

Revisiting Bloom's Taxonomy to Investigate the Influence of Developmental Psychology in Career Planning: A Case of Management Executives in Bangalore

Isani Gazala, Assistant Professor, MQI College of Management, Bangalore, India,
gazalaisani@gmail.com

Abstract - Career choice , Career transition are two important terms in career planning. In which, career choice is the selection of a career from many choices while career transition is the process of shifting from one career option to another option. This paper analyse the theoretical background of factors that influence the career choice or career planning. The career planning starts from the childhood and extend to the retirement and the trajectory is influenced by the talents and skills acquired in childhood to the proficiency attained through experiential learning and exposure to a set of diverse experiences.

The study was conducted among the management graduates of 0 to 10 years' experience to understand how the opportunities they got in 7 to 14 years and after 14 years influenced their career. The Bloom's taxonomy explained three domains of process, cognitive, affective and psycho-motor. The Confirmatory Factor Model showed that the three stages of the developmental psychology and the components of the three domains of the Bloom's Taxonomy are mutually supporting each other

Keywords : *Bloom's taxonomy ,Developmental Psychology, Experiential learning, career choice, career transition , employability*

I. INTRODUCTION

The career growth of an individual is progressive, and it starts from his childhood. The cognitive growth is a progressive process with a fixed sequence. The real transition starts from the pre-operational change in which the child started thinking from what they sense than having a logical reasoning. The developmental psychology explains how the cognitive intelligence is developed in an individual and the starting of experiential learning. Mere exposure theory explained hoe frequent exposure cause more visibility and it is a stage of experiential learning as well. The selective experiential theory explained how the career decision changes due to the cognitive dissonance and chosen an area of interest. This stage of experiential learning cycle, observe, think, act and feel, cause the information gathered from the observation (exposure), thinking (cognitive process), act (experience) and feel (learning). The learning curve explains the degree of proficiency an individual develops from experience and exposure. New environments and cases cause the Kolb's experiential learning cycle and improve learning curve. The USEM model explained the employability as the outcome of personal efficacy, understanding of subjects, meta-cognitive skills (intelligence) and skills. The Career EDGE model of employability explained the development of employability from self-esteem formed of self-efficacy and self-confidence driven by reflections and evaluation from

career planning, experience, subject knowledge, graduate attributes, and emotions. The career developments theories, Holland's theory, Bandura's theory , Parsons' theory , Krumholtz' theory , Super's theory explained the career as an outcome of interaction of three inputs, personal, environmental and behavioural factors.

The Holland's theory enlisted the personal attributes needed for the career management. The social cognitive theory of Bandura explained the three fundamental factors of human behaviour, cognitive factors (personal), behavioural factors and environmental factors. The social cognitive career model is based on this social cognitive model in which performance and goal choices depends on three factors, personal inputs, environment, personal strengths and limitations, and interest. Krumholtz's Social Learning Theory of Career Choice also explained career growth based on factors explained by Bandura. The Supers' model linked age with characteristics to explain performance to describe the career growth. Supers' model is significant as the age factor in career growth is effectively explained.

This paper is an attempt to analyze theories linked to the career development to explain cognitive affective and environmental factors.

II. CONCEPTUAL BACKGROUND

Developmental Psychology and Experiential learning

The Developmental Psychology The contribution of John Piaget (1947) in systematic development of intelligence in children from the childhood from adulthood is the progressive intelligence development through learning and interaction with situation and environment [1]. The humans adapt to the environment through two process: Assimilation and Accommodation. Assimilation is the process of grasping new objects and events incorporated within the scope of existing structures and schemes [2]. Accommodation is the process of modifying existing schemes and structure to facilitate the easy understanding of objects and events. The four elements of development are, maturation, experience, social transmission, and equilibrium. The Piaget's Theory explained the cognitive growth as progressive change in a fixed sequence though the cognitive growth varies from person to person. The four stages are, sensory-motor stage (0-2 years) , pre-occupational stage (2-7 years), concrete operational stage (7 to 11 years) and formal operational stage (11 years or above).

