Developing Metacognitive Skills: A Potential Intervention for Employability Enhancement

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ABSTRACT

Metacognition-the process of thinking about thinking- a determinant of Employability need to gain the attention of researchers as a major tool for employability intervention. The paper tries to capture the elements of metacognition and its relevance in learning, teaching and training. The different developmental stages of metacognition are examined to see in which age group the metacognitive ability is most prominent. The latter half of the article tries to encompass the denotation of Employability and its importance in present scenario. The theoretical constructs on which the concept is developed is analysed and the various models of Employability are looked into. The Employability model (USEM model) with metacognition as important variable is discussed. Later the research gap existing in current literature pertaining to metacognition as an element of Employability is enlisted. Future research initiatives and practical implications of the same are discussed at the end of paper.

Introduction

Employability of the youth has been a major area of concern for most of the nations who looks into reaping the demographic dividend. The promotion of employability in work place, among unemployed young people and for those who are looking to re-enter work in labour market should be a major criteria for socio economic development of any country. Most of the employability enhancement activities revolve around the soft skill or life skill development of the youth. Other major elements of employability are mostly overlooked. The major factors like metacognition and self efficacy are seldom acknowledged and been included for Employability enhancement Programmes.

Metacognition

A highly discussed concept in academic world nowadays, metacognition has been introduced to sociological studies by the mid 20th century. The concept has been introduced by Flavell in 1976 to define the awareness of thought processes. By simplest definition metacognition can be confined to a process of thinking about thinking (Bogdan 2000; Flavel 1999; Metcalfe 2000). The term has larger implications as a second order cognition (Weinert, 1987) than the simple definition stated. According to Weinert a metacognitive process can be differentiated by the specific purpose, conscious

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understanding, ability to talk or write about tasks and its generalisabilty when compared to other tasks. Allen and Armour (1993) points out that metacognition can be best defined as – individuals knowledge about and control over thinking process.

From the earliest definitions of metacognition by Kluwe (1987) metacognition is explained with the help of its two characteristics 1) thinker knows something about his or her own and others thinking process (Piaget's notion of decentration 1972); 2) thinker can pay attention to and change his thinking. An exhaustive definition has been developed by Koriat (2007) that metacognition is related to what people know about cognition in general and about their cognitive process and how to use this knowledge to adjust their informational processes and behavior. From Flavell's (1987) interpretation of Metacognition, Brown (2011) could summaries the above definition as metacognition having two dimensions; knowledge of cognition and regulation of cognition. The knowledge about cognition can be grouped into three factors- declarative knowledge, procedural knowledge and conditional knowledge. The regulation of cognition includes planning monitoring, testing, reviewing and evaluating strategies of individuals. These are called metacognitive skills which are highly instrumental in determining the employability of individuals. So metacognition can be differentiated into two parts that is knowledge component and skill component (Lucangeli et al 1995).

Metacognition knowledge- an essential component of learning:

As seen earlier metacognition is the knowledge and regulation of cognition. Learning through metacognitive process is important as it enables individuals to adapt to the fast changing meta modern world. Metacognition plays a crucial role in many types of cognitive ability like reading, writing, language acquisition, oral communication and problem solving (Flavell 1985). Assessing students thinking about their thinking or metacognition and problem solving helps in making learning more effective (Weinstein and Palmer 1988).Cognitive development leads to 10% of learning and metacognitive skills leads to 17% of learning. Kuhn (1989) through his studies confirmed that metacognition can improve cognitive development.

Regulation of cognition refers to set of activities that help individuals to control their learning. The three factors of knowledge on cognition, declarative, procedural and conditional knowledge are prominent in determining the learning capacity of individuals (Brown1987, Jacobs and Paris 1987, Schraw & Moshman 1995). Declarative knowledge contributes in a way that learner's know more about their memory. From which it can be deduced that declarative knowledge improves with age, i.e. adults have advanced declarative knowledge than children (Garner, 1987; Schneider & Pressley, 1989). Procedural knowledge which is represented as heuristics and strategies refers to knowledge about doing things. Automated thinking can be attributed to high level of procedural knowledge in individuals (Michel E Martinez, 2006). Conditional knowledge can be reviewed as knowledge of when and why to use the declarative and procedural knowledge (Garner 1990).

Micheal E. Martinez in his paper, "What is Metacognition?" (May 2006) identified three major categories of metacognition which is vital in learning process. These are metamemory and metacomprehension,

problem solving and critical thinking. Metamemory and metacomprehension can be attributed to declarative knowledge of cognition as these explain understanding of one's own knowledge level. Problem solving as explained by Micheal E. Martinez is pursuit of a goal when path to that goal is uncertain. Scientific research and teaching belongs to problem solving according to the definition rendered above. Critical thinking and problem solving are related activities critical thinking tries to explain the importance of strategies. From the studies it is clear that knowledge part of metacognition is crucial in learning process.

