DISCUSSION

The main findings of the present study are-

1. Mood-congruent memory bias was not found in implicit memory under depressed mood condition.

2. Mood-congruent memory bias was found in implicit memory under elated mood condition.

3. Mood-congruent memory bias was found in explicit memory under depressed mood condition.

4. Mood-congruent memory bias was found in explicit memory under elated mood condition.

5. Mood-congruent memory bias was found with conceptually driven test in implicit memory under depressed mood condition.

6. Mood-congruent memory bias was not found with conceptually driven test in implicit memory under elated mood condition.

7. Mood-congruent memory bias was found with conceptually driven test in implicit memory among rigid subjects under depressed mood condition.

8. Mood-congruent memory bias was not found with conceptually driven test in implicit memory among rigid subjects under elated mood condition.

9. Mood-congruent memory bias was not found with conceptually driven test in implicit memory among flexible subjects under depressed mood condition.

10. Mood-congruent memory bias was not found with conceptually driven test in implicit memory
among flexible subjects under elated mood condition.

11. Mood-congruent memory bias was not found with perceptually driven test in implicit memory under depressed mood condition.
12. Mood-congruent memory bias was not found with perceptually driven test in implicit memory under elated mood condition.

13. Mood-congruent memory bias was not found with perceptually driven test in implicit memory among rigid subjects under depressed mood condition.

14. Mood-congruent memory bias was not found with perceptually driven test in implicit memory among rigid subjects under elated mood condition.

15. Mood-congruent memory bias was not found with perceptually driven test in implicit memory among flexible subjects under depressed mood condition.

16. Mood-congruent memory bias was not found with perceptually driven test in implicit memory among flexible subjects under elated mood condition.

17. Mood-congruent memory bias was found with conceptually driven test in explicit memory under depressed mood condition.

18. Mood-congruent memory bias was found with conceptually driven test in explicit memory under elated mood condition.

19. Mood-congruent memory bias was found with conceptually driven test in explicit memory among rigid subjects under depressed mood condition.

20. Mood-congruent memory bias was found with conceptually driven test in explicit memory among
rigid subjects under elated mood condition.

21. Mood-congruent memory bias was not found with conceptually driven test in explicit memory among flexible subjects under depressed mood condition.

22. Mood-congruent memory bias was found with conceptually driven test in explicit memory among flexible subjects under elated mood condition.

23. Mood-congruent memory bias was found with perceptually driven test in explicit memory under depressed mood condition.
24. Mood-congruent memory bias was found with perceptually driven test in explicit memory under elated mood condition.

25. Mood-congruent memory bias was not found with perceptually driven test in explicit memory among rigid subjects under depressed mood condition.

26. Mood-congruent memory bias was not found with perceptually driven test in explicit memory among rigid subjects under elated mood condition.

27. Mood-congruent memory bias was found with perceptually driven test in explicit memory among flexible subjects under depressed mood condition.

28. Mood-congruent memory bias was found with perceptually driven test in explicit memory among flexible subjects under elated mood condition.

29. Type of tests (conceptually driven and perceptually driven) have differential effect on implicit memory performance i.e. perceptually driven test have better performance as compared to conceptually driven test on implicit memory.

30. Mood (depressed, elated and neutral) have no differential effect on implicit memory performance i.e. depressed, elated and neutral mood have more or less similar memory performance on implicit memory.

31. Cognitive rigidity-flexibility have no differential effect on implicit memory performance i.e.
cognitive rigidity-flexibility have more or less similar memory performance on implicit memory.

32. There is no interactional effect of type of tests and mood on implicit memory performance.

33. There is no interactional effect of type of tests and cognitive rigidity-flexibility on implicit memory performance.

34. There is no interactional effect of mood and cognitive rigidity-flexibility on implicit memory performance.
35. Again there is no interactional effect among type of test, mood and cognitive rigidity-flexibility on implicit memory performance.

36. Type of tests (conceptually driven and perceptually driven) have differential effect on explicit memory performance i.e. perceptually driven test have better performance as compared to conceptually driven test on explicit memory.

37. Mood (depressed, elated and neutral) have differential effect on explicit memory performance i.e. elated subjects performed better as compared to depressed subjects, followed by neutral subjects on explicit memory.

38. Cognitive rigidity-flexibility have no differential effect on explicit memory performance i.e. cognitive rigidity-flexibility have more or less similar memory performance on explicit memory.

39. There is no interactional effect of type of tests and mood on explicit memory performance.

40. There is no interactional effect of type of tests and cognitive rigidity-flexibility on explicit memory performance.

41. There is no interactional effect of mood and cognitive rigidity-flexibility on explicit memory performance.

42. Finally there is no interactional effect among type of test, mood and cognitive rigidity-flexibility on explicit memory performance.
In order to give clear picture of the results, we represent our findings in figures from 22 to 26 diagrammatically.

Figure 22: Showing Mood Congruent Memory (MCM) Bias in Implicit and Explicit Memory.
Figure 23: Showing Mood Congruent Memory (MCM) Bias in Implicit Memory with Perceptually Driven and Conceptually Driven Tests.

Figure 24: Showing Mood Congruent Memory Bias in Implicit Memory with Rigidity and Flexibility under Different Shades of Mood.
Figure 25: Showing Mood Congruent Memory (MCM) Bias in Explicit Memory with Perceptually Driven and Conceptually Driven Tests.

