond higher score in comparison to female.

**H.3.2:** In forgiveness condition female respond higher score in comparison to male.

**H.4:** Anger will be differentiated on four dimensions-Control, Responsibility, Legitimacy and Anticipated efforts.

**H.5:** Anger will not be differentiated on four dimension-Attentions, Certainty, Pleasantness, Perceived obstacles.

**H.6b:** Forgiveness will not be differentiated on any eight dimensions.

## RESULTS

## SECTION – I

**Descriptive Statistics**

Table 1 shows the means and SDs of emotions on each dimension, table 1 has means and SDs based on subjects' estimations of different emotions on different dimensions using line and number.

This table presents the context in which the differences between emotions will be analyzed statistically in section – II.

This research needs MANOVA which is relatively complex processing of these primary characteristics of the data in chapter three the researcher has tried to state some hypotheses regarding the effect of Interval, Gender and Emotions, and their combined effects on dimensional estimations of emotions. The problem of hypothesis formation became almost impossible due to non-availability of researches related with the interval between of line and number estimation.

**Table 1: Mean and SD of Emotions on Line and Number Dimensions**

| E | | D1L | D1N | D2L | D2N | D3L | D3N | D4L | D4N | D5L | D5N | D6L | D6N | D7L | D7N | D8L | D8N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | 6.80 | 37.30 | 7.43 | 36.53 | 6.85 | 36.73 | 6.22 | 36.78 | 6.70 | 33.92 | 7.50 | 42.70 | 7.17 | 42.23 | 6.48 | 36.33 |
| E1 | SD | 3.35 | 17.16 | 3.32 | 21.67 | 3.44 | 19.94 | 3.60 | 18.19 | 3.13 | 15.53 | 4.43 | 21.76 | 4.46 | 22.02 | 3.19 | 15.57 |
| | N | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | M | 6.95 | 42.95 | 6.78 | 40.27 | 6.13 | 36.43 | 6.58 | 40.33 | 6.23 | 36.50 | 6.68 | 38.32 | 6.87 | 39.78 | 7.28 | 37.15 |
| E2 | SD | 3.43 | 22.74 | 3.26 | 22.53 | 2.80 | 16.29 | 3.32 | 21.26 | 3.34 | 16.80 | 3.38 | 19.88 | 3.20 | 20.29 | 3.38 | 13.57 |
| | N | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | **M** | **6.88** | **40.13** | **7.11** | **38.40** | **6.49** | **36.58** | **6.40** | **38.56** | **6.47** | **35.21** | **7.09** | **40.51** | **7.02** | **41.01** | **6.88** | **36.74** |
| **Total** | **SD** | **3.37** | **20.26** | **3.29** | **22.09** | **3.14** | **18.13** | **3.46** | **19.78** | **3.23** | **16.16** | **3.94** | **20.87** | **3.87** | **21.12** | **3.30** | **14.55** |
| | **N** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** |

**Table 2: Mean and SD of Interval on Line and Number Dimensions**

| I | | D1L | D1N | D2L | D2N | D3L | D3N | D4L | D4N | D5L | D5N | D6L | D6N | D7L | D7N | D8L | D8N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I1 | M | 7.78 | 44.07 | 8.72 | 43.13 | 6.93 | 38.95 | 7.20 | 42.25 | 6.67 | 37.58 | 8.62 | 46.48 | 8.17 | 46.58 | 7.28 | 39.18 |
| | N | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | SD | 3.96 | 24.55 | 3.35 | 24.46 | 3.47 | 19.89 | 3.79 | 23.58 | 3.00 | 16.96 | 4.51 | 24.03 | 4.53 | 24.89 | 3.45 | 17.28 |
| I2 | M | 5.97 | 36.18 | 5.50 | 33.67 | 6.05 | 34.22 | 5.60 | 34.87 | 6.27 | 32.83 | 5.57 | 34.53 | 5.87 | 35.43 | 6.48 | 34.30 |
| | N | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | SD | 2.37 | 13.91 | 2.31 | 18.46 | 2.74 | 16.00 | 2.91 | 14.34 | 3.46 | 15.10 | 2.51 | 15.11 | 2.64 | 14.75 | 3.12 | 10.79 |
| | **M** | **6.88** | **40.13** | **7.11** | **38.40** | **6.49** | **36.58** | **6.40** | **38.56** | **6.47** | **35.21** | **7.09** | **40.51** | **7.02** | **41.01** | **6.88** | **36.74** |
| **Total** | **N** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** |
| | **SD** | **3.37** | **20.26** | **3.29** | **22.09** | **3.14** | **18.13** | **3.46** | **19.78** | **3.23** | **16.16** | **3.94** | **20.87** | **3.87** | **21.12** | **3.30** | **14.55** |