The Sensori-motor stage is a stage of transition of an individual from a biological being to psychological being. The child attains the 'concept of object permanence', a feel of existence of objects and events though they are not sensed. In the later stage of this period, the child experience 'learning to reverse actions. The pre-operational stage is the stage in which a child's thinking is developed from what they sense than logic reasoning behind it. The stages in the pre-operational stage are, semantic function (thinking from symbols and signs), egocentrism (own thoughts are true and correct), decentring (difficulty to seeing in more one than one dimension of an aspect), animism (feel of life-like characteristics in objects), seriation (difficulty to sequence objects or events), and conservatism (realizing certain properties as same even after there a change in appearance). The children come out from the limitations in the pre-operational change and started thinking in both sensing and logically in concrete operational stage. Rational thinking, and sequencing are the skills developed during the concrete operational stage. In the formal operational stage, the child starts thinking logically and interprets hypothetical possibilities and try to solve them logically and mathematically in a systematic sequence. This is the starting of experiential learning in which an individual accumulates the knowledge from the childhood to the formal operational stage and develop own reasoning and solutions for the problems around him. In experimental psychology, the response of an individual to the situational changes. It is relevant in this CoVID 19 situation in which an individual has to undergo both environmental, economic and psychological impulses due to fear and sudden unexpected situation changes [3].

Exposure Theories and experiential learning

The two prominent theories in exposure, mere exposure theory [4] [5] and selective exposure theory [6], explained two different aspects of exposure. In mere exposure theory, the familiarity developed from continuous exposure and the more the exposure, the more the impact. The developmental psychology also support that the frequent exposure of object or event leads to the evoke sensing and thinking in pre-operational stage though it is rational thinking which lacks logical justifications. In the concrete operational stage and formal concrete stages, the frequent exposure enables the development of logical reasoning from rational thinking and start sequencing the events or stages with defined inter-relationships. The theory of selective exposure theory explains the repeated exposure can reduce cognitive dissonance due to increase in clarity and similarity in information. The repeated variation in information may cause cognitive dissonance leading to the analyse of each case to select an appropriate case. It may reflect in the behaviour pattern as well like developing a communication network among likeminded people. The more the exposure in a specific area of interest enables to focus in that domain more and this is an important step in career choice.

Bloom's taxonomy of educational objectives and proposed that the learning fitted into any of the three domains: cognitive, affective and psycho -motor. Later, it was revised by Anderson and Krathwohl, mainly in the cognitive domain [7]. The Bloom's taxonomy was a sequential thinking process from Low order thinking to higher order thinking, starting from knowledge (basic information), comprehension (understanding the information in deep), application (transition of understanding to a practical concept), analyse (implement and experience), synthesis (understanding merits and demerits) and evaluate (develop corrective measures). Anderson and Krathwohl rearranged this taxonomy from low order thinking to high order thinking: Remembering , Understanding ,Applying , Analysing , Evaluating (Revised position) and ,Creating (Revised position).

The Booms Taxonomy was further extended to digital jobs [8] and developed '*Bloom's Revised Digital Taxonomy Map*'. It included the activities included in regular activities and digital activities

