Cognitive linguistic abilities across different professionals

by Shyamala K.c.

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PROJECT PROPOSAL

Part-A

1.0 Title of the project: Cognitive linguistic abilities across different professionals.

Area of Research: Speech, Language, Hearing.

1.1 Principal investigator : Dr Shyamala K.C
1.2 Principal Co-Investigator : Dr. Vasantha Lakshmi M S
1.3 Collaborating Institution : Nil
1.4 Total grant Required (In figure and in words) : 8,60,000 (Eight lakhs sixty thousand)
1.5 Duration of project : 1 year

2.0 Project Summary

The proposed project deals with the cognitive linguistic abilities across different professionals. It is set out to investigate cognitive linguistic abilities across different professionals in elderly population. A key element in this examination is the role of cognitive skills varying across the nature of work, work experience and effect of individual's age on cognitive skills. The study also purports to examine effects of cognitive skills on individual's communication or linguistic aspects. Hence there could be few prominent factors that may directly or indirectly influence their cognitive linguistic abilities as well as overall communication depending on how the individuals tax their cognition in their profession, which are quite often unnoticed. Keeping these views, the study purports to employ Cognitive Linguistic Assessment Protocol to assess aspects of cognition across different professionals from 45 to 75 years old. The outcome from this investigation is thought infer on effect of profession on cognitive linguistic skills and will be beneficial to comment on which cognitive domain is most susceptible to degeneration (that is, either visuospatial, orientation or procedural memory etc.) in elderly individuals within the respective profession and this can serve as reference in assessing any elderly individual based on their nature of work or profession. The study is proposed to enlighten the knowledge about importance of work environment and its influence on cognitive abilities and further, outcome of the study can be extended to rehabilitate elderly individuals based on their cognitive decline and thus assist to choose appropriate cognitive domain for rehabilitating them. Hence pre morbid profession information becomes vital in rehabilitating elderly individuals with communication disorders.

3.0 Introduction

3.1 Definition of problem

Aging is associated with special physical, emotional and social burdens imposed by mental decay in later life, and general wear and tear at anatomical and

functional levels. Normal aging often refers to the most common or usually encountered functional state of the nervous system in a population of older individuals (Civil and Whitehouse, 1991). A distinction has been attempted, by researchers, between normal or senescent changes and abnormal or 'senile' changes. But research in these lines still have confusion between normal aging and pathological aging. Normal aging is accompanied by changes in the ability to process, understand and use language. There is no global decline in linguistic functions. In fact, certain abilities like vocabulary development and discourse abilities continue to improve into late adulthood. However decline in certain cognitive functions like attention, memory, recall, orientation etc have been reported. By considering all these factors and debates about aging and how cognitive linguistic abilities differ occurs across elderly adults are the point of interest. And there is dearth of literature in studying cognitive linguistic abilities across different professional and these obtained in the study will be beneficial for assessment as well as planning rehabilitation program.

3.2 Objectives

1. To study cognitive linguistic domains across different professionals aged between 45-55, 55-65 and 65-75 years.
2. To study the trend in cognitive linguistic function decline across professionals. Example: Doctor vs. primary school teacher or sports coach vs. factory labourers.
3. To study the trend in cognitive linguistic function decline across professionals in different age groups (45-55, 55-65 and 65-75 years).Example: Whether visuo spatial skill is more affected in 45-55 years than orientation.

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3.3 Review of Status of research and development in the subject

Cognitive linguistic abilities across professionals and how this profession may help the individual to keep their cognitive linguistic aspects superior when compared to other professional is one of the interesting research questions. Few researchers have tried to investigate cognitive abilities across different professionals. But in these lines, there is dearth of literature in both Indian and western context.

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This seam of research is often traced back to the environmental complexity theory of Schooler and colleagues (Schooler, 1984; Schooler et al., 1999; Schooler, Mulatu, & Oates, 2004). Their studies spanning 20–30 years of follow-up reported significant associations between the complexity of an individual's occupation and their cognitive functioning (Schooler et al., 1999). The theory suggests that in an environment that rewards cognitive effort, individuals will be motivated to improve their abilities and generalize these to other, non-occupational environments and situations. Conversely, less complex environments may not provide the rewards necessary to develop or maintain intellectual function, resulting in a loss of capacity (Schooler, 1984). Nevertheless, the associations reported were reciprocal; though occupational complexity influenced cognitive function, the reverse was apparent also although the analyses only considered contemporaneous reciprocal pathways, it is the

cross-lagged pathways that are of greater interest: does occupational complexity significantly affect later cognitive ability? Furthermore, these findings primarily relied on observer ratings of cognitive ability—termed intellectual flexibility— which was only psychometrically assessed at the final wave. It was not reported whether the observers were blind to the occupation of the participants, thus potentially confounding the ratings. However, studies conducted in which cognitive abilities have been more robustly assessed using psychometric test batteries generally support the protective effect of occupational intellectual demands (e.g., Bosma et al., 2003a; Bosma et al., 2003b; Finkel et al., 2009; Marquie et al., 2010)