**Table 3: Mean and SD of Gender on Line and Number**

| G | | D1L | D1N | D2L | D2N | D3L | D3N | D4L | D4N | D5L | D5N | D6L | D6N | D7L | D7N | D8L | D8N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1 | M | 6.30 | 37.67 | 6.70 | 33.40 | 5.37 | 31.50 | 5.52 | 34.05 | 5.65 | 32.27 | 7.27 | 37.75 | 6.98 | 37.87 | 6.55 | 33.57 |
| | N | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | SD | 3.00 | 17.14 | 3.12 | 18.98 | 2.58 | 12.44 | 2.40 | 14.68 | 2.48 | 13.39 | 4.31 | 20.57 | 4.46 | 19.43 | 2.78 | 12.57 |
| G2 | M | 7.45 | 42.58 | 7.52 | 43.40 | 7.62 | 41.67 | 7.28 | 43.07 | 7.28 | 38.15 | 6.92 | 43.27 | 7.05 | 44.15 | 7.22 | 39.92 |
| | N | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| | SD | 3.64 | 22.84 | 3.43 | 23.95 | 3.27 | 21.35 | 4.09 | 23.07 | 3.68 | 18.17 | 3.57 | 20.97 | 3.22 | 22.41 | 3.74 | 15.76 |
| | **M** | **6.88** | **40.13** | **7.11** | **38.40** | **6.49** | **36.58** | **6.40** | **38.56** | **6.47** | **35.21** | **7.09** | **40.51** | **7.02** | **41.01** | **6.88** | **36.74** |
| **Total** | **N** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** | **120** |
| | **SD** | **3.37** | **20.26** | **3.29** | **22.09** | **3.14** | **18.13** | **3.46** | **19.78** | **3.23** | **16.16** | **3.94** | **20.87** | **3.87** | **21.12** | **3.30** | **14.55** |

## SECTION – II

### Multivariate Analysis of Variance (MANOVA)

A Multivariate Analysis of Variance was conducted to explore the impact of two negative emotions with two conditions (interval and gender) on the evaluation of the eight appraisal dimensions. The evaluation of the appraisal dimensions was measured by two dependent variables-line and number.

**Table 4: MANOVA Significant Result (Interval x Gender x Emotion/ N=60)**

| | Interval | Gender | Emotion | Interval x Gender | Interval x Emotion | Gender x Emotion | Interval x Gender x Emotion |
|---|---|---|---|---|---|---|---|
| Pillai's Trace | .000* | .003* | - | .017* | - | - | - |
| Wilks' Lambda | .000* | .003* | - | .017* | - | - | - |
| Hotelling's Trace | .000* | .003* | - | .017* | - | - | - |
| Roy's Largest Root | .000* | .003* | - | .017* | - | - | - |

Table 4 Shows the main and interaction effect of interval, gender and emotion, the main effects of the interval and gender are significant (at $p<.05$) in all test statistics. And the effect of emotion is not significant in any test. All the test statistics- Pillai's Trace, Wilks' Lambda, Hotelling's Trace, Roy's Largest Root show no significant effect of Interval x Emotion, Gender x Emotion and Interval x Gender x Emotion.