Figure 1 : Bloom’s learning domains

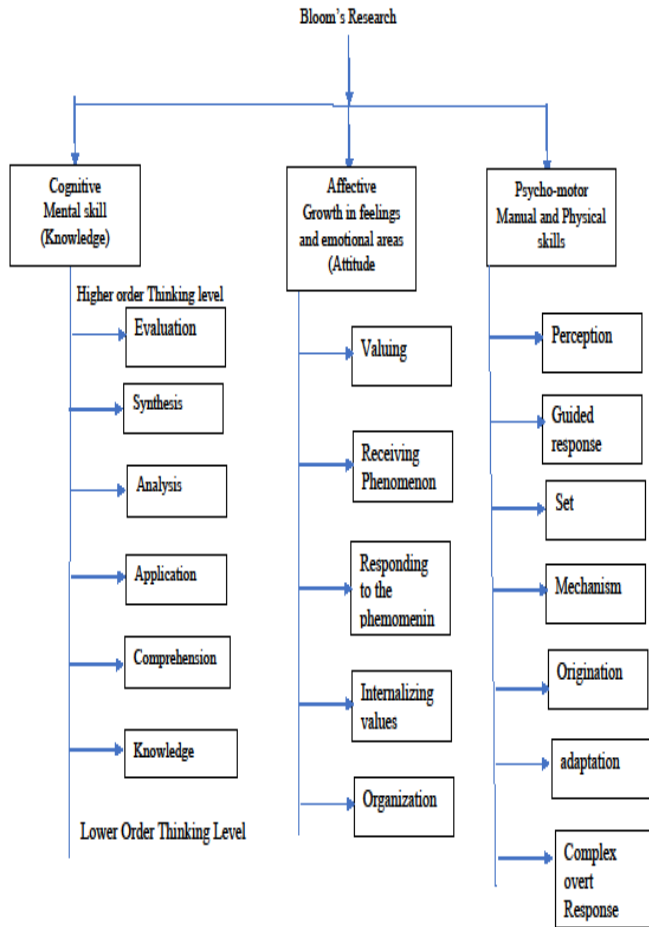
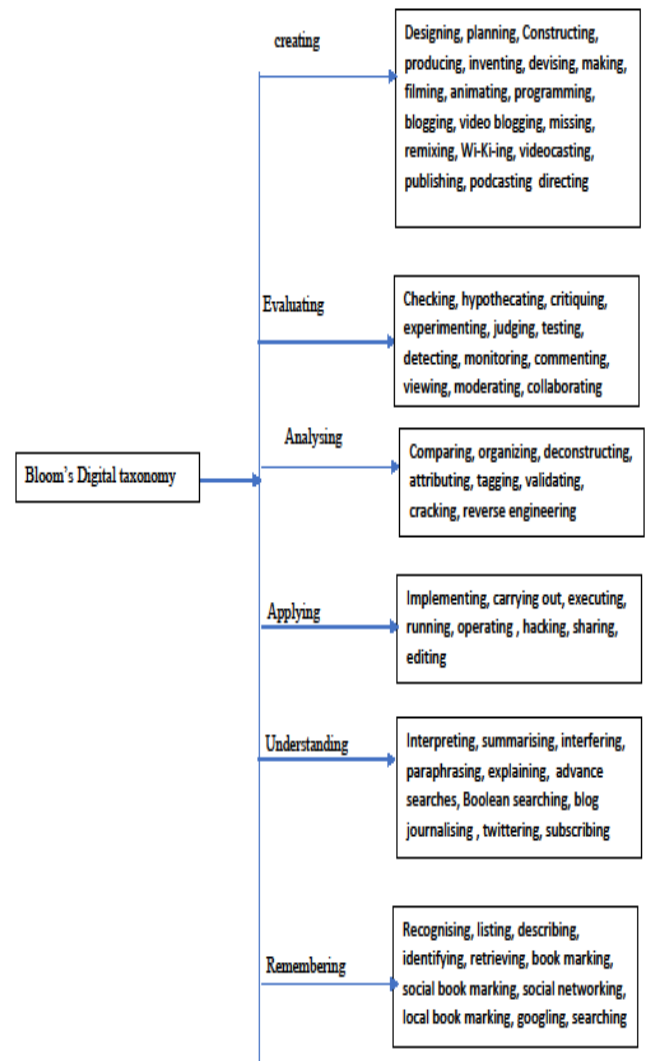


Fig 2: Bloom’s Digital taxonomy



Bloom Taxonomy and exposure theories

The Bloom taxonomy is linked with the mere exposure and selective exposure as the stages in Low order thinking to high order thinking is a systematic and progressive. The repeated exposure causes a stimulus and causes an affect in the viewer. This stimulus can be, fame, truth, duration, loudness, stimulus, brightness and darkness, and narrow/broad product distribution. The perceptual fluency/misattribution model assumed include are, neutral exposures leading to arousal like experience and effect of stimulus may be positive or negative based on contextual factors. The perceptual fluency may attribute three processes, cognitive route, affect as information and influence of affect on interpretation [9].

The frequent exposures cause a development of ‘ a pattern’ of affect in the viewer and it persuade the viewer to compare the subsequent stimuli causing a cognitive dissonance or cognitive resonance. The derivation of an experience of cognitive resonance or dissonance can be explained by the Blooms’ taxonomy [10]. The studies on distribution of attributes, behaviours or even variation in identity patterns among a population can be identified by using the mere exposure concept and Bloom’s taxonomy

III. RESEARCH METHODOLOGY

The learning process has been explained with three prominent theories, developmental psychology, Kolbe’s experiential learning and Bloom’s taxonomy. The Bloom’s taxonomy explained three process of learning in which cognitive is a systematic process developing an innovative concept from knowledge to evaluation while the affective process integrating emotions, attitudes, and feelings with the learning process. In the case of Psycho-motor, the respondent use his skills to convert his knowledge to applications. Hence, the learning process is an integrated form of three factors: intelligence, passion and application.