Figure 26: Showing Mood Congruent Memory Bias in Explicit Memory with Rigidity and Flexibility under Different Shades of Mood.
The first four findings of our present research i.e., mood congruent memory bias was not found in implicit memory whereas mood congruent memory bias was found in explicit memory under depressed mood conditions. More over mood congruent memory was found in implicit memory as well as in explicit memory under elated mood conditions. These four findings are in the expected direction. As large number of researchers has demonstrated mood congruent bias in explicit memory but not in implicit memory under depressed mood condition, cognitive psychologists like Teasdale (1983) has suggested that mood congruent memory (MCM) might act to maintain depression. If an individual is sad or depressed, MCM indicates that more negative memories are accessible. Recalling these memories tend to maintain the depressed condition, which then leads to the recollection of more negative memories, resulting in a vicious cycle. Moreover he also suggested that MCM might help explain why depressed individuals tend to avoid effective coping activities. Depression leads to increased recall of negative events. If memory is biased in this fashion the individual may have lowered expectations regarding the outcome of coping activities, resulting in the avoidance of these coping behaviors. This mechanism is likely to be responsible, for depressed state is to be maintained as the result of the avoidance of effective coping behavior.

A thorough survey of research has revealed that MCM has been repeatedly demonstrated in explicit memory (Blaney, 1986). However, as Mason and Graf (1993) have emphasized, “we now know, explicit memory is only a small part—the conscious tip of the iceberg—of how memory for recent events influences us in our daily activities”. Hence, cognitive psychologists were interested to investigate unconscious or implicit memory
(Roediger. 1990; Schacter, 1987) as stated else where implicit memory has been defined as “memory for
information that was acquired during a
specific episode and that is expressed on tests in which subjects are not required to deliberately or consciously recollect the previously studied information “ (Schacter, 1990). Now it may be advocated that if MCM is an important maintenance mechanism in depression it could be argued that this negative bias actually affects adaptive behavior in an unconscious fashion rather than in the conscious way i.e. usually tapped by explicit memory tests.

Like our findings Watkins, Mathews, Williamson and Fuller (1992) published a study that did not find a MCM bias in implicit memory among depressed subjects. Watkins et.al, however found the well demonstrated MCM bias in the explicit memory measures but found no MCM bias in implicit memory tests. Similarly Denny and Hunt (1992) failed to find MCM bias in implicit memory among depressed subjects but demonstrated MCM bias in explicit memory. Although the theories of Beck, Rush, Shaw and Emery (1979) and Bower (1981) are silent with regard to prediction about implicit memory, both theories seen to employ that with depression or sadness, negative or mood congruent information should be more activated and thus more accessible regardless of the retrieval task used (Bower and Forgas, 2000). Our findings as well as the findings obtained by Watkins et al (1992) and Denny and Hunt (1992) do not support this assumption. The contrasting results of implicit and explicit memory in these studies suggests that it is not simply that negative information is more activated in depressed mood, but that how this information is accessed also matters.

These studies appeared to show that MCM depended at least in part on the type of retrieval task used. Although the theories of Bower or Beck did not predict these results, they fit nicely with predictions offered by
the original theory of Williams, watts, MacLeod, and Mathews (1988). Following Graf and Mandler (1984),

Williams et al. posited two distinct cognitive processes that may be differentially biased by
different emotional states and disorders. An initial integration or priming stage is automatic and occurs because components of a stimulus are mutually activated. Because of mutual activation of the stimulus components, the stimulus becomes more integrated. The more integrated a stimulus is, the more likely the entire stimulus will be accessed if some of its components are activated. However, in Graf and Mandler’s words, although an item may be more accessible because it is more integrated, it will not necessarily be more retrievable. According to Graf and Mandler, a word will only be more retrievable in explicit memory if it is more elaborated. Elaboration refers to the activation of a representation in relation to other associated representations to form new relationship between them and to activate old relationships (Williams et al. 1988). Elaboration makes a word more retrievable because it provides more complete routes of access to the representation. Williams et al. proposed that mood congruent processes in depression took place more at elaboration stage than the more automatic integration stage (which they referred to as priming stage). Results from explicit tests are said to be more reflective of elaborative processes, while implicit memory tests result from integration. Thus, the finding of MCM on an explicit memory test, but not on an implicit test, provides support for this approach.

Roediger and McDermott (1992) have observed that a Transfer Appropriate Processing Approach (Morris, Bransford & Franks, 1977, Blaxton, 1989, 1995; Roediger, 1990) would also predict this pattern of findings. In brief, Transfer Appropriate Processing (TAP) theory states that the cognitive processes activates at study are recapitulated at test, then the studied item will be more likely to retrieved. Thus when similar cognitive processes at study and test are activated, the transfer is appropriate and memory benefits.
It has been demonstrated that TAP theory has been helpful framework for explaining mood congruent patterns in depression, our findings is not predicted by the TAP approach. TAP theory would likely benefit from further distinctions within the conceptual processing domain. As pointed out by Roediger and McDermott (1993) the distinction between conceptual and perceptual processes “is likely too tough” and further refinement of the theory and of component processes of study and test task would appear to improve the predictive power of TAP.

Our findings may also be explain in terms of rumination and reflective manner-the important cognitive components of depression (e.g. Nolen-Hoeksema, 1991, 2000; Nolen-Hoeksema, Marrow, & Fredrickson, 1993; Nolen-Hoeksema, 1987). For instance, McFarland and Buehler (1998) found that when subjects attended to their induced mood in a reflective manner a mood congruency recall pattern may be not be resulted. However, when attention to mood was in a ruminative fashion, mood congruent memory is likely to be observed. Thus it is possible that depressed subjects in our study might have attended to their induced mood in a reflective manner particularly when implicit memory was tested. Similarly it may be suggested that subjects with elated mood might have attended to mood in a ruminative fashion, hence, expected mood congruent result was found.

Another potential explanation of our findings is the fact that explicit memory biases are more consistently demonstrated in the literature (Blaney, 1986). If MCM bias is an important maintenance mechanism in depression, the greater consistency of explicit memory bias findings leads to the suggestion that an explicit memory bias may be more important to the maintenance of depression than an implicit bias. This proposal is
consistent with the approach of Williams et.al (1988); Williams, Watts, MacLeod, and Mathews (1997), in that
conscious, strategies mood congruent elaboration is the
more likely culprit underlying negative thinking biases in depression. The interpretation that conscious mood
congruent elaboration is more important maintenance mechanism in depression may be good news for
depression practitioners, as psychological treatments largely use conscious intervention techniques, it would be
more amenable to treatment than an implicit memory bias.