The interaction effects between interval and gender are significant (at $p<.05$) in all test statistics.

**Between Subject Effects**

This part of result contains the summary table for the dependent variables. There are two parts in between subject result first is main effect and second is interaction effect of IVs. The main effect and interaction effects are given blow.

**Table 5: Significant Differences of between Subject Effect Interval x Gender x Emotion/N=60**

| | Interval | Gender | Emotion | Interval x Gender | Interval x Emotion | Gender x Emotion | Interval x Gender x Emotion |
|---|---|---|---|---|---|---|---|
| D1L | .002* | .046* | - | .017* | - | - | - |
| D1N | .032* | - | - | - | - | - | - |
| D2L | .000* | - | - | .002* | - | - | - |
| D2N | .016* | .011* | - | - | - | - | - |
| D3L | - | .000* | .- | .037* | - | - | - |
| D3N | - | .002* | - | - | - | - | - |
| D4L | .009* | .004* | - | - | - | - | - |
| D4N | .034* | .010* | - | - | - | - | - |
| D5L | - | .004* | - | .001* | - | - | - |
| D5N | - | .042* | - | - | - | - | - |
| D6L | .000* | - | - | .027* | - | - | - |
| D6N | .001* | - | - | - | - | - | - |
| D7L | .001* | - | - | .006* | - | - | - |
| D7N | .003* | - | - | - | - | - | - |
| D8L | - | - | - | .012* | - | - | - |
| D8N | - | .017* | - | - | - | - | - |

## MAIN EFFECT

**Interval**

Table 5 Shows the between subject effect, the main effect of the interval with different dimensions. In D1L(mean=99.008, F=10.175 and p <.05), in D1N (mean = 1864.408, F = 4.738 and p < .05), in D2L (mean = 310.408, F = 40.735 and p < .05), in D2N (mean = 2688.533, F = 5.969 and p < .05), in D4L (mean = 76.800, F = 6.974 and p < .05), in D4N (mean = 1635.408, F = 4.600 and p < .05), in D6N (mean = 279.075, F = 21.136 and p < .05), in D6L (mean = 4284.075, F = 10.820 and p < .05), in D7L (mean = 158.700, F = 12.000 and p < .05) and in D7N (mean = 3729.675, F = 9.080 and p < .05).

In these tables, it can be observed that the difference between no interval and interval condition are positive for Line estimation. And the difference between no interval and interval condition are also positive for Number estimation. Overall trends in both tables is that under interval condition (with 24 hours gap), the mean scores dent to be lower than no interval condition. Interval the factor which can be considered as aspect of estimation process. There are two modes of estimations Line and Number. Each subject has to use these modes. Resultantly the question of interval between of the two modes is natural. This factor is the aspect which is affected upon the estimation process. However, it should also be taken as truism that dimensions are related to the aspect of emotions. Any deviation of mean score may be attributed by the cognitive factors qualified with the emotion dimension relationship.

**Gender**

Table 5 shows the main effect of the Gender with different dimensions. In D1L (mean = 39.675, F = 4.077 and p < .05), in D2N (mean = 3000.000, F = 6.660 and p < .05), in D3L (mean = 151.875, F = 18.150 and p < .05), in D3N (mean = 3100.833, F = 10.149 and p < .05), in D4L (mean = 93.633, F = 8.503 and p < .05), in D4N (mean = 2439.008, F = 6.860 and p < .05), in D5L (mean = 80.033, F = 8.799 and p < .05), in D5N (mean = 1038.408, F = 4.227 and p < .05), in D8N (mean = 1209.675, F = 5.903 and p < .05).

**Emotion**

Table 5 shows the Emotion main effect. There are no significant differences in any dimension.