This paper is an attempt to evaluate how these three domains enforce each other in the learning process as explained in Bloom’s taxonomy. An eleven-point scale is used to collect the data from the respondents.

The population is the management executives with 0 to 10 years’ experience in different specializations. The sample size is 391 and the geographical area is Bengaluru.

The relationship is explained using the Confirmatory Factor Analysis (CFA)

Data collection method: Questionnaire , Scale :

Statistical tool used: SEM , Confirmatory factor model

IV. ANALYSIS AND INTERPRETATION

Demographic outline of respondents

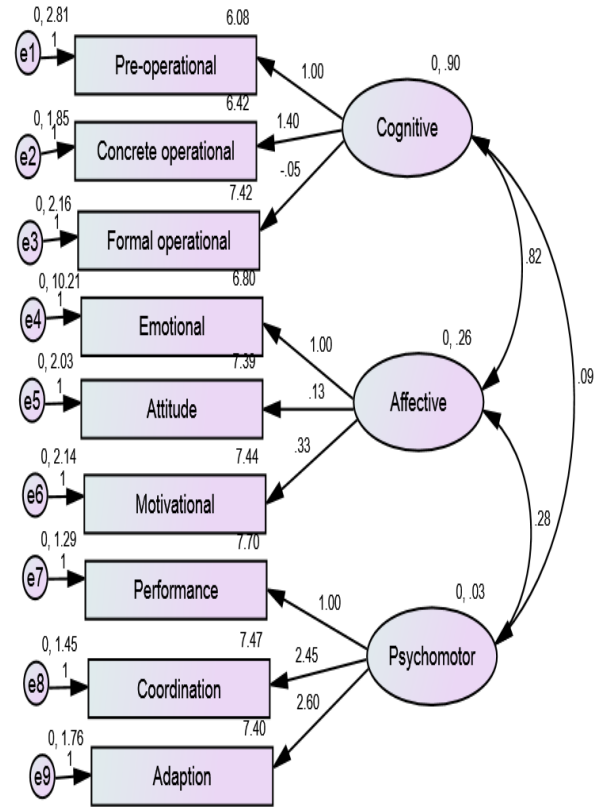
Descriptive Statistics				
Demographic variables	N	Mean	Std. Deviation	Scales
	Statistic	Statistic	Statistic	
Gender	391	1.49	0.50	1. Male 2. Female
Age in years	391	2.1	0.75	1. <20 , 2. 20-40 3. 40-60 4. 60 <
Marital status	391	1.9	0.46	1. Unmarried 2. Married
Occupation	391	2.4	1.06	1. Student 2. Salaried 3. Business man
Education	391	2.62	0.79	1. Schooling 2. Bachelor degree 3. Master degree 4. Professional degree
Income per month	391	3.19	1.71	1. Dependent 2. < Rs20,000 3. Rs20,000- 40,000 4. Rs40,000- 60,000 5. Rs60,000- 80,000 6. Rs 80,000 to 1,00,000 7. 1 lakh <

The data was collected from the management executives of experience of to 10 years. 53% of the respondents are male and of the age group of 20-40 years. 49% of the respondents are of salaried class with Bachelor’s degree within the salary class of Rs 20000-40000.

Confirmatory factor Model

Confirmatory model is generated from SEM Model in SPSS AMOS . This model explain the significance of the variables and the effect on latent variables using correlation and covariance. The three latent variables are, cognitive, affective and psycho motor. There latent variables are influenced by the three prime groups of Bloom’s Taxonomy.

Figure 3 : Confirmatory Factor Model



Model Summary

Regression Weights: (Group number 1 - Default model).

In the regression table , Cognitive 3 and Affective 2 are not statistically significant. All the relations are statistically significant. All intercepts are also statistically significant. All the intercepts are statistically significant. The covariance of Affective and Psycho motor statistically significant. The Chi square value of both default and independence model are statistically significant.

