

INNOVATIVE WORK BEHAVIOUR OF SCHOOL TEACHERS: ROLE OF BELIEF FOR INNOVATION AND PERSONALITY PATTERNS

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Abstract:

In teaching, innovative work behaviour is an important issue and there is a crucial role of teachers for development of innovations. Purpose of this study is to assess role of teacher's beliefs and personality for innovative work behaviour among school teachers. Participants were 400 secondary school teachers of 28 schools at Kolkata (West Bengal, India), who were administered the following measures: a) Innovative Work Behaviour Scale (Janssen, 2000), b) Belief-Assessment Scale for Innovation and c) Neo Five Factor Inventory (Costa & McCrae, 1992). The Belief-Assessment Scale for Innovation was developed for this study. Teacher's belief for innovation, openness, extraversion, and conscientiousness were found to be positively correlated with all the three domains of innovative work behaviour i.e. idea generation, idea promotion, and idea realisation. Neuroticism was negatively correlated with idea generation. Regression analysis revealed that teachers' beliefs for innovation and degree of openness to new or different ideas have a potentially significant impact on innovative work behaviour. This study is a significant contribution towards understanding the determining factors of innovative work behaviour among teachers.

Keywords: Innovative Work Behaviour of Teachers, Teachers' Belief for Innovation, Five Factor of Personality

INTRODUCTION

Teachers are the torch-bearers of any society as they serve the important role of educating the youth and imparting knowledge to them. Conventionally, the teaching profession demanded for stronghold in subject matter and communicate it in lecture form to students of the class. But today, the function of a teacher has radically changed. Knowledge cannot be transmitted only through lecturing the book notes rather it is available everywhere in bits and pieces. The learning environment has extended its boundaries beyond the confined walls of classroom to home, community and around the world. Several emerging trends, like technology usage, social and interactive based learning etc., entail an alteration in the way young people learn and understand (Redecker, 2008). In current scenario, there is a growing need to advance the levels of teacher's innovation competencies so that novel approaches in teaching come into execution and thus learning becomes fun and thrill to the students instead of being burden and boredom. Teachers' innovative work behaviour would be beneficial to students in terms of acquiring knowledge and also learning would become more attractive to them. Innovative work behaviour is defined as the intentional

creation, introduction and application of new ideas within a work role, group or organisation, in order to benefit role performance, the group or the organisation (Janssen, 2000). The field of innovation ranges from organisational level to individual level. At the organisational level implementation of new idea has an impact on theories, practices or products across the whole organisation while, at individual level innovation occurs in terms of implementation of small scale ideas that are related to improvements in daily work process and activities (Axtell, Holman, Unsworth, Wall, & Waterson, 2000). In the present study, teachers' innovative work behaviour is studied at the individual level as teachers primarily contribute to small scale innovations in the domain of their work roles and initiate the process of innovation in their teaching.

Beliefs with their power to mould experience and action, direct behaviour (Dweck, 2008); personality is referred in terms of consistent patterns of experience and action that are evident across multiple situations or life contexts (Allport, 1964). Belief and personality, both are the fundamental features of an individual which determines particular way of functioning. Therefore they can act as facilitator for

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individual level innovation to occur at the workplace. The decisions individuals make throughout their lives are directed by their own structure of beliefs (Bandura, 1986; Dewey, 1933; Nisbett & Ross, 1980; Rokeach, 1968). In teaching domain, beliefs determine how and why teachers adopt new teaching methods and direct teachers during instructional and curricular decision making (Pajares, 1992; Prawat, 1992; Golombek, 1998). Teacher's belief for innovation is assumed to have a strong relation with innovative work behaviour. On one hand while belief for innovation seem to be considerable in implementing innovations, on the other hand extensive review work done by Patterson (2002) show personality traits to be the strong underlying factor for individual innovative behaviour (Patterson, 2002). However, the personality patterns of school teachers in relation with innovative work behaviour have been less explored. There is a dearth of empirical study on teachers' beliefs and personality, which are assumed to be the core pillars for determining individual level innovation.

This study aims to examine 1) the relation of innovative work behaviour with teacher's beliefs and personality, and 2) the role of teachers' belief for innovation and personality in predicting innovative work behaviour of school teachers.