In a somewhat recent study Rinck and Becker (2005) have provided a more recent review of the findings,
concluding that they are less consistent than claimed by Williams et.al (1997), it has been demonstrated that
depressed patients typically exhibit an explicit memory bias rather than implicit memory bias (Murray,
Whitehouse and Alloy, 1999). Furthermore, Rinck and Becker (2005) argued that implicit memory bias is more
likely to be found in individuals with a clinical level of depression and they demonstrated implicit memory bias
occurred only when patients with major depressive disorder are used in study. Since we have not used the
subjects who were suffering from clinical level of depression or major depressive disorder, consequently we
have not found mood congruent memory bias in implicit memory among depressed subjects. The same

conclusion was made by Mathews and MacLeod (2002).

Our findings also yield empirical support from the observation made by Wisco (2009) who argued that early
automatic processes are not negatively biased in depression, but that deeper processes are biased.

The absence of mood congruent bias among depressed subjects may also be explain in the light of findings
obtained by Erber, 1996; Parrot and Sabini. 1990; Rusting and DeHart, 2000; Singer and Salovey, 1996; Walker
et al., 1997, who demonstrated that individuals attempt to regulate their moods in order to enhance the
experience of positive affect, and minimize the experience of negative affect.
Rusting and DeHart (2000) pointed out that there is more evidence of mood congruent retrieval with positive than with negative affect. According to them people in a negative mood are much more likely to be motivated to change their mood. Thus when they face an unpleasant emotional state, they may regulate their emotional state, they may regulate their emotional states by retrievingpleasant thoughts and memories, thus reducing or reversing a negative mood congruency effect. More or less similar findings were obtained by Forgas and Locke (2005). Our first four findings are in agreement with these findings obtained by Rusting and DeHart (2000) and Forgas and Locke (2005).

Our first four findings are not only fit in Beck’s Schema Theory (1976) which emphasizes that some individuals have greater vulnerability than others to develop depressive disorder but also provide empirical evidence to the approach advocated by Williams et.al (1997) who demonstrated that depressed subjects do not have an implicit memory bias. They further predicted that explicit memory bias would be found more often in depressed subjects but opposite would be the case for implicit memory.

Still another potential explanation of our findings may be found in the observations made by Mathews and MacLeod (2002) who concluded “it remains uncertain whether induced biases are really the same as those occurring naturally and clinically anxious patients. The biases induced in most of the studies…..are likely to be very transient compared with those occurring naturally”. Though Mathews and MacLeod have talked about anxiety, the same is true for clinically depressed patients.

The fifth and sixth findings of the present study are mood congruent memory bias was found with conceptually
driven test in implicit memory under depressed mood condition but was not found under elated mood condition.

The fifth finding i.e. mood congruent memory bias was found with conceptually driven test in implicit memory
under depressed mood condition whereas mood congruent memory bias was not found with perceptually driven test in implicit memory under depressed mood condition. These two findings of our research (finding number 5 and 11) are consistent with the findings obtained by Watkins, Mathews, Williamson and Fuller (1992) as well as the findings obtained by Denny and Hunt (1992) they demonstrated that mood congruent memory bias in explicit memory but did not find this negative bias in implicit memory. However Roediger and McDermott (1992) made some interesting predictions. They observed that both studies used perceptually driven implicit memory tests, meaning that in these tasks cognitive activities are guided by the perceptual features of the stimuli rather than by the meaning of the stimuli. For example, the meaning of los-is not important to completing this word stem with the words that comes to mind. However, many memory tests do rely on meaningful processing of the stimuli and so are called conceptually driven. Roediger (1990) has pointed out that virtually all explicit memory tests are conceptually driven because individual must meaningfully relate the memory cues to an earlier learning experience. Thus Roediger and McDermott (1992) argued that the inability to find MCM with perceptually driven tests was not surprising, because word meaning should not be expected to affect tests that do not require conceptual processing. However, they predicted that MCM should be found in implicit memory if conceptually driven tests are used. This prediction follows the transfer-appropriate processing approach, which states that if cognitive processing at study and test are matched, individuals are more likely to recall the information than if processing at study and test are mismatched (Morris, Bransford, & Franks, 1977). For example, if words are studied in a perceptual fashion but the memory test requires meaningful processing, the
transfer-appropriate processing approach would predict that individuals will recall less information than if both
the study task and the memory test are
meaningfully driven. The predictions made by Roediger and McDermott (1992) are confirmed by our fifth and
eleventh finding and are also consistent with the findings obtained by Watkins, Vache, Verny, Muller and

Often mood state-dependent recall and MCM are conceptually linked in theories of emotion and cognition (e.g.,
Bower, 1981). It is of interest to note that the pattern of findings in implicit MCM appears to be consistent with
hat found in mood-state-dependent recall research. Using a musical mood induction methodology, Eich and
associates have found evidence of mood-dependent recall in conceptually driven implicit memory measures, but
not in perceptually driven implicit tests (MacAulay, Ryan & Eich, 1993).