Table 2 : Model parameters

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	30	137.754	24	.000	5.740
Saturated model	54	.000	0		
Independence model	18	258.824	36	.000	7.190

Table 3 : Model Parameters of Confirmatory factor Model

Variable	Latent variable	Estimate	S.E.	C.R.	P
Cog1	Cognitive	1			
Cog2	Cognitive	1.4	0.39	3.57	**

Cog3	Cognitive	-0.05	0.10	-0.49	0.63
Affective 1	Affective	1			
Affective 2	Affective	0.13	0.08	1.64	0.10
Affective 3	Affective	0.33	0.10	3.29	0.00
PM1	Psycho motor	1			
PM2	Psycho motor	2.45	1.23	2.00	0.05
PM3	Psycho motor	2.60	1.31	1.99	0.05

It shows that the affective is influencing Psycho motor and cognitive process, but the relation of psycho motor to cognitive is not statistically significant. This shows that affective is influencing other two domains. This shows that the motivation, affection and other factors influence who are human thoughts. The coefficient of regression of the relation between Cognitive skill and concrete operational stage is 3.567 and it is statistically significant. The concrete operational stage is the stage when an individual develops logical, sequential and mathematical relationship between two affects. The motivational effect in the affective learning has a coefficient of regression of 3.287 and it is statistically significant. The coordination and adaption are the second and third levels of Psycho- motor skill in which an individual adapt with the experiential learning. It has a Coefficient Regression of coordination is 1.999 and the same for adaption is 1.988 and both are statistically significant.

The model explained the three variables as reference and they are, pre-operational stage, emotional and performance. The model is the first stage of the conceptual model for explaining the factors influencing the career changes. The skills that an individual develops in life originate from the concrete stage of learning and then grow through motivation. The experiential learning start from implementing the knowledge and skill through applications. The performance stands for the level of integrating knowledge and skill to develop a functional model. When the functional model become practical when an individual coordinates with environment and the adapt with the new results.

Correlation and Covariance

The three latent variables in this model are, Cognitive, affective and psycho- motor model. From this model, the affective skill co-varies with both cognitive and psycho-motor skills. But the covariance of psycho-motor skill and cognitive model is not statistically significant. This shows that the cognitive skills and psycho-motor skills are linked with affective skills as our interests are emotionally linked and developed through motivation. The estimate of cognitive and affective skills is high (0.816) while the same

for psycho-motor and affective skills is moderate (.286). But the correlation coefficient of Psycho-motor and affective skill is 3.061 while the same for Cognitive and affective skills are 1.675. Both are statistically significant. This explains the effect of motivation on learning is significant.

Table 4: Covariance Matrix

Variable			Covariance parameters				Correlations parameters
			Estimate	S.E.	C.R.	P	
Psycho motor	<->	Cognitive	0.088	0.049	1.78	0.07	0.5
Psycho motor	<->	Affective	0.283	0.137	2.058	0.04	3.06
Cognitive	<->	Affective	0.816	0.257	3.171	0.002	1.675

Table 4: Correlation matrix

The correlation between latent skill is given below. The correlation value is high for the relations between affective skills with is the cognitive and psycho-motor skills are statistically significant.

	Affective	Cognitive	Psychomotor
Affective	.264		
Cognitive	.816	.899	
Psychomotor	.283	.088	.032

V. CONCLUSION

The model explained that that Affective learning influence cognitive and Psycho motor skills as the passion to learn and apply new ideas. Conclusion

The cognitive learning has a positive correlation on concrete operational stage in which an individual think logically and interrelated. In formal stage, the logic interlinking will be in saturation so that the Psycho motor learning will influence. In that level, coordination and adaption are influenced by the psycho motor level. The prime variable prominent in affective is motivational and then attitude.

The results agrees with Bloom’s taxonomy and the different stages intellectual growth of an individual in different stages from 2 years and above. The cognitive skills will be strengthened in the concrete operational stage. The exposure given to the children in this has a long influence in their career. Opportunities for involvement, performance and self-evaluation are the first degree of opportunity in which parents and teachers plays an important role. The motivation from the peers, teachers and parents are important in developing the new career as motivation include, inspiration, guidance, evaluation and correction in a specific domain to develop competence. It is the sharpening force.

The model linked the developmental psychology with Blooms taxonomy and the statistically significant model support the relationship.

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