**Interaction Effect**

There are four types of interactions found in the study. The question the researcher must ask whether the statistically significant interactions are psychologically significant too. The problem is to verify the isomorphic relations between the statistical significant and psychological significance. Let this relationship be examined. This examination would be based on the trends within data generated by IVs, separately. The factor-wise trends are given below;

- **Interval Factor:** Includes negative trend, this is when there is no interval between two estimation techniques (Line and Number). The score are higher than the condition when there is interval between the two.
- **Gender Factor:** Interval and Gender are the basic properties of the estimation design of this study. They do not relate the estimations directly. On the contrary, emotions have to act on gender and interval on each dimension. This process analysis the three factor of the study. There may be statistical interaction in psychological processes involved in estimation.

**V.3.2a Interval x Gender**

Table 5 Shows first interaction of Interval x Gender seventh significant differences on D1L (mean = 57.408, $F = 5.900$ and $p < .05$), D2L (mean = 75.280, $F = 9.870$ and $p < .50$), D3L (mean = 37.408, $F = 4.470$ and $p < .50$), D5L (mean = 100.833, $F = 11.086$ and $p < .05$), D6L (mean = 66.008, $F = 4.999$ and $p < .05$), D7L (mean = 104.533, $F = 7.904$ and $p < .05$), D8L (mean = 67.500, $F = 6.494$ and $p < .05$) are found.

There are seventh significant effects of interval x gender interaction on seventh dimensions in line estimation: D1 (attention), D2 (certainty), D3 (control), D5 (Perceived obstacle), D6 (responsibility), D7 (legitimacy) and D8 (anticipated effort).

**Interval x Emotion**

Table 5 shows the second interaction of interval x emotion. There is no significant difference in any dimension.

**V.3.2c Gender x Emotion**

Table 5 shows third interaction gender x emotion. There is no significant difference in any dimension.

**Interval x Gender x Emotion**

Table 5 shows the fourth interaction is interval x gender x emotion. There is no significant difference in any dimension.

## SECTION-III

**Pairwise Comparison**

This part of result contains the post- hoc Bonferroni pairwise comparison summary table for the dependent variables. There are three parts in pairwise result first is interval pairwise comparison, second is gender pair wise comparison and third is emotion pair wise comparison of IVs on DVs. The pair wise comparisons are given below.

**Interval Pair Wise Comparison**

Table 6 shows the post-hoc comparison using the Bonferroni revealed significant differences between no interval and interval condition.

**Table 6: Significant Differences in Interval Pair Wise Comparison**

| | I 1 | I2 |
|---|---|---|
| D1L | .002* | - |
| D1N | .034* | - |
| D2L | .000* | - |
| D2N | .016 | - |
| D3L | - | - |
| D3N | - | - |
| D4L | .009* | - |
| D4N | .034* | - |
| D5L | - | - |
| D5N | - | - |
| D6L | .000* | - |
| D6N | 001* | - |
| D7L | 001* | - |
| D7N | .003* | - |
| D8L | - | - |
| D8N | - | - |

*Significant at .05 level

There are ten significant differences on D1L (MD = 1.817, SE = .570, $p < .05$), D1N (MD = 7.883, SE = 3.622, $p < .05$), D2L (MD = 3.217, SE = .504, $p < .05$), D2N (MD = 9.467, SE = 3.875, $p < .05$), D4L (MD = 1.600, SE = .606, $P < .05$), D4N (MD = 7.383, SE = 3.443, $p < .05$), D6L (MD = 3.050, SE = .663, $p < .05$), D6N (MD = 11.950, SE = 3.633, $p < .05$), D7L (MD = 2.300, SE = .664, $P < .05$) and D7N (MD = 11.150, SE = 3.700, $p < .05$). This result shows the effect of no interval is higher than interval condition. The question and hypothesis addressed the interval effect on line and number production. The hypotheses and question were the following.

**H.1: In comparison to the interval condition there will be more similarity between Line and Number estimates in no interval condition.**

**Question-A. Does the interval between the two estimations produce differences between the Line and Number estimations?**

These findings are in opposition of our hypothesis concerning the Interval conditions. Hypothesis stated that the interval between the two response measures on eight dimensions will produce significant differences between the two measures because;

**A.** Interval provides an opportunity for intervening variables, such as respondent's mental state, depth of processing of before-interval estimation and affecting the after-interval estimation, etc.

