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Academic Performance and Test Anxiety in Indian Students in The Course of Cognitive Science

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Abstract: Test anxiety is a relatively stable trait. Periodic tests and examinations at all stages of education have become an integral part of evaluating students in our competitive education system. Students are subjected to a wide variety of testing situations, such as school examinations, scholastic-achievement tests, intelligence tests (Ackerman & Heggestad, 1997; Hembree, 1988; Zeidner, 1998) and entrance examinations. Test and examination stress is thought to prevent some individuals from reaching their academic potential. It has been found that students consistently perceive examination as a source of increase in anxiety and a situation engulfed with uncertainty/unfairness in letting them demonstrate their true achievements (Zollar & Ben-chain, 1990; Spielberger, 1985). It will be interesting to investigate text anxiety as a contributing factor in student achievement among Indian students in institutions of higher education, as it is generally perceived that institutions of higher education in India have very rigid system of tests/examination having high stakes in students' academic career.

Key words: Anxiety, Performance, Cognitive, Emotionality, Fear, Anxious mood, Depression

1. Introduction

Test anxiety is a relatively stable trait. Periodic tests and examinations at all stages of education have become an integral part of evaluating students in our competitive education system. Students are subjected to a wide variety of testing situations, such as school examinations, scholastic-achievement tests, intelligence tests (Ackerman & Heggestad, 1997; Hembree, 1988; Zeidner, 1998) and entrance examinations. Test and examination stress is thought to prevent some individuals from reaching their academic potential. It has been found that students consistently perceive examination as a source of increase in anxiety and a situation engulfed with uncertainty/unfairness in letting them demonstrate their true achievements (Zollar & Ben-chain, 1990; Spielberger, 1985).

Definition of the problem: It will be interesting to investigate text anxiety as a contributing factor in student achievement among Indian students in institutions of higher education, as it is generally perceived that institutions of higher education in India have very rigid system of tests/examination having high stakes in students' academic career. The study will address following questions to pursue the above stated broader objective.

2. Objective:

Determine the relationship between the Test Anxiety Total scale scores and academic achievement scores of students in different science subjects.

Determine the relationship between the Test Anxiety Emotional scale scores and academic achievement scores of students in different science Subjects.

Determine the relationship between the Test Anxiety Worry scale scores and academic achievement scores of students in different science subjects.

3. Litreature Survey:

International status: There are no specific programmes to support cognitive science in majority of countries. It is then possible to get financial support from general research programmes. In a few cases only, there are agencies specifically dedicated to supporting cognitive science.

The specific situations are as follows:

USA: The Natural Science Foundation, National Institutes of Health, National Institutes of Mental Health, the McDonnell Pew Foundation, the Sloan Foundation (in the past), have all offered research grants to cognitive scientists, mostly psychologists, and at present probably mostly to those interested in cognitive neuroscience. A considerable amount of cognitive science research is also funded within computer science and artificial intelligence. The Office of Naval Research, Army Research Institute, National Institute of Child Health and Human Development, Air Force Office of Scientific Research, and National Aeronautical and Space Administration, among others, all provide some support. The National Institutes of Health also provide training grants (for student support), and postdoctoral fellowships (awarded on an individual basis) for research and training in cognitive science.

Cognitive science has been a thriving, purely interdisciplinary, especially in the USA for 15 years. At least one respondent believes the focus on cognitive sciences will continue as a purely interdisciplinary effort involving

psychology, computer science, linguistics, biology, and chemistry. For the near future, degrees will be given with a focus on one of these disciplines with students doing significant work in related disciplines. Eventually, however, we may see more formal interdisciplinary degrees in the cognitive sciences. It is possible that the field labeled neuroscience will overwhelm or overtake cognitive science.

Canada: The National Sciences and Engineering Research Council of Canada is the major source of funding for research in cognitive science. Some provinces also fund relevant programmes. For example, the Information Technology Research Centre was designated as a Centre of Excellence by the Province of Ontario. It provides funding for five areas of information technology, with cognitive science included in one of these areas. The participating institutions are the University of Toronto and the University of Waterloo in partnership with the University of Western Ontario and Queen's University.

Denmark: At the national level, research in cognitive science is supported by the Danish Research Councils. The Danish Research Council for the Humanities is the most important national agency for research in cognitive science based on psychology. A programme specifically supporting cognitive science is being developed by the Council.