How does our primary findings here fit with prominent theories of cognition and sadness-depression? It seems
that a conceptually driven MCM bias would be consistent with the spreading activation approach of Bower
(1981) and the Schema theory of Beck (Kovacs & Beck, 1978). However, neither of these theories makes
specific predictions about cognitive biases in implicit memory. Even if we deduce from these theories the
prediction of a conceptually driven MCM bias, it would be difficult for these theories to explain the absence of
MCM with perceptually driven tests. The lack of a mood-congruent bias in perceptually driven tests and our
finding of MCM in a conceptually driven test appear to be handled by the approach of Williams et al. (1988).
They argue that the cognitive bias in depression is limited more to elaborative processes rather than the initial
“pick up” or activation of the information in memory. If we concede that elaboration is a conceptually driven
process, then the Williams et al. approach seems to account for the pattern of findings. In fact, several studies
have shown that the manipulation of conceptual variables at encoding affect conceptually driven tests much like they influence explicit memory tests (Blaxton, 1989; Hamann,
Mood congruent memory (MCM) bias in depression was investigated using four different implicit memory tests. Two of the implicit tests were perceptually driven, and two were conceptually driven. Depressed participants and non-depressed controls were assigned to one of four implicit memory tests after studying positive and negative adjectives. Results showed no MCM bias in perceptually driven tests. Results support the theory that mood congruent processes in depression are limited to conceptual processing. Similar findings were obtained by Caseley-Rondi, Gemar, and Segal (2001) and Jenkins and McDowall (2001).

The sixth finding of our research i.e. mood congruent memory bias was not found with conceptually driven test in implicit memory under elated mood condition. This finding is not in expected direction. However, if we analyze the data deeply we observe that, though not statistically significant, a trend may be seen in favor of mood congruency bias with conceptually driven test in implicit memory under elated mood condition (Table 4 and Table 4a, and Figure 4). It may be possible that if large sample is used the mood congruent bias with conceptually driven test under elated mood condition may become statistically significant. Hence the same explanation which has been offered in the preceding paragraphs may be sufficient to justify this finding.

The seventh and ninth findings of our study i.e. mood congruent memory bias was found with conceptually driven test in implicit memory among rigid subjects under depressed mood condition whereas mood congruent memory bias was not found with conceptually driven test in implicit memory among flexible subjects under
depressed mood condition. These findings may be explained in terms of the nature the cognitive
rigidity-flexibility. According to Rokeach (1948) and Cattell (1949), cognitive rigidity is “the inability to change one set when objective conditions demand it….or the difficulty with which old established habits may be change in the presence of new demands”. Chiles and Strosahl (1995) described cognitive rigidity as a lack of flexibility in thinking and has narrowed perceptions and is laden with values. Cognitive flexibility, on the other hand, is defined as a tendency of a person to shift from one task to another task, from one method to another while performing some activities. Cognitive flexibility is the human ability to adapt the cognitive processing strategies to face new and unexpected conditions in the environment (Canas, Quesada, Antoli & Fajardo, 2003). Moreover it has been suggested that one must be flexible in order to deal with life. Hence flexibility plays an important role in mental health. Thus our seventh and ninth findings reflect the true nature of rigid and flexible persons.

More specifically cognitively rigid persons hold very rigid opinions; no amount of discussion can change their views. Such people often set themselves up for added stress by the rigid expectations that they hold. Rigid people shut off certain feelings, finding them to be unacceptable. Due to these characteristics of rigid people mood congruent memory bias was found among rigid subjects under depressed mood condition even though conceptually driven test was used. Mood congruent memory bias was found in implicit memory among flexible subjects under depressed mood condition with conceptually driven test. This finding provides empirical support to characteristics of cognitively flexible person just mentioned above.

Another potential explanation of the present findings is a persistence of rumination among cognitively rigid persons. Rumination involves behaviors and thoughts that passively focus one’s attention on one’s depressive
symptoms and on the implications of these symptoms. People engaging in ruminative responses may worry
about the causes and consequences if their depression, but they do not take action to change their situation, and they spend much of their time thinking about how badly they feel (Carver, Scheier, & Weintraub, 1989; Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Nolen-Hoeksema, 1991). Rumination is a manifestation of a more general tendency toward cognitive rigidity, or perseveration. Indeed, rumination has been described as “perseverating self-focused thoughts” (Hertel, 1998). Perseveration is defined as failure to modify behavior effectively given feedback, modulate behavior in light of expected future consequences, and adjust one’s cognitive set in the face of changing environmental contingencies (Lezak, 1995). Several studies have found that depressed and dysphoric people exhibit perseveration (Channon, 1996; Franke, Maier, Hardt, & Frieboes, 1993; Martin, Oren, & Booone, 1991; Silberman, Weingartner, & Post, 1983). Moreover, it has been suggested that people who exhibit significant perseveration may have a difficult time changing the way they think and feel, or engaging in hypothesis testing that might facilitate disconfirmation of depressive cognitive schemata (Crews & Harrison, 1995; Martin et al., 1991). People who are cognitively rigid may tend to ruminate when feeling sad because they have difficulty generating alternative ways of coping. Cognitive rigidity may also increase rumination because it makes it difficult for people to switch their attention away from themselves and their problems to pleasant distracting topics or activities. If cognitively rigidity is one contributor to rumination, then ruminators should exhibit deficits in their ability to abandon ineffective cognitive behavior and have trouble maintaining effective cognitive behavior. This mechanism appears strong reason for the mood congruent memory bias with conceptually driven test among rigid subjects under depressed mood condition. As we have
mentioned the characteristics of flexible subjects in the preceding paragraph, this mechanism of rumination is
unlikely to occur among flexible
subjects which in turn may be responsible for the absence of mood congruent bias among flexible subjects under depressed mood condition in implicit memory (Finding 9). This contention was well documented by Davis and Nolen-Hoeksema (2000). This contention was further supported by Ray and Ochsner (2005), Nolen-Hoeksema, Wisco and Lyuvomirsky (2008); Wisco, Nolen-Hoeksema (2009); Goetter, Forman, Herbert, Alloy and DeMatteo (2010), Joorman et.al. (2011).