Other studies have taken a more fine-grained approach to occupational intellectual characteristics by separately considering the complexity of work with people, data, and things. Finkel and colleagues (2009) reported that individuals in occupations characterized by higher complexity of work with people had the most favourable aging trajectories on spatial and verbal abilities, though after retirement, those having had more complex occupations experienced greater decline in their spatial ability. As in this example, occupational characteristics are often assigned to, rather than collected from, participants based on predetermined occupational listings (Finkel et al., 2009; Schooler et al., 1999). The assumption that individuals in the same occupation experience the same level of intellectual challenge and engagement may serve to reduce the possible variance in occupational complexity across individuals (Bosma et al., 2003a, b).

Though the evidence is consistent with the differential preservation of cognitive abilities by occupational intellectual engagement, the reported studies cannot prove it versus the likelihood of preserved differentiation (Salthouse, 2006). This alternative suggests that pre-existing differences in cognitive ability predict both the level of occupational intellectual challenge achieved and later cognitive ability level and change; an association between occupational characteristics and cognitive ability would therefore be a consequence of their shared predictor, often referred to as reverse causation. For example, in Finkel and colleagues (2009), preserved differentiation was observed as baseline individual differences in processing speed were maintained across time, with those in high- and low-occupational-complexity groups having parallel rates of decline.

3.4 Importance of the proposed project in the context of current status

This project is an attempt to investigate cognitive linguistic abilities across different professionals in elderly population. And this study will enlighten the knowledge about importance of work environment and its influence on cognitive linguistic abilities; if we train our cognitive abilities more in our work environment, daily routine activity then it might slow down the process of deterioration in cognitive linguistic abilities and overall communication. And this study infers on which cognitive domain is most affected (that is, either visuo sapital, orientation or procedural memory etc.) in elderly individuals within the

respective profession and this can serve as reference in assessing any elderly individual based on their nature of work or profession. The results of the study can be extended to rehabilitate elderly individuals based on their cognitive linguistic decline and thus assist to choose appropriate cognitive linguistic domain for rehabilitating them. Hence pre morbid profession information becomes vital in rehabilitating elderly individuals with communication disorders.

4.0 Method

Subject/Participants:

In the present study 120 participants aged between 45-75will be recruited based on nature of work. Further these participants will be divided into groups based on their profession, where 1st group would consist of professionals like doctors, lawyers and professors assuming that they use their cognitive abilities more, when compared to other professionals. 2nd group would consist of professionals who use their cognition to lesser extent when compared to 1stgroup. (Example: School teacher, sport trainers etc,). And 3rd group would consist of professionals like labours, security guard etc who use their cognition to even lesser extent when compared to other two groups.

Inclusion criteria:

1. Individual recruited in the study should have minimum of 10years experience in their respective profession.
2. Participant should be possessing only one pure trained profession. Example: only doctor, only medical practioner and only lawyer. And should not involve in any other form of jobs.
3. Participants in the age range of 45-75 (male and female) will be recruited on the random basis.
4. Participants who are free from motor, sensory, neurological, Psychological Illness will be recruited, which will be ensured through administration of Mini Mental State Examination (Folstein, 1975) and 'WHO ten question screening checklist' (Singhi, Kumar, Malhi & Kumar, 2007).

Procedure and Material used:

All the participants will be tested through series of tests Mini mental state examination (Folstein,1975) and Cognitive linguistic assessment protocol (Rajasudhakar & Shyamala,2005). And performance across these tests will be noted and scored according to the domains.

Analysis:

Once all these tests are carried out performance of each domain will be noted and analysed across all the tests mentioned above. Domain wise comparison will be done

and inferred on the cognitive linguistic abilities across professionals. Association between profession and cognitive linguistic abilities will be studied.

5.0 Implication of the results of the study

A. Presentation of scientific papers in professional seminars/publications of articles

Conference presentation and/or journal publication would be targeted

B. Discussion with professionals

The results are expected to be of interest to speech-language scientists, psychologist Language researchers, model developers and theorists.

C. To utilize the results in the development of remediation

1. The study will enlighten the knowledge about importance of work environment and its influence on cognitive abilities; if we train our cognitive abilities more in our work environment, daily routine activity then it might slow down the process of deterioration in cognitive abilities and overall communication.

2. This study infers on which cognitive domain is most affected (that is, either visuo sapital, orientation or procedural memory etc.) in elderly individuals within the respective profession and this can serve as reference in assessing any elderly individual based on their nature of work or profession.

3. The results of the study can be extended to rehabilitate elderly individuals based on their cognitive decline and thus assist to choose appropriate cognitive domain for rehabilitating them. Hence pre morbid profession information becomes vital in rehabilitating elderly individuals with communication disorders.

Cognitive linguistic abilities across different professionals

ORIGINALITY REPORT

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