THEORETICAL BACKGROUND

Innovative Work Behaviour

According to Kanter (1988), innovation involves production or adoption of novel and useful ideas and idea implementation. Innovations thus have a creative component and an implementation component. In order to be considered innovative, ideas have to be (i) new to the particular context within which it is introduced, (ii) relevant and suitable in the social and organisational context that is affected by the innovation, (iii) beneficial for the social context, for example useful in carrying out a certain task, solving an urgent problem, satisfying someone's needs, or acting on existing resources (Farr & Ford, 1990; King, 1992; West & Farr, 1990). Individual innovation is a multistage process and consists of a particular set of actions or behaviours in each stage. First stage includes actions like recognition of opportunities and seeking out new ideas; next stage consist of behaviours like promoting an idea and getting affiliation for it from the supporters; final stage involves planning for implementation of the ideas (Scott & Bruce, 1994). Innovative behaviour thus includes four broad innovation tasks: opportunity recognition, generation of ideas, promotion of those ideas, and application of ideas in practice. The first two tasks are encompassed within the creative component and the latter two within the implementation component of innovation. A crucial characteristic of innovation process is that it is characterised by discontinuous tasks rather than

separate and automatic sequential stages (Schroeder, Van de Ven, Scudder, & Polley, 1989). The constituent innovation tasks are interdependent, i.e., their accomplishment may overlap and occur simultaneously and iteratively (Lubart, 2001; Dorenbosch, Van Engen, & Verhagen, 2005; Messmann & Mulder, 2012).

In context of teaching, innovative work behaviour is imperative for bringing significant changes and improvements of the learning environment. Innovative teaching is the process leading to creative learning, the implementation of new methods, tools, technology and contents which could benefit learners and their creative potential (Ferrari, Cachia and Punie, 2009). Although there is appreciable role of teachers in the advancement of educational innovations, it has not yet been explored how teachers engage in innovation related work behaviours and what exactly lead them in doing so (Messmann, Mulder & Gruber, 2010). An innovative teacher may create variety of situation for motivating the students in grasping the subject matter and for doing that s/he may be engaged in behaviours like experimenting different instructional techniques, seek advice from experienced teachers and authorities, fulfil gaps in knowledge, seek resource support etc. The teacher has to prove the success of the idea by showing constructive results i.e. the innovation outcome.

Role of Belief for Innovation

Workplace behaviour of an individual can be better understood if the structure of beliefs is investigated. This view is based on the assumption that person's belief play a critical role in defining behaviour as they are the cognitive tools through which a person interpret, plan and make decisions (Nespor, 1987). Belief, being a global construct, is a subject of legitimate inquiry in varied fields and thus empirically examined in form of different concepts and terminologies. In current study, teachers' belief regarding innovation has been conceptualised following the framework of Bandura's (1986) concept of self-efficacy beliefs. Teachers' interpret innovations according to their personal belief. Teacher's belief influence their perceptions and judgement which in turn is reflected in their behaviour in classroom (Pajares, 1992). Teachers' belief for innovation is referred to as the capability to successfully perform teaching related innovation tasks like designing and implementing new teaching strategies, experimenting varied teaching practices, exploring opportunities, and give autonomy for benefit of the learners. Huge technological advancement and educational reforms occurring in today's century have lead teachers to adopt innovation practices in teaching. Though it has opened doors of vast opportunity for teachers, but still the educational system has largely remained unchanged (Abrami 2001; Albion, 2003; Mann, 2000). Technology has not been

widely integrated into education. Most of the time it is seen that teachers only superficially accept the changes and typically use linear, authoritative, teacher-centred methods and show resistance towards student-centred learning (Cuban, Kirkpatrick, & Peck, 2001; Semple, 2000). It may be attributed to the fact that they differ in their set of beliefs. Belief for innovation is assumed to affect how teachers implement innovations. This suggests that it is worthwhile to investigate the role of teachers' belief for innovation in innovative work behaviour among teachers.

Role of Personality: Innovation and the five-factor model of personality (FFM)