Even at graduate level the academic performance can be improved if the learning process is understood better. Accurate monitoring of new learning strategies enables students with effective metacognitive strategies to concentrate on new content and adjust their learning process (Howard Everson 1998). A clear distinct knowledge about what is already known and what is to be learned helps students to effectively learn new things while attending training. Metacognition is highly relevant in school education as knowledge about one's own learning affects future study choices and learning (Metcalfe 2009; Rawson and Dunlosky 2007). Even from lower primary classes the metacognition and skills of the students are related. In a study by Gokhan Ozsoy done on fifth grade students in Turkey, he observed a medium positive relationship between metacognitive knowledge and skills and study habits. The study also emphasizes that the relationship is significant among high achievers.

Studies have proved that Problem Based Learning (PBL) enhances metacognition and generic skills of students (Kevin, Flora, Kristina 2010). Metacognitive skills can be inculcated in learning through problem solving processes and also problem solving should be taught with real life problem solving examples. By embedding strategy instruction in academic tasks students also acquire metacognitive skills and when and how to use them (Richard E. Mayer 1998). Studies emphasise that acquisition of metacognitive skills is positively correlated to student's performance on word problems, which lead to development of mathematical competencies (Gloria Stillman, Zemira Mevarech, 2010). There is positive relationship between metacognition and study habits and attitudes of students (Gokhan Ozsoy, 2009).

Basic metacognitive strategies can and are used by students regardless of age, level of education or subject matter. As metacognition has proved to be a contributor in student learning, initiatives are to be taken to teach students to better apply their cognitive resources through metacognitive self management capabilities (Imel 2002).

Metacognition developing stages:

The development of metacognitive ability through ages has been studied by researchers through empirical means. The studies are mostly concentrated for childhood (5-12) and adolescence (12-18) stages. Metacognitive ability of an individual shows developments during adolescence period (Dumontheil, Apperly, & Blakemore, 2010). Studies have proved that there are changes in metamemory during early and late childhood which is due to improvements in the estimation of memory ability and increased use of strategies (Ghetti, Castelli, & Lyons, 2010; Karably & Zabrucky, 2009). Aspects of

Metacognition like development of metacognitive monitoring like uncertainty monitoring improved in late childhood (age 7-12years) (Ghetti Lyons, Lazzarin & Cornoldi, 2008; Krebs & Roebers, 2010; von der Linden & Roebers, 2006). Developmental research on self regulation aspect of Metacognition has shown that social reasoning task and self evaluation improved between adolescence and adulthood (Demetriou & Bakracevic, 2009). More over metacognitive ability for perceptual task performance was higher in adolescent group compared with the adult group (Weil L. G et al, 2013).). Most interestingly a study showed that during adulthood metamemory skills decreases between young and older ages (20-70) (Souchav & Isingrini, 2004). Key inference from these studies is that metacognitive development mainly happens during the adolescent period, which represents a period when a sense of self identity undergoes profound development (Sebastian et al., 2008).

Age and practice are the two acceptable factors influencing the development of metacognition. Metacognitive behaviour is demonstrated right from childhood (from age group 3-5) by which they will be showing the skills of programming and reflection. Studies by Vukman- Bakracevic's (2005) and Mecacci & Richi (2006) prove that problem solving skills improves with age and self reflection skills and ability to identify cognitive mistakes worsens after the 60's.

Metacognition in teaching

Studies prove that metacognitive behaviour can be improved by practice. Intervention programmes focussing on improving the student's metacognitive skills in text comprehension, mathematical thinking or science (Cross and Paris, 1988ÿ Juliebo, Malicky and Norman, 1998ÿ Koutselini and Hadjiyanni, 1999ÿ Palinscar and Brown, 1984) shows that metacognition skills can be taught or improved with teaching. One of the best methods of teaching is to consciously engage the learners in learning process, by informing them on the learning tasks, procedures and value of learning result (Stipek, 1988ÿ Kuhn, 2000ÿ Loizidou & Koutselini, 2007). Such intervention tends to be more successful in imparting metacognitive skills to the students. Teaching metacognitive strategies explicitly and separately from the actual content has proved to be the most effective manner to impart metacognition in classes (Iwai, 2011).

Even in day to day teaching, enhancing the metacognitive understanding of teachers helps in enhancing the metacognition of students. Studies have shown that there is a close relation between the cognitive level of teachers and cognitive development of students (Stigler & Heibert, 1999; Putnam & Borko, 2006). A comparative study among German and American student's metacognitive behaviour doted some differences, which can be explained due to the difference in teaching approaches provided in classrooms by teachers. Swanson (1990) emphasised in his study that metacognitive monitoring skill can be cultivated separately from knowledge based learning and it has deep repercussions in educating students. Intelligence and metacognitive skilfulness is considered as important predictors of mathematics performance.