The eight and tenth findings of our research i.e. mood congruent memory bias was not found with conceptually driven test in implicit memory among rigid subjects under elated mood condition and mood congruent memory bias was not found with conceptually driven test in implicit memory among flexible subjects under elated mood condition. Apparently these two findings appear to be in the unexpected direction, but if we analyze the findings at depth, two points emerge which show these findings are not contradictory with the previous findings rather two important justifications may be given to explain the present findings. First Nolen-Hoeksema (1991, 2000) who demonstrated that rumination is an important cognitive component of depression but not of elation (Nolen-Hoeksema, 1991, 2000; Nolen-Hoeksema, Marrow, & Fredrickson, 1993; Nolen-Hoeksema, 1987). They have concluded that rumination involves the conceptual elaboration of unpleasant thoughts and memories.

Furthermore there is a body of evidence to suggest that mood may not affect memory in the direct way suggested by seminal cognition and emotion theories (e.g. Bower, 1981). Thus McFarland and Buehler (1998) found that when participants attended to their induced mood in a reflective manner a mood incongruent recall pattern resulted. Thus there is strong possibility that rigid subjects might have ruminative cognitive component
and therefore failed to show mood congruence under elated mood condition. Similarly it is also possible that flexible subjects in the preset study might have attended to their
induced mood in a reflective manner resulting into mood incongruency under elated condition.

Second possible explanation is revealed by the perusal of Table 6 and Table 6 (a) (chapter 4). Table 6 (a) reveals that flexible subjects under elated mood condition showed better implicit memory performance of happy words (Mean=2.60) than of depressed subjects on happy words (Mean=1.60). These two means though are not significantly different, show a trend towards mood congruency among flexible subjects under elated mood condition. Whereas such a trend is absent among rigid subjects (Ref. Table 5 and Table 5 a, chapter 4).

A perusal of the findings of our research from eleventh to sixteenth have shown that mood congruency is not found with perceptually driven test in implicit memory under different mood conditions (depressed and elated) with rigid as well as flexible subjects. These six finding are not only in expected direction but are also too obvious to need further explanation. These findings are totally in agreement with the findings obtained by Watkins, Mathews, Williamson and Fuller (1992), Denny and Hunt (1992) and Watkins (2002) who have clearly demonstrated that implicit memory bias does not appear to exist when perceptually driven tests are use. The simple reason, as pointed out by Roediger and McDermott (1992), when perceptually driven test is use in implicit memory, cognitive activities are guided by the perceptual features of the stimuli rather than by the meaning of the stimuli. For example, the meaning of los…… is not important to completing this word stem with the first word that comes to mind. Thus Roediger and McDermott (1992), when perceptually driven test is use in implicit memory, cognitive activities are guided by the perceptual features of the stimuli rather than by the meaning of the stimuli. For example, the meaning of los……is not important to completing this word stem with
first word that comes to mind. Thus
Roediger and McDermott (1992) argued that the inability to find mood congruent bias with perceptually driven implicit tests was not surprising because word meaning should not be expected to affect tests that do not require conceptually processing.

Our findings from number 17 to 22 except finding number 21, in all these findings of the present research mood congruent memory bias was found with conceptually driven test in explicit memory under depressed and elated mood conditions, among rigid subjects under depressed and elated mood conditions, among flexible subjects under elated mood condition. However, it is interesting to note that mood congruent memory bias was not found with conceptually driven test in explicit memory among flexible subjects under depressed mood condition. Thus these two findings i.e. mood congruence bias absent with conceptually driven test in explicit memory among flexible subjects under depressed mood condition and presence of mood congruent bias under elated mood condition (finding number 21 to 22) required special attention.

So far as presence of mood congruence bias with conceptually driven test in explicit memory under different independent variables i.e. mood and cognitive rigidity and flexibility, is concerned, these findings are also in the expected direction and are in consonance with previous findings discussed in the preceding paragraphs. More specifically these findings are in total agreement with the findings obtained by Watkins et al (1992, 1996, and 2000), Jenkins and Mcdowall (2011), Wisco (2009) and Naz and Saeeduzzafar (2012).

The fact that mood congruent memory bias was not found with perceptually driven test in implicit memory among rigid subjects under depressed mood condition, whereas mood congruent memory bias was found with
conceptually driven test in implicit memory among rigid subjects under depressed mood condition, mood
congruent memory bias was found with conceptually driven test in explicit memory among rigid subjects under depressed mood condition and mood congruent memory bias was not found with perceptually driven test in explicit memory among rigid subjects under depressed mood condition, mood congruent memory bias was not found with perceptually driven test in explicit memory among rigid subjects under elated mood condition (Ref. finding 7, 13, 19 25, and 26), leads us to conclude that mood congruent memory bias heavily depends on type of tests rather than cognitive rigidity. When we read these four findings in a sequence, it becomes crystal clear that cognitive rigidity does not play significant role in the occurrence of mood congruent memory bias either in implicit memory or in explicit memory if perceptually driven test is used. On the other hand cognitive rigidity emerged as a potent determiner of mood congruent memory bias in implicit as well as explicit memory when conceptually driven test is used. It is possible, as argued by Roediger and McDermott (1992) that perceptually driven test failed to tap mood congruent memory bias in both implicit and explicit memory and consequently suppressed the influence of cognitive rigidity-flexibility under depressed mood condition whereas conceptually driven test allows meaningful processing of the stimuli as a result of which cognitively rigid subjects under depressed mood condition resort to rumination which in turn leads to more negative mood and recall more negative memories. It is important to note here that Williams et al (1997) made use of Roediger (1990) distinction between perceptual and conceptual processes. Perceptual processes are essentially data-driven processes, and are typically involved in basic attentional processes and in implicit memory. In contrast conceptual processes are top-down processes, and are typically involved in explicit memory (but can be
involved in attentional processes and implicit memory). Hence Williams et al assumed that depression facilitates the conceptual processing of threatening information. In the light
of these observations made by Williams et al, it is logical to expect that cognitively rigid subjects resort to rumination to negative information whenever conceptually driven test is administered. The same mechanism can not occur when perceptually driven test is given. Our findings provide empirical support to this contention.

Our finding number 20 reinforces the significance of conceptually driven processing in the occurrence of mood congruent memory bias in explicit memory among rigid subjects even when they were put under elated mood condition.