**B.** Emotional state of the respondent's mental state might change from before interval and after interval conditions;

There are more significant differences in no interval condition (10 in all) in comparison to the interval condition. Out of 10 significant differences 5 differences are between line estimations and 5 are between number estimations.

### V.4.2 Gender Pair Wise Comparison

Table 7 Shows the Post-hoc comparison using the Bonferroni revealed significant differences between Gender (Male and Female).

There are nine significant differences on D1L (MD = 1.150, SE = .570 $p < .05$), D2N (MD = 10.000, SE = 3.875, $p < .05$), D3L (MD = 2.250, SE = .528, $p < .50$), D3N (MD = 10.167, SE = 3.191, $p < .50$), D4L (MD = 1.767, SE = .606, $p < .05$), D4N (MD = 9.017, SE = 3.443, $p < .05$), D5L (MD = 1.633, SE = .551, $p < .05$), and on D5N (MD = 5.883, SE = 2.862, $p < .05$) and on D8N (MD = 6.350, SE = 2.614, $p < .05$). These findings show that the gender condition affects the subject responses.

**Table 7: Significant Differences of Gender Pair Wise Comparison**

| | G1 | G2 |
|---|---|---|
| D1L | - | .046* |
| D1N | - | - |
| D2L | - | - |
| D2N | - | .011* |
| D3L | - | .000* |
| D3N | - | .002* |
| D4L | - | .004* |
| D4N | - | .010* |
| D5L | - | .004* |
| D5N | - | .042* |
| D6L | - | - |
| D6N | - | - |
| D7L | - | - |
| D7N | - | - |
| D8L | - | - |
| D8N | - | .017* |

*Significant at .05 level

The second hypothesis addressed the gender effect on line and number production. The hypotheses and question were the following.

**H.2 there will be significant differences in between male and female's Line and Number estimates.**

**Question. A Does the gender difference produce differences between the Line and Number estimations?**

Table 8 shows the mean and differences value of line and number estimates in terms of the differences between two gender conditions. The number estimate is more effective to produce differences between male and female response comparison to the line estimate. The mean of female responses are higher on line and number estimates comparison to mean of male responses. All differences line or number are negative, except on D6L. It shows that the gender difference produce differences between the Line and Number estimations. There are more significant differences in between male and female's line and number estimates (9 in all). These on D1L, D2N, D3L, D3N, D4L, D4N, D5L, D5N and D8N. Out of 9significant differences 4 differences are between line estimations and 5 are between number estimations in female condition comparison to the male condition.

**H.3 In comparison to male, female gives higher response in Line and Number estimates.**

**H.3.1 In anger condition male respond higher score in comparison to female.**

**H.3.2 In forgiveness condition female respond higher score in comparison to male.**

**Question-A Does the gender difference shows any differences between anger and forgiveness responding?**

These findings are in opposition of our hypothesis concerning the gender condition that the gender difference show differences between anger and forgiveness responding because,

- The level of anger and forgiveness expression is found separately different in Male and female because of their personality differences.
- Male persons have control on their emotional expression because of social learning; emotions express learning and ego factor.
- Female have not control on their emotional expression. Their emotions fluctuate rapidly because of their emotion expression learning, and social environment.

Female give higher response in line and number estimates comparison to male. An inspection of the Mean and SD of Gender on Line and number Dimensions (Table 1) revealed that in all nine significant differences in female responds is higher comparison to male respond. In Anger condition on number estimate Female respond was higher score than male respond on all the eight dimensions. Moreover, in Anger condition, on Line estimate Female respond was also higher score than the male respond on the seven dimensions. Except in Responsibility dimension Female respond was lower score than the male respond. So in the reference of H.3.1these findings show that in anger condition male respond was not higher score in comparison to female. In Forgiveness condition, on number estimation Female respond was higher score than the male respond on all the eight dimensions. Moreover, in Forgiveness condition, on Line estimation Female respond was also higher than the male respond on the six dimensions. Except in Responsibility and Legitimacy dimension Female respond was lower score than the male respond. So in the reference of H.3.2 these findings show that in forgiveness condition female respond higher score in comparison to male.