In the context of language learning many metacognitive models attempt to explain the link between metacognition and language learning. While learning a new or foreign language, tutors can assist

students by helping them to understand the process and strategies used to master the language (Huang, 2005, Anderson 2002). In an experimental study deigned to assess the understanding of students about their own cognition and how to regulate it, the experimental group for whom the intervention provided includes a program for development of metacognitive skills, showed better understanding of metacognitive strategies than control group, which emphasis that metacognitive skills can be taught and is instrumental in learning new languages. (Ramona Henter, 2010).

Employability

Employability, a much discussed issue currently in India has a huge effect in the economy as well as socio economic outlook of the country. The prominence of employability has been explored and employability enhancement programmes has been implemented in the west by the end of 20th century itself. (THE OECD JOBS STUDY Facts, Analysis, Strategies, 1994) The concept of Employability has been given utmost priority while framing the labour market policy in UK (Employability being the key theme of UK's European Union Presidency 1998). Projects like TUNING Educational Structures in Europe, Careers after Higher Education (CHEERS), Flexible Professional in the Knowledge Society (REFLEX) and Higher Education as a Generator of Strategic Competences" (HEGESCO) has discussed the significance of employability skills among graduates for preparing them for world of work. Researchers through these years have given different versions of definitions for employability. A comprehensive definition of employability was put forward by Hillage and Pollard (1998). Hillage and Pollard explains Employability as a multidimensional construct which enables an individual to secure a job, to get promoted to better positions under same employment and to secure employment in new enterprise when needed. Yorke and Knight (2006) give the term multidimensional construct more precise meaning and explained 'employability' as set of achievements, skills, understanding and personal skills that helps graduates to get employment and be successful in their chosen career. USEM account of employability has been developed by them which include Understanding, Skilful Knowledge, Efficacy and Metacognition as the keys to employability. Most authors promote the importance of human factors like willingness, mobility, skill enhancement and functional flexibility as indicators of employability than external factors (Misra and Mishra, 2011). The importance of Metacognition is first explained by Yorke and Knight (2003). Later Pool and Swell (2007) defined employability as " having set of skills, knowledge, understanding and personal attributes that make a person more likely to choose and secure occupations in which they can be satisfied and successful".

Human capital theory of innovation and economic performance accentuate the importance of employability in developing the human capital for economic growth. The theory is gaining much attention among policy makers nowadays. Many Employability enhancement initiatives are undertaken by developing as well as developed nations. India a developing third world country is following the path treaded by First world countries in assessing the employability status of graduates (India Skill Reports 2015) and initiatives (Skill India, SL1M-GEES-PETRONAS) to enhance them. Such is the attention the concept of employability is being received in current scenario. Employability enhancement initiative is a continuous program. The industry which needs a refined talent is looking forward for robust source of talent. The initiatives to enhance employability are more concentrated on enhancing

the soft skills as well as hard skills which encompasses the **U**nderstanding and **S**kilful knowledge in USEM model. The other two aspects self awareness and Metacognition has equal importance in determining individual employability.

Metacognition in Employability

While analysing the different theories on employability the prominence of Generic skills has been discussed through various angles. Human capital injection by its ways of instilling the generic skills for ensuring the employability of graduates has been discussed in Consensus theory of Employability. Conflict theory (Brown et al 2003) argues about the role of employer in enhancing the generic skills of employees. Generic skills as explained by Peter Mak include metacognition and metacognitive skills.

A detail scrutiny of different models of employability accentuate role of metacognition in determining the employability of individual. USEM account of Employability emphasised the significance of Metacognition in employability for the first time. For the present study we look at the definition given by Yorke and Knight (2002). As explained earlier Knight and Yorke (2003) explain Employability with the aid of four variables. The authors have recognised the significance of metacognition as it has become an essential underpinning in institutional programmes for the professional development of teachers in higher education.