Our finding number 21 and 22 i.e. mood congruent memory bias was not found with conceptually driven test in explicit memory among flexible subjects under depressed mood condition, whereas mood congruent memory bias was found with conceptually driven test in explicit memory among flexible subjects under elated mood condition. These two findings of our study are in expected direction. As we know that mental health highlights “emotional well-being, the capacity to live a full and creative life, and the flexibility to deal with life’s inevitable challenge. Presence of good mental health means ability to grow, change and experiences different aspects as one faces different circumstances in life”. In the light of above definition of mental health we can conclude that flexibility plays an important role in mental health. Flexible people can easily adjust in adverse circumstances which lead them to have better mental health and do not suffer from mental health problems. Additionally Valliant (1993) documents that flexibility is an important life skill and it has also been found to be one of the foci of current conflict resolution programs (Crawford & Bodline, 1996). As mentioned above flexibility work as an important life skill therefore, it is logical to assume that flexible people do not suffer from depression and our
present finding provide empirical support to this contention because in our study we did not find mood congruent memory bias with conceptually driven test in explicit memory among flexible subjects under
depressed mood condition. The next finding of our present study i.e. mood congruent memory bias was found with conceptually driven test in explicit memory among flexible subjects under elated mood condition. The present finding is also in expected direction. As Menninger (1945) defines mental health “as the adjustment of human being to the world and to each other with a maximum of effectiveness and happiness….it is the ability to maintain an even temper, an alert intelligence, socially considerate behavior and a happy disposition”. As we can observe that Menninger highlights happiness as an important characteristic of mentally healthy person. It can be concluded that mentally healthy person process positive information more easily than negative one. As our preceding paragraph clearly shows that flexible people more likely to be mentally healthy therefore, it is logical to assume that flexible people process positive information more easily as described by Menninger. Our finding clearly demonstrates this characteristic of flexible individuals because we found mood congruent memory bias with conceptually driven test in explicit memory among flexible subjects under elated mood condition. Therefore our findings provide empirical support to the definition of mental health given by Menninger (1945). Above findings are further supported by study conducted by Naz and Saeeduzzafar (in press), they found better mental health among cognitively flexible subjects as compared to cognitively rigid subjects.

Our findings number 23 and 24 i.e. mood congruent memory bias was found with perceptually driven test in explicit memory under depressed mood condition mood condition and mood congruent memory bias was also found with perceptually driven test in explicit memory under elated mood condition, are consistent with the findings obtained by Watkins, Mathews, Williamson and Fuller (1992) and Denny and Hunt (1992), Watkins
(2002) and Watkins, Martin and Stern (2000b). Although the theories
of (Beck, Rush, Shaw and Emery 1979) and Bower (1981) are silent with regard to prediction about implicit memory, both theories seems to employ that with depression or sadness, negative or mood congruent information should be more activated and thus more accessible regardless of the retrieval task used (Bower and Forgas, 2000). Like the findings obtained by Denny and Hunt (1992) and Watkins et al (1992), our findings also support this assumption. The contrasting results of implicit and explicit memory in these studies suggest that it is not only simply that negative information is more activated in depressed mood but that how this information is accessed also matters. These studies appeared to show that mood congruent memory depended at least in part on the type of retrieval task used. Although the theories of Bower and Beck did not predict these results, they fit nicely with the predictions offered by the original theory of Williams, Watts, MacLeod, and Mathews (1988). Following Graf and Mandler (1984), Williams et al. posited two distinct cognitive processes that may be differentially biased by different emotional states and disorders. An initial integration or priming stage is automatic and occurs because components of a stimulus are mutually activated. Because of mutual activation of the stimulus components, the stimulus becomes more integrated. The more integrated a stimulus is, the more likely the entire stimulus will be accessed if some of its components are activated. However, in Graf and Mandler’s words, although an item may be more accessible because it is more integrated, it will not necessarily be more retrievable. According to Graf and Mandler, a word will only be more retrievable in explicit memory if it is more elaborated. Elaboration refers to the activation of a representation to form new relationships between them and to activate old relationships (Williams et.al. 1988). Elaboration makes a word more retrievable

because it provides more complete routes of access to the representation. Williams et al. proposed that mood congruent processes in
depression took place more at elaboration stage than the more automatic integration stage (which they referred to as the priming stage). Results from explicit tests are said to be more reflective to elaborative processes, while implicit memory tests result from integration. Thus, the finding of mood congruent memory on an explicit memory test, but not on an implicit test, provides support for this approach.

Our findings 25 and 26, i.e. mood congruent memory bias was not found with perceptually driven test in explicit memory among rigid subjects under depressed mood condition and also mood congruent bias was not found with perceptually driven test in explicit memory among rigid subjects under elated mood condition, are already explained in the previous paragraphs.

It is interesting to note that mood congruent bias with perceptually driven test in explicit memory was found among flexible subjects under both depressed and elated mood condition (finding number 27, 28), whereas no mood congruency bias with perceptually driven test in explicit memory was found among rigid subjects under both depressed and elated mood conditions (finding number 25, 26). Absence of mood congruency bias with rigid subjects and presence of mood congruency bias with flexible subjects under identical conditions may be simply be explain in terms of the differences between cognitive frame work of rigid and flexible subjects. A personality profile of rigid and flexible subjects is sufficient to explain these existing findings which, we have already discussed in chapter first.

