Beliefs Regarding Approaches to Study and Learning Styles: The Primacy of Gender as the Mediating Variable*

Theme: Social Justice

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1. INTRODUCTION
1.1 The Context of the Present Study
The present study is an outcome of the findings of an exploratory qualitative study which revealed that about half the male learners in the sample, but none in the women's sample, pursuing various Masters' Programmes at IGNOU, felt that there are distinct gender differences in abilities as well as differences in the way in which men and women approach and transact learning tasks (Sharma Sen & Samdup, 2008). The present quantitative study is an attempt to explore these findings further using a wider base. Thus the **objective of the study** is to uncover beliefs held by people, if any, about gender differences in cognitive abilities and gender differences in approaches to study/ learning characteristics/ learning styles as a function of

- residence in a particular state
- residence in a particular location (rural/urban),
- enrolment in a particular programme of study and
- gender

1.2 Brief Overview of Literature

1.2.1 Regarding gender differences in cognitive abilities and approaches to study/ learning characteristics

It is typically claimed that men outperform women in mathematical and spatial abilities, logical thinking and that women outperform men in verbal abilities and are better at memorizing. Hyde and McKinley (1997) and Hyde & Lynn (cited in Hyde & Lindberg, 2007) in their reviews on cognitive abilities conclude that

- there are essentially no consistent gender differences in measures of verbal ability, with the sole exception that women tend to perform better than men do on tests of speech production which confirms females' better performance on tasks of verbal fluency;
- men tend to perform better than women do on some measures of spatial ability, but the magnitude of the gender difference varies markedly with the demands of each specific test;

- there are essentially no consistent gender differences in measures of mathematical ability, with the sole exception that beginning in high school men tend to perform better than women do on tests of mathematical problem solving.

Regarding the ability to memorize, the findings are mixed. Studies show women to be better at verbal and nonverbal episodic memory tasks, and men at visuo-spatial episodic memory tests (Halpern and LaMay, 2000; Ionescu, 2000). Other studies show no particular sex differences (Ionescu, 2000; Beckner, Tucker & Delville, 2006) or females performing better on visual and verbal recall than males (McGivern, Mutter, Anderson, Wideman, Bodnar, & Huston, 1998; Shellenberger, 2009).

Results of studies on logical thinking ability are mixed with some studies showing no gender differences (Batista,1990; Fah, 2009) and others showing male students to perform significantly better (Behzat Bektasli, 2006).

Feminist theories on learning styles reveal that women prefer a learning style that has been called 'social learning' (Gilligan, 1982; Belenky, Clinchy, Goldberger & Tarule, 1986) and focus more on the interactive elements of the teaching-learning process, on co-operation rather than competition during learning, unlike males (Kirkup & von Prümmer, 1990, 1997; von Prümmer, 1994; Hipp, 1997).

Women's lack of confidence in their abilities sets in early in school years, even though girls outperform boys in school in all subjects and in all age groups, and continues through adulthood (Choi, 1995; Feingold, 1994; Pomerantz & Saxon, 2001; Spender, 1981**).**

1.2.2 Regarding beliefs about gender differences in abilities

Gender self beliefs can be endowed with self-motivating properties. Students' gender role stereotypes, rather than actual ability, are partly responsible for differences in course and career selection, in confidence beliefs and in performance. Fewer girls enroll in math, science and technology streams and show lower performance compared to boys, in part because they sex-type it as male domain (Pajares & Valiante, 2008).

2. METHOD

2.1. Sample

The sample, identified using stratified purposive sampling technique, comprised 216 learners and 46 counselors of four Master' level programmes – Masters' in Computer Applications, Library Science, Business Administration and English. Table 1 provides the learners' and counselors' profile.