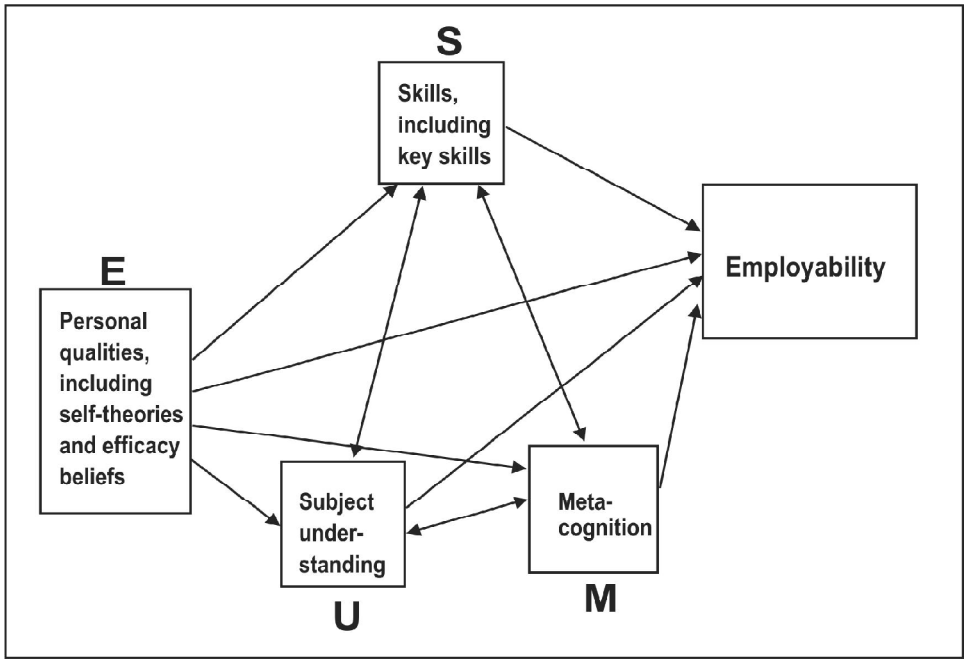

Figure 1 : USEM Model, Adapted from "Learning, curriculam and employability in higher education" by P. Knight and M. Yorke, 2004, London : Routledge Falmer Copyright 2012 by Muhd Khaizer Omar

According to Knight and Yorke (Learning and Employability Series two, 2003) authors try to explain metacognition's influence in employability with the aid of self theories. Authors refer to Dweck's self theories which explore that student's intelligence or ability to learn can be of two types –entity view and incremental view. The concept of incremental view explains that the intelligence is malleable, fluid and changeable. So there are chances that students with incremental view of intelligence tend to be good learners in academics as well as in work place learning. This self theory along with metacognition is an indicator of Learning about oneself. Metacognition is the most essential attribute as Knight and Yorke(2003) has emphasised its prominence : " Metacognition contributes to the continued learning that professionals need to do if they are to grow and to keep pace with changes in the demands of their work. Those professionals who lack the reflective capacity are likely to be professionally frozen". More over metacognitive skills are essential for career self engagement (Bridgestock, 2009).

In Career Edge Model developed by Lorraine Dacre Pool and Peter Sewell (2007) the impact of metacognition has been summarized under the broader variable generic skills. In the model proposed by Bennet et al, learning strategies comes under a broader framework of Generic skills. Generic skills otherwise called as essential skills/core skills/employability skills/transferable skills encompass the set of skills like critical thinking, problem solving etc. But the subject of metacognition requires separate mention and deeper studies as done by Knight and Yorke.

Social and cognitive psychology explains that the learning process or the metacognitive skill acquiring process takes time, may be years and it needs constant practice to enhance them (Knight and Yorke 2004). So in metacognitive concept too employability acquiring is continuous process and it can be enhanced by enhancing the metacognitive ability of individuals.

Implication: Enhancing Employability through Metacognitive intervention

From the body of literature available till now it has become quite obvious that metacognition is a significant pointer of employability. This has been proved with the theoretical support on contribution of metacognition in problem solving, critical thinking and language comprehension and even in new language learning. Even good academic performance too depends on the metacognitive ability of the student. Good grades are crucial in getting a job. All these skills are highly imperative in earning a job in this highly competitive world. From the different development stages of the metacognition it is clear that metacognitive learning attains eminence during adolescence. Interventions on metacognitive ability of individual or metacognition enhancement programmes at this stage can positively affect the employability of a person. This has to be empirically proved.

One of the most interesting outputs of this review is on the employability training given to graduates. A training specific to enhancing the metacognitive ability of individuals can bring about positive impact in his employability. As the metacognitive ability can be augmented by training such initiatives should be undertaken at the appropriate ages in order to haul out most efficient and employable youth for the country. A major scope this study proposes is the need for empirical studies to establish the positive

effect of metacognition enhancing training on employability. If a positive interaction is observed in such studies, it can serve as challenging platform for the enhancement of Employability of the youth.

Conclusion

In this a paper an honest attempt is made to establish a psychosocial approach to employability enhancement programmes that can be envisaged to produce highly equipped youth, who are ready for the World of Work. Paper identifies the concept metacognition and how it affects the Employability of Individual. As the studies on Employability and its intervention or enhancement initiatives continue to advance, this study can be accepted as theoretical basis for metacognitive intervention for Employability Enhancement.

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