The Five Factor Model (FFM) (Costa and McCrae, 1992) has become an almost universal template with which to understand the structure of personality. FFM delineate the individual differences among adult population and is therefore useful in providing appropriate picture of associations between personality and innovation in varied work settings. The FFM dimensions include neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Several decades of empirical research on innovation and personality have revealed a set of personality patterns of innovative people, like imaginative, inquisitive, high energy, high desire for work role autonomy, social rule independent and high self-confidence (Patterson, 2002). The pattern depicting the feature of an innovative person reveals that Openness to Experience dimension of FFM is most closely associated with innovation. Open individuals are more willing to entertain novel and unconventional ideas (Costa & McCrae, 1992). Previous literature reveals that innovativeness is associated negatively with agreeableness and conscientiousness (Rossman & Horn, 1972; Feist, 1999; Patterson, 2000). Conscientiousness includes features like fastidious, compulsive, neat, punctual, reliable, methodical, self-discipline, and deliberation (Costa & McCrae, 1992). Individuals high on conscientiousness are more likely to comply with norms and rules (Hogan & Ones, 1997). Methodical and follower of norms are not consonant with the characteristics of an innovative person. Lack of conscientiousness is thus associated with innovativeness. Innovative individuals further are described as arrogant, hostile, challenging, rebellious, non-conforming, and argumentative (Patterson, 2002). Agreeable people generally have a compliant attitude. Individuals low on agreeableness is described as preferring to 'compete rather than cooperate' (Costa & McCrae, 1992, p.18), which is one of the important features of innovativeness. The link between extraversion dimension and innovativeness is uncertain. On one hand, the creative component of innovation is found to have a positive association with introversion (MacKinnon, 1962; Feist, 1999). While on the

other hand, extraversion is associated with occupational work performance (Salgado, 1997) and thus it may also have an association with innovativeness where innovation is a part of occupational role. Contradictory findings have also been found regarding association between neuroticism and innovativeness. Some empirical studies suggest there is no association between neuroticism and indices of either creative thinking or creative accomplishments (King, Walker & Broyles, 1996). Conversely, other studies have suggested a positive association between neuroticism and innovation (e.g. Feist, 1993, 1994). Patterson (2002) explained these inconsistencies may be because of the reason that association between neuroticism and innovation is domain-dependent. Till now personality and innovation studies have mainly carried out in varied corporate work settings. In extant literature there is limited research on innovative work behaviour of school teachers and their patterns of personality accountable for innovation to happen. Thus investigating the role of personality in innovative work behaviour among teachers will be a valuable arena to explore.

METHOD

Participants

The participants in this study were secondary school teachers, randomly selected from 28 different schools in Kolkata (West Bengal, India). Out of 485 school teachers, 400 were willing to participate in the study, reflecting approximately 82% response rate. Data collection was restricted to teachers in secondary schools and teachers teaching non-scholastic subjects (like physical education, music etc.) were excluded from the study. The sample comprised of 155 male teachers approx. 39% and 245 female teachers approx. 61%. Age range of the teachers varied from 26 to 59 years, with mean of 40.03 and SD of 9.38.

Measures

The following measures were used for the present study:

- (a) General Information Schedule with socio-demographic information (age, gender, etc.).
- (b) Innovative Work Behaviour (IWB) Scale: This was a 9-item scale originally developed by Janssen (2000). This scale consists of 3 components: Idea generation, idea promotion and idea implementation. The reliability of the scale in this study is measured with Cronbach's Alpha, $\alpha = 0.90$
- (c) Scale assessing Teachers' Belief for Innovation (TBI): This scale is specially developed for the current study. To develop the measure, literatures on both teaching beliefs (e.g. Bandura, 1986; Pajares, 1992)

and innovation (e.g. Kanter, 1988; West, 2002) were examined and subsequently an initial set of items were created, indicative of the content domain. Teachers' belief for innovation is conceptualised as personally held assumptions about their capability in successfully implementing novel changes in teaching practices to achieve their desired goals. The items were framed upon the beliefs regarding varied innovative teaching tasks and roles, which were determined from review of literatures. The preliminary form of 25-item five-point Likert (Strongly Agree to Strongly Disagree) type questionnaire was constructed and piloted upon 150 school teachers. The item-total correlations were then calculated and the items correlating less than 0.30 were eliminated to improve the scale's internal consistency. Drawing on the results of item analysis from the pilot sample, the final measure was reduced to 14 items. It was administered upon a separate sample of 300 secondary school teachers and principal component analysis was conducted. All the items were loaded in a single factor which accounted for 61.83% of variance, depicting all the items measure the single construct i.e. teacher's belief for innovation. Some items of the final scale are: a) I believe in searching ways for improving my teaching techniques, b) I believe in taking the role of a facilitator and contributor in class, c) I believe in recognising and encouraging change. The developed measure demonstrated a good level of reliability indicating $\alpha = 0.95$.

- (d) NEO-Five Factor Inventory of personality (NEO-FFI): NEO FFI (Costa & McCrae, 1992) is a 60-item self-report instrument used to measure