Table 1: Profile of the total learners' and counselors' sample on the basis of key variables

State		Gender		Location		Programme of Study				
Rajasthan	Kerala	M	F	Rural	Urban	MCA	MBA	MLIS	MEG	UG
Learners' Sample(N=226)										
105	121	116	110	104	122	76	71	30	49	
Counselors' Sample(N=46)										
25	21	36	10	30	16	19	14	5	6	2

2.2. Tool for Data Collection

The tool was a questionnaire in the form of 21 statements specifically developed for this study. Of these,

- statements 1 to 7 pertained to demographic details
- statements 8 to 16 contained beliefs / 'stereotypes' that had come to light during an earlier study (Sharma Sen & Samdup, 2008). These required the participant to indicate 'agreement' or 'disagreement' with the view expressed in the statement. A binary scale was especially chosen keeping in view the criticism of a three/four point scale expressed by participants in another research study (Sharma Sen & Sharma, 2008).
- Of the nine statements:
  1. Two statements reflect positive attributes of women (Nos. 8 and 12);
  2. Six statements reflect positive attributes of men or reflect limited abilities of women (nos. 9, 10, 11, 13, 14, 15);
  3. One statement is neutral (no.16)
- statements 17 – 21 contained self-evaluation with respect to some the abilities mentioned in statements 8 to 16.

The questionnaire was administered individually to the participants in a one-to-one setting.

2.3 Analysis and Statistical tools Used

The analysis has been carried out for each statement separately with respect to learners' sample (total sample as well as on the samples from Kerala and Rajasthan) and counselors' sample separately.

Analysis with respect to statements 8-16 was 3 tiered:

- Tier 1 – Percentage of sample category expressing agreement with statements: By convention, when 50% or more of the sample category agreed with a statement, it was interpreted that the sample upheld the statement/ stereotype embodied in the statement.

- Tier 2 - Analysis by disaggregating each sample category as per its constituent variables - state, gender, location and programmes of study and determining whether the particular variable caused significant difference in agreement in that sample category.

- Tier 3 - Analysis by cross tabulating two constituent variables in each sample category, such as state-gender, to determine whether a particular combination of variables caused significant difference in agreement in that sample category.

Significant difference in agreement on each statement has been determined on the basis of rejection of null hypothesis using the chi square test at three levels of significance - .001%, .05% and .1%. The null hypothesis is "there is no relationship between agreement on statement and the variable (state/ gender/ location/ programme of study) or a combination of variables (state-gender; location-gender etc)."

Analysis with respect to statements 17 to 21 involved pairing them with the responses to corresponding statements 8-16. Pearson's coefficient of correlation was worked out for each of these pairs of learners' self-beliefs and generally held beliefs.

3. FINDINGS

3.1 The learners' sample

The Broad Picture

- A majority of the learners across states, location, programmes of study and gender expressed agreement with statements thereby upholding the stereotypes with regard to abilities/ learning styles of men and women expressed in the statements (Table 2).

Table 2: Numbers and Percentage of the total learners' sample expressing agreement with each statement

Statement	8 Women better at memorizing	9 Men better at logical thinking	10 Men write un-conventional answers; take risk to add own views	11 Women write answers as in the book; do not take risk to add own views	12 Women are more hard working	13 Women are low in confidence; frequently need reassurance	14 Men are confident; do not seek reassurance	15 Women want direct teaching/ spoon feeding; men can evolve answer with some guidance	16 Men women hav diffe learn styl
Full sample (N- 226)	174	169	173	137	177	132	176	120	204
%	77.0	74.8	76.5	60.6	78.3	58.4	77.9	53.1	90.3

Impact of State

- Participants from Rajasthan and Kerala largely think alike, though significantly more number of participants from Kerela uphold two statements.

Impact of Location

- Considering the total sample, location as rural-urban has a limited impact with two stereotypes held significantly more firmly by rural sample.

- Stereotypes are significantly more firmly held by the rural population in Rajasthan as compared to the urban population.

- Location is not a determining factor in Kerela - as many urban Keralites are likely to hold stereotypes as rural Keralites**.**

- There is a high degree of consonance in the views of the rural samples from the two states with seven hypothesis accepted though the trend is that more participants from rural Rajasthan uphold stereotypes.

- The urban population of the two states is not as alike in thinking as rural counterparts with significantly more participants from urban Kerala as compared to participants from urban Rajasthan upholding four statements.

Impact of Programme of study

- Programme of study has a limited impact when the sample is considered as a whole. One stereotype is rejected with the MEG students agreeing with it in significantly fewer numbers.

- Kerala sample across programmes seems to have more homogeneous views (two hypothesis rejected) as compared to the Rajasthan sample (four hypothesis rejected). In Rajasthan, the views of MEG learners seem to be at a distance from learners of other programmes.

- Considering the total sample, views of rural-urban learners of MCA, MBA programmes are homogenous while rural and urban residence influences views of MEG and MLIS learners with urban learners less likely to hold stereotypes.

- However, within state cross tabulation brings out that State coupled with location makes a difference – most significantly in case of MEG learners followed by MCA, then MBA and then MLIS learners. The details areas follows:

  ➢ The views of urban MEG learners of Rajasthan are at a distance from all others and they are least likely to hold stereotypes.

  ➢ Urban Rajasthan learners of all three programmes (MCA, MBA , MEG) are less likely to hold stereotypes as compared to their rural counterparts.

  ➢ In case of Kerala, urban MCA and MBA learners are more likely to hold stereotypes and in case of MLIS and MEG programmes the reverse is true – rural sample is likely to hold more stereotypes.

Impact of Gender

- Gender has the maximum and defining impact on the views held by participants of the study cutting across all the other variables of state, location and programme of study. Men think alike and women think alike.

- Considering the total sample, all statements are upheld by men, and all, except one, by women.

- However, the chief difference lies in the number of men and women who accept a particular statement and this the chief finding of the study. With respect to the total sample, for seven of these statements, the difference is significant - one or the other gender upholds a belief significantly more strongly than the other. The details are:

  ➢ Statements embodying limited views about abilities of women/ favourable views about abilities of men are upheld by more men and fewer women. Conversely, statements embodying favourable views about abilities of women are upheld by more women and fewer men.

  ➢ There is one exception to the above – Statement 13 which reflects limited ability of women (low in confidence) is accepted by almost equal numbers of men and women.

- Men think alike across states.

- In case of women as well there is considerable similarity in thinking. However, state, location and programme of study mediate beliefs.

  ➢ Women from Rajasthan reject three statements while women from Kerela reject one statement. Further, the trend is more female participants from Kerela expressing agreement with statements.

  ➢ Stereotypes are held less strongly by urban Rajasthan women and rural Kerela women as they do not uphold four and two statements respectively.

➤ The views of female learners of MEG programme are at a distance from the rest of the female sample. They are least likely to hold stereotypes. The views of the female learners of the other three programmes are largely similar.

• MCA male and female learners are most apart in their thinking (5 hypothesis rejected) followed by MBA and MEG students (3 hypothesis rejected) , and then MLIS students.

• Men and women are in agreement that the two genders have different learning styles.

3.2 Beliefs held by the Counselor Sample

• Location and gender both influence counselors' views. Urban counselors and female counselors do not uphold two statements each. Further, they uphold four and two stereotypes in significantly lesser numbers as compared to their counterparts. State does not make a difference in views.

3.3 Correlation between Beliefs and Self beliefs

• A significant positive was found for the men's sample and significant negative correlation for the women's sample between generally held belief and self-belief with respect to the ability group: logical thinking, analyzing and critical thinking (between 'Men are good at logical thinking' and 'I am good at logical thinking' – for males .216 significant at .05 level (two tailed); for females - .208 significant at .05 level (two tailed).

4. DISCUSSION

4.1 The inverse relation between stereotypical beliefs and empowerment
In Kerela, with a high gender development index, we expected stereotypes to be discounted. The findings are otherwise. Why should upholding of stereotypes be a cause of concern?

While the statements appear to be innocuous expressions of how people approach learning tasks, we believe they actually couch patriarchal power relations between men and women. That they are upheld by both men and women is indicative of perpetuation of patriarchy.

What is the relation between beliefs regarding abilities or approaches to learning, patriarchy and empowerment? None of the statements which refer to abilities of women or their approaches to study attribute to them a sense of agency – in fact, they take the agency away from them. On the other hand, the statements about men invoke them as active agents. The ability to think logically and analytically, attributed to men, requires the active participation of the person. The ability to memorize, attributed to women, is fairly passive, not involving engagement with the text. Similar is the case for wanting direct teaching, spoon feeding and reproducing answers as in the book.

Let us uncover the concept of empowerment. Seen as access to resources within the 'women in development' framework, it became evident that this alone was not enough to bring about changes in the status of women and in fact led to the questioning of the very concept of status, narrowly defined in terms of demographic and material indicators (Batliwala, 1996; Goetz, 1997; Kabeer, 1994, 1999; Rowlands, 1997). Empowerment necessarily involves the notion of agency as recognized by 'Gender and Development' approach. Rowlands (1997) identifies self-confidence, self esteem, sense of agency, sense of "self" in wider context as some of the core values of empowerment.

Correlating the beliefs embodied in the statements with the concept of empowerment as agency, it is not difficult to see then that the statements are actually expressions of power relations between men and women, governed by patriarchy. It suits patriarchy to deprive women of a sense of agency, to keep the women "in their place", a conclusion which Caplan & Caplan (1997) derive in another context as they question why the search for gender differences in cognition has been, and continues to be, so intense.

The fact that women too have willingly co-opted to hold these beliefs speaks of the success of cultural hegemony (Gramsci, cited in Wikipedia, 2010). The hope lies in the finding that fewer women as compared to men uphold statements reflecting limited abilities of women.

4.2 The Motivational Power of Beliefs

Significant correlation for both men and women for the ability group 'logical thinking, analyzing and critical thinking' provides evidence regarding the motivational power of beliefs discussed in the introduction. This ability group is associated with the domains of science, math and technology, regarded as 'high status knowledge' (Apple,1990a; Apple & King,1990)**.** When women perceive themselves to be poorer with regard to the ability of logical thinking which is seen as essential to acquire this high status knowledge, then it impacts outcomes in real life, one example of which is distinct gender difference in professional and technical education (Sakhi, Women's Resource Centre, 2005-06). Further, upholding stereotypes causes people to view abilities as inborn entities that cannot be developed (Dweck, 2006). Thus, stereotypes ensure that people will continue to remain that way.

The finding that women are strongly in agreement with men about the lack of confidence in women is not surprising, but unfortunate. Spender (1981) analyzes that having one's opinions discounted and the silencing of one's voice are common female experiences, cause the women to discredit their ideas, leading to low self-esteem and self-doubt (Burnham, cited in Taplin & Jegede, 2001; Grace, 1994).

4.3 The Gender Paradox in Kerela

The conventional gender development indicators show that the status of women in Kerela is much higher as compared to Rajasthan. However, despite positive statistics on conventional indicators in Kerela the issues of power continue to be unaddressed (Erwér, 1999; Eapen & Kodoth, 2002; Mahmud, 1994)**. O**ther indicators in Kerela reveal a different picture pointing towards lack of autonomy or decision-making power of the women (Sakhi, Women's Resource Centre, 2005-06) such as poor political participation, gender difference in professional and technical education.

The upholding of stereotypes by the Kerela women sample in equal and in some cases in larger numbers as compared to the Rajasthan sample is a reflection of the gender paradox in Kerela. The findings of our study provide support for the perspective that the very concept of status as quantitative statistics of literacy and health is reductionist and that meaningful study of status must examine the degree of control they exercise over their lives (WOPRA 1996).

Word Count from Introduction to end of Discussion : 2947 words

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