**Emotion Pair Wise Comparison**

There are no significant differences between emotions in any dimension. In the following section, the developed questions and hypothesis will be tested. The first question addressed the emotion profile on the basis of emotion mean on different dimensions. The questions were the following.

**H.4 Anger will be differentiated on four dimensions- Control, Responsibility, Legitimacy and Anticipated efforts.**

**H.5 Anger will not be differentiated on four dimensions-Attention, certainty, Pleasantness, Perceived obstacles**.

**Table 8: Mean of Emotions on Number Dimensions**

| | E1 Mean | E2 Mean |
|---|---|---|
| D1N | 37.30 | 42.95 |
| D2N | 36.53 | 40.27 |
| D3N | 36.73 | 36.43 |
| D4N | 36.78 | 40.33 |
| D5N | 33.92 | 36.50 |
| D6N | 42.70 | 38.32 |
| D7N | 42.23 | 39.78 |
| D8N | 36.33 | 37.15 |

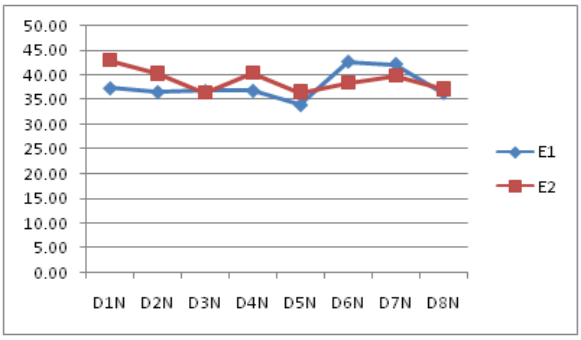


**Figure 1**

**Table 9: Mean of Emotions on Line Dimensions**

| | E1 Mean | E2 Mean |
|---|---|---|
| D1L | 6.80 | 6.95 |
| D2L | 7.43 | 6.78 |
| D3L | 6.85 | 6.13 |
| D4L | 6.22 | 6.58 |
| D5L | 6.70 | 6.23 |
| D6L | 7.50 | 6.68 |
| D7L | 7.17 | 6.87 |
| D8L | 6.48 | 7.28 |

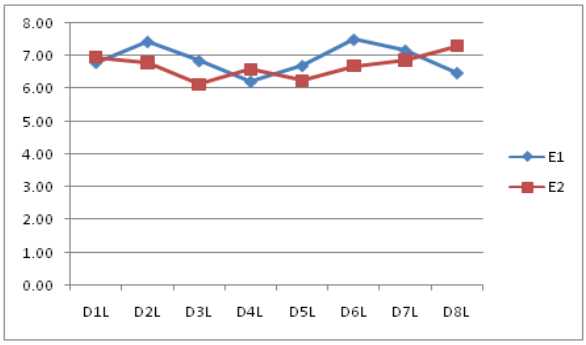


**Figure 2**

Table 1 show the Mean and SD of emotions on Line and number Dimensions between two emotions in reference of eight dimensions. Concerning the H.4, in Line Vs. number, in anger condition number differences is more evident in the control, the responsibility, legitimacy and anticipated effort. Line estimation is not as effective as number estimation. In anger condition line estimation differences among in the control, the responsibility, legitimacy and anticipated effort.

In Line Vs. number, in anger condition number differences is more evident in the attention, the certainty, the pleasantness and the perceived obstacles. Line estimation is not as effective as number estimation. In anger condition line estimation differences among in the attention, the certainty, the pleasantness and the perceived obstacles. So Concerning the H.5 these findings show that Anger will be differentiated on four dimensions-Attention, certainty, Pleasantness, Perceived obstacles.