Types of test (conceptually driven and perceptually driven) have differential effect on both implicit memory performance and explicit memory performance and explicit memory performance i.e., perceptually driven test
has yield better performance as compared to conceptually driven test on both implicit and explicit memory (finding number 29 and 36). Similarly cognitive rigidity flexibility have no differential effect on
both implicit and explicit memory i.e. cognitive rigidity-flexibility have more or less similar memory performance on implicit as well as explicit memory (finding number 31 and 38). These findings lead us to conclude that there is an association between implicit and explicit memory. Schacter (1987) in an article entitled Critical Review-Implicit Memory: History and Current Status, has reviewed a large number of studies in which the effect of several experimental variables such as Subliminal Perception, Level of Processing, Test-Study Modality Change, Duration of Retention Interval, Retroactive and Proactive Interference and Amnesia, have been studied on implicit and explicit memory. Though a large number of these studies have clearly demonstrated dissociation between implicit and explicit memory, therefore, however some studies which have demonstrated an association between implicit and explicit memory (Jacoby 1983a; Schacter & Graf, 1986 a; Sloman, Hayman, Ohta & Tulving 1988). Jacoby (1983 a) has shown that manipulating list context at the time of test has similar effect on in implicit and explicit memory. Furthermore, it has been demonstrated that implicit and explicit memory are influences by newly acquired association between unrelated word pairs (Graf & Schacter, 1985, 1987; Schacter & Graf, 1986 a, 1986 b; McKoon & Ratcliff, 1979, 1986; Moscovitch et al., 1986; Graf & Schacter, 1985). Moreover Schacter and McGlynn (1987) found that both implicit and explicit memory for newly acquired associations depends on elaboration study processing. Moreover, Dark and Jacoby (1985) demonstrated that processes subserving implicit memory can affect performance on an explicit memory task. The findings of our research have discovered two new experimental variables which also have similar effect on implicit and explicit memory, thereby strengthening the contention that there is an association between
implicit and explicit memory (finding number 29, 31, 36 and 38).
Our findings number 30 and 37 provide empirical support to the dissociation between implicit and explicit memory, as these findings clearly reveal that mood have no differential effect on implicit memory performance i.e. depressed, elated and neutral mood have more or less similar memory performance on implicit memory (finding number 30) whereas mood was found to have differential effect on explicit memory performance i.e. elated subjects performed better as compare to depressed subjects followed by neutral subjects on explicit memory (finding number 37). These findings are in line with the findings obtained by numerous investigators using a large number of experimental variables. For example Subliminally Encoded Stimuli (Kunst-Wilson & Zajonc, 1980; Bargh & Pietromonaco, 1982; Bargh, Bond, Lombardi & Tota, 1986; Beauregard, Benhamou, Laurent & Chertkow, 1999), Type of Study Processing (Jacoby & Dallas, 1981; Graf et al, 1982; Graf & Mandler 1984; Schacter & McGlynn, 1987; Brooks, Gardiner, Keminska & Beavis, 2001; Schott, Richardson-Klavehn, Heinze & Duzel, 2002; Newell & Andrews, 2004), Study-Test Changes in Modality (Jacoby & Dallas, 1981; Graf, Shimamura & Squire, 1985; Roediger & Blaxton, 1987), Retention Interval (Komatsu & Ohta, 1984, Tulving et al, 1982), Retroactive and Proactive Interference (Graf & Schacter, 1987; Sloman, Hayman, Ohta & Tulving, 1988; Meng & Guo, 2007), Amnesia (Warrington & Weiskrantz, 1968, 70, 74, 78; Graf et al, 1984; Gardner, Bohler, Moreins & Butters, 1973; Schacter, 1985; Shimamura & Squire, 1984; David, Brown, Pojoga & David, 2000; Reinvang, Nielsan, Gjerstad & Bakke, 2000), Brain Disorders (Vicari, Belluci & Carlesimo, 2000; Maura, Michelle & David, 2003; Delvecchio, Liporace, Nei, Sperling & Tracy, 2004; Yeats & Erile, 2005; Elizabeth, Laura & Russell, 2006; Hudson & Robertson, 2007), Age (Mitchell & Bruss, 2003; Fleischman,
Wilson, Gabrieli & Bi-enias & Bennett, 2004; Krinsky-McHale, Kittler, Brown, Jenkins & Devenny, 2005; Roy, Selma & Albert, 2005; Amy, 2006),
Psychoactive Drugs (Duka, Weissenborn & Dienes, 2001; Suchismita, Marsha & Martin, 2004; Arndt, Passannante & Hirshman, 2004; Iselin-chaves, Willems, Jermann, Foster, Adam & Linden, 2005), Rate of Forgetting (Goshen-Gottstein & Kempinsky, 2001; Tunney, 2003; David, Brown, 2003; Tamayo & Frensch, 2007; Ricardo & Tamayo Osorio, 2008), Type of Stimulus Material (Khan, 1990; Srinivas, 1996; Cave, Bost & Cobb, 1996; Hamilton & Rajaram 2001), Retention Interval (Mitchell 2006; Timothy, Kari & Lynn, 2008), Attention (Helman & Berry, 2003; Ballesteros, Reales, Garcia & Carrasco, 2006) have been found to have differential effect on implicit and explicit memory thereby providing impressive evidence regarding the dissociation between implicit and explicit memory. Our research has discovered a new variable i.e. mood, which has also differential effect between implicit and explicit memory. These findings not only establish dissociation in implicit and explicit memory but also demonstrate that implicit memory does not play significant role in the maintenance of depression and elation, whereas explicit memory has been found to play an important role in the maintenance of the existing mood. Moreover it can also be observe that elated mood not only brings about congruence but also has facilitative effect on explicit memory performance. These findings may be in conflict with the previous findings and therefore future research is needed to resolve this conflict.

Lastly, all the interactional effects either on implicit memory pr on explicit memory are statistically insignificant (finding number 32, 33, 34, 35, 39, 40, 41, 42). These findings reveal that scores on implicit memory or on explicit memory are independent of mood, types of test and cognitive rigidity-flexibility.
Implications

The overall findings of our research not only highlight the dynamics of implicit and explicit memory but also bear very important implications in our daily life in general and in particular in social cognition and behavior in particular.

1. There are several instances which illustrate that there is often a complex interplay between affect-our current moods-and cognition-the ways in which we process, store, remember and use social information (Forgas 1995a; Isen and Baron, 1991; McDonald & Hirt, 1997; Seta, Hayes, & Seta, 1994).

2. Secondly, our findings highlight the fact that mood congruency bias plays a very significant role in the formation of impression about the other persons (Bargh & Pietromonaco, 1982; Bargh, Bond, Lombardi and Tota, 1986; Bower, 1991; Mayer & Hanson, 1995; Clore, Schwarz, & Conway, 1993; Garcia-Marques et.al. 2004).

3. Thirdly, our findings also suggests that our current moods influence another important component of cognition i.e. creativity. This implication of our study is consistent with the findings obtained by Estrada, Isen, and Young, (1995), who demonstrated that being in a happy mood activates a wider range of ideas of associations than in a negative mood.

4. Fourthly, our findings have important implications for the legal system. Numerous findings have indicated that information that evokes affective reactions may be processed differently than other
kinds of information. More specifically emotional reactions are often diffuse in nature; information relating to
them may encourage heuristic or automatic processing rather than systematic processing or thought. As a
result, it may be almost impossible to ignore or
disregard information relating to moods once it has been introduced into a situation (Edwards, Heindel, & Louis-Dreyfus, 1996; Wegner & Gold, 1995).

5. Fifth, a large number of studies suggest that although happy people are generally more susceptible to persuasion than neutral or sad people, certain conditions can erase or actually reverse this tendency (Bohner & Weinerth, 2001; Petty et al. 2001; Bronner et. al. 2007). First, when a persuasive message does not threaten happy people’s moods, they are more likely to carefully scrutinize it and, thus, may be less persuadable than neutral or sad individuals. Second, when happy people are aware that their good moods may contaminate their thinking, they often adjust their evaluations of the message and become even harsher critics than others. Try to keep these points in mind the next time you attend a political campaign rally. The music preceding the speech, the euphoria permeating the audience, and any free food and drink dispensed by campaign workers are all designed to put you in an upbeat, festive mood. Will your joy in the moment cause you to be a “soft” or a “hard” sell? To a certain extent, answer may depend on whether the candidate’s speech is consistent with your mood and/or whether you self-reflect on the nature of your happiness prior to judging the candidate.

6. Sixth, mood congruence bias is implicated in advertising effectiveness. Some what recent study by Ademola and Owolabi (2009) have found that subjects in the induced positive mood group have a more positive attitude and greater intentions to try advertise products when compared with subjects in the induced negative mood group. Therefore, the investigator suggested that advertisers should
present their advertisements in a context that elicits happiness.
7. Seventh, mood congruence is found to play important role in attention and learning, it has been demonstrated that mood congruent information may receive greater attention and be processed more extensively than affectively neutral or incongruent information (Bower, 1981). Moreover Bower and Forgas (2000) have demonstrated that people spend longer reading mood congruent material, linking it into a richer network of printed associations, and as a result they better able to remember such information. It is also found that people processed mood congruent material more deeply, with greater mood associative elaboration and thus learn it better.

8. Eighth, mood congruence has marked impact on many social judgments including perceptions of human faces (Schiffenbauer, 1974) impressions of people (Forgas & Bower, 1987), and self-perception (Sedikides, 1995). Further evidence regarding the impact of mood congruency comes from the study carried out by Forgas, Bower and Moylan (1990) who demonstrated that positive affect improves a negative affect impairs the valence of self-conceptions, though an old study conducted by Heider (1958) who argued that if affect cab influence thinking and judgments it can also influence social behavior. According to him positive affect should prime positive information and produce more confident, friendly and cooperative approach behavior, whereas negative affect should prime negative memories and produce avoidant, defensive or unfriendly attitudes and behavior.

The results revealed a clear mood congruent pattern in attitudes and in responses to the requester: negative mood resulted in a more critical, negative attitude to the request and the requester, as well as less
compliance, than did positive mood. The effects were greater when the request was impolite rather than polite, presumably because impolite, unconventional requests are likely to require more elaborate and substantive processing on the part of the recipient. This explanation was supported by evidence for enhanced long-term recall for these messages. On the other hand, more routine, polite and conventional requests were processed less substantively, were less influenced by mood, and were also remembered less accurately later on. These results confirm that affect infusion can have a significant effect on determining attitude and behavioral responses to people encountered in realistic everyday situations.

10. Tenth, self-disclosure is one of the most important communicative task people undertake in everyday life, influencing the development and maintenance of intimate relationships. Self-disclosure is also critical to mental health and social adjustment. Mood congruent memory was also implicated in the process of self-disclosure by Forgas (2001), who found that happy subjects disclose more than did sad subjects. These results suggest that mood congruence is likely to occur in many unscripted and unpredictable social encounters, where people need to rely on constructive processing to guide their interpersonal strategies.

11. Finally, Watkins (2002) observed that mood congruence in depression is not limited to conscious elaboration, but clearly, conceptual elaboration is necessary for either explicit or implicit mood congruent memory bias to occur. This interpretation that conscious mood congruent elaboration is the more important maintenance mechanism in depression may be good news for depression practitioners, as
psychological treatments largely use conscious interventions techniques; it would appear that an explicit mood congruent memory bias would be more amenable to treatment than an implicit memory bias. Whatever the
case, future research is needed to determine if memory biases directly contribute to the maintenance of depression and if so, whether direct intervention with memory bias alleviates depression.

The one limitation of our research that strikes our mind is that we have not used clinically depressed subjects rather depression was induced experimentally which is likely to be very transient as compared to with those occurring naturally. The same comment was made by Mathews and MacLeod (2002) when they concluded “it remains uncertain whether induced biases are really the same as those occurring naturally in clinically anxious patients. The biases induced in most of the studies…are likely to be very transient compared with those occurring naturally”. Further research is suggested in which mood congruent memory bias among clinically depressed and experimentally induced depressed may be compared.