France: Under the leadership of the Ministry of Research, two programmes have been launched in the early nineties. The programmes were merged in 1995 to result in a partnership involving the CNRS, the CEA, the INRIA, and the Ministry of Research. The main supporting actions are grants to interdisciplinary research projects, creation of research teams in CNRS labs, and scholarships for PhD and postdoctoral students. Psychology has contributed greatly to (and benefited from) these actions.

Germany: Major DFG research programmes committed to Cognitive Science have been conducted on the following topics: psychology of knowledge; cognitive linguistics; mind and brain; the cognitive representation of space. Psychologists play a major role in all these programmes.

Since the different European countries host rather small communities of researchers who are in the field of cognitive science, it is not only necessary to support cognitive science research at a national level, but also at a European level to provide international platforms for pluridisciplinary scientific discussions, to enhance the exchange of information and to coordinate the different research activities. One step in this direction has been made by the European Science Foundation by establishing a pluridisciplinary programme on learning in humans and machines.

The Netherlands: Cognitive science does not feature as such in the scientific areas in which grants can be applied for. The corresponding grants are generally phrased to conform to the existent terminology, but are actually cognitive science. The central support agency is the Dutch Foundation for Scientific Research (NWO), which supplies grants to broadly defined areas of research, including the behavioural sciences. Cognitive research usually falls into this category, but other possibilities are physics, linguistics, medicine, and computer science.

A Committee on the Exploration of Science was created some years ago, and it initiated systematic explorations in a number of sciences in The Netherlands (e.g., chemistry, energy, law, economics, educational science) that were to define future policy for those areas for the Ministry of Education and Science, mainly to be implemented at universities. An explicit issue was to clarify the role of that scientific area in the framework of society, economics, and the environment. An exploration of cognitive science was begun in 1995, and the formal exploration activities are to take place during 1996. Important issues that have been indicated in the initial report for this exploration are the need for: structural recognition of cognitive science as a scientific discipline; a coherent common platform for the cognitive sciences in The Netherlands; a redefinition of the role of the older sciences from which they evolved; a different way of allocating research funds to new areas of science; exploring how society could benefit from the results of cognitive science in various branches of industry, services, and medicine; assessing the current capabilities of cognitive science in The Netherlands with respect to meeting the requirements of society; suggesting potential roles for cognitive students in society, in comparison with traditional areas of study. A relevant problem in The Netherlands is how to organize the infrastructure of cognitive science, and in particular how to organize the graduate schools in the field. There have been two opposing strategies. One is to set up a graduate school as a local school at a single university, preferably in a single institution. This reflects the ideal of a school in which research and teaching are very well integrated with each other. The other strategy is to set up a graduate school as a network between different universities. Ideally, this may increase interaction between these universities, but it also runs the risk of being a network mainly for teaching. Examples of both strategies are available in The Netherlands. Another issue is the relationship between pluridisciplinary cognitive science and the unidisciplinary sciences that contribute to cognitive science. This issue is important, especially for education. There are good reasons to argue that interdisciplinarity requires a solid foundation in the basic disciplines. It is indeed important that the cognitive researchers acquire the theoretical framework and methodology of the basic disciplines. The problems with the funding of interdisciplinary research have already been mentioned. One additional problem with funding is that, at the European level, there is a tendency to require projects to have industrial participants. The consequence is that fundamental research without a direct applied interest is more difficult to finance.

Switzerland: Support is provided by the Fonds National Suisse de la Recherche Scientifique to psychology, neurology, and computer science.

Australia: The main funding body is the Australian Grants Council, which established cognitive science as a funding priority.

China: Support is obtained from the Natural Science Foundation of China.

Cognitive science should have a good potential for development in Hong Kong or the Chinese community at large. Topics like mental models of problem solving, speech recognition, etc., have a cultural component. Models or theories developed for the Chinese population should have implications for the development of cognitive science in general.

Japan: Titles of Large Scale Basic Research Funds of the Ministry of Education include topics of cognitive science research, such as studies on information society and language and communication. The Science and Technology Agency made a recommendation in which they explicitly mentioned the importance of focusing on cognitive scientific research in accordance with the development of technology. A large-scale governmental support system for young researchers' innovative approaches has also started a new category entitled "Intelligence and structure", with the clear intention of accepting applications from cognitive science-oriented approaches. There are also funds available from private industrial agencies for interdisciplinary studies, particularly on the topics of human interface and usability studies (such as the Advanced Telecommunication Research Institute at Kyoto, which is affiliated with NTT).

Though cognitive science has rapidly been gaining some recognition, the expectation does not always match the reality. The educational bases are still very weak, with limited availability of capable faculty members. Particularly problematic is the shortage of researchers in this field. The number of active members is still rather limited, and their resources are inevitably divided among promoting their research, establishing the programmes, and consulting the government and industry for the courses to be taken. Funding is growing as well, but there is still very limited understanding of the need for more extensive international exchange, both for joint research and basic training.

Czech Republic: Research projects are granted by the Academy of Sciences.

Finland: The Academy of Finland provides support.

New Zealand: Most universities offer internal funding. The Ministry of Science and Technology offers on a nationally competitive basis funds to support major projects and studies submitted by individuals or teams. In the case of the latter, these are encouraged to be cross-disciplinary in nature. The New Zealand Universities Vice-Chancellors' Committee operates a scheme of postgraduate studentships and postdoctoral fellowships. Singapore: Companies such as AT&T, IBM, Singapore Telecommunication, and the Micro-Biological Institute of Singapore have been engaged in providing grants. South Africa: Grants are available from the Medical Research Council as well as pharmaceutic companies.

The main factors inhibiting the development of cognitive science are the close identification of psychology departments with social and practical issues, the location of psychology departments in faculties which reflect these priorities, the almost total indifference of 90% of psychologists to fundamental theory, the emigration of those interested in basic science, the perception that what the country will need for the coming decades is practice, and knowledge which is immediately applicable. Contributions to cognitive science are likely to be made by non-psychologists working outside psychology departments. Mexico: Support is available from the Research Support Office of the National University's Centre for Faculty Affairs, and the Mexican National Council for Science and Technology. Although the tradition of research in cognition in Mexico is relatively old (from the mid 1960s), the actual name "Cognitive science" has probably not been perceived as a specific addition to the development of the field. Some colleagues adopt the name of this area more as the new name currently enjoying wide acceptance. It does not look like Mexican psychology is moving in the direction of a widespread use of the term "cognitive science" as separate from psychology. It is perceived more as a subspecialty within psychology.

4. Related Works

There are number of researches reporting text anxiety as one of the major cause for students' underachievement and low performances at different levels of their educational life (Oludipe, 2009) and has been shown to affect students' ability to profit from instruction (Schonwetler, 1995). The discussion above has intrigued to investigate text anxiety as a contributing factor in student achievement among Indian students in institutions of higher education.

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5. Research Plan:

Methodology:

The relation between test anxiety and test performance primarily results from:

1. Cognitive test anxiety, or test worry - which refers to differences in "individuals' cognitive reactions to evaluative situations, or internal dialogue regarding evaluative situations" (Cassady & Johnson, 2002, p. 272).
2. Emotional test anxiety, or test emotionality - and test performance is less pronounced and disappears after controlling for cognitive test anxiety (Cassady & Johnson, 2002; Hembree, 1988; Zeidner, 1998).

Instrument 1 (HAM-A) and 2 (RCADS) to be used for assessment

Instrument 1: Hamilton Anxiety Rating Scale (HAM-A)

Scoring

Each item is scored on a scale of 0 (not present) to 4 (severe),
With a total score range of 0-56, where <17 indicates mild severity,
18-24 mild to moderate severity and
25-30 moderate to severe.

6. Conclusion:

In a school-based sample of 1,641 children and adolescents, Chorpita and colleagues (2000) reported a factor structure consistent with DSM-IV anxiety disorders and depression, and favorable internal consistency. Similarly, the RCADS-Parent version (RCADS-P) shows high internal consistency and convergent validity, and has been shown to accurately assess anxiety and depression symptoms in youth (Ebesutani et al. 2010). Further evidence for the RCADS has been

demonstrated in other samples, including clinical samples and Australian youth (e.g.,Chorpita, Moffitt, and Gray, 2005; de Ross, Gullone, and Chorpita, 2002). The RCADS' ability to help inform diagnoses, track clinical change, and further delineate between anxiety and depression disorders shows its strong utility in both clinical and research contexts (e.g., Chorpita)

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