**H.6- Forgiveness will not be Differentiated on Any Eight Dimensions**

**Question. A On which Dimension Angerness Differ from Forgiveness?**

Forgiveness is differentiated on all the eight dimensions in number estimate. Concerning H.6, in Line Vs. number, in forgiveness condition, there are seven differences found in number estimation on the attention, the certainty, the control,

the pleasantness, the perceived obstacle, the responsibility, the legitimacy and the anticipated effort. In line estimation only one difference is found in the anticipated effort.

Angerness is differing from forgiveness in line estimation on four dimensions-on D2L Certainty, D6 Responsibility, D7L Legitimacy, and D8L Anticipated effort. And in number estimate, there are seven differences found in D1N Attention, D2 Certainty, D4 Pleasantness, D5 Perceived obstacle, D6N Responsibility, D7N legitimacy and D8n anticipated effort.

## SECTION – IV
## DISCUSSIONS

The present study was designed to center around negative emotion measurement issues by line number estimations techniques and the relationship of emotion with appraisal dimension. Study made an attempt to identify the interval (0 interval and 24 hours interval) gender (Male and Female) and emotion effect on line, number estimations. Data were collected from the U.G. students; subject has to respond on their past negative emotional experiences on the basis of appraisal dimension, by line and number estimation techniques. In-depth interview with respondents' generated descriptive data. The data were analyzed with the help of statistical tools.

In the present study effect of interval and gender were found on appraisal dimension and line, number estimations. Negative emotion was inversely proportional to all variables. Differences are found in interval and gender, higher differences are found in no interval condition. Gender condition also too much effective for the subject responses. In gender condition, higher differences are found in female condition. And the emotion condition are not effective for the subject responses, there were no differences found on any dimensions. The present study also found the four types of interaction effects, were significant for some variables, such as interaction effect of interval x gender significant for D1L, D2L, D3L, D5L, D6L, D7L and D8L. Next type of interaction effect of interval x emotion was not significant in any dimension, the third type of interaction gender x emotion was not significant in any dimension, and fourth interval x gender x emotion interaction was not significant in any dimension.

The study also examined the post-hoc Bonferroni pairwise comparison among IVs. There are three types of pair wise comparison; in it the significant result shows their inter-relation and differences in between IVs and DVs. In interval pairwise comparison no interval shows the higher differences comparison to interval condition. In gender condition, female condition shows higher differences comparison to male condition. And in Emotion pairwise comparison, there are no significant differences found in any dimension.

## CONCLUSIONS

The present study was designed to center around negative emotion measurement issues by line number estimations techniques and the relationship of emotion with appraisal dimension. Study made an attempt to identify the interval (0 interval and 24 hours interval) gender (Male and Female) and emotion effect on line, number estimations. Data were collected from the U.G. students; subject has to respond on their past negative emotional experiences on the basis of appraisal dimension, by line and number estimation techniques. In-depth interview with respondents' generated descriptive data. The data were analyzed with the help of statistical tools. In the present study effect of interval and gender were found on appraisal dimension and line, number estimations. Negative emotion was inversely proportional to all

variables. Differences are found in interval and gender, higher differences are found in no interval condition. Gender condition also too much effective for the subject responses. In gender condition, higher differences are found in female condition. And the emotion condition are not effective for the subject responses, there were no differences found on any dimensions.

The present study also found the four types of interaction effects, were significant for some variables, such as interaction effect of interval x gender significant for D1L, D2L, D3L, D5L, D6L, D7L and D8L. Next type of interaction effect of interval x emotion was not significant in any dimension, the third type of interaction gender x emotion was not significant in any dimension, and fourth interval x gender x emotion interaction was not significant in any dimension. The study also examined the post-hoc Bonferroni pairwise comparison among IVs. There are three types of pair wise comparison; in it the significant result shows their inter-relation and differences in between IVs and DVs. In interval pairwise comparison no interval shows the higher differences comparison to interval condition. In gender condition, female condition shows higher differences comparison to male condition. And in Emotion pairwise comparison, there are no significant differences found in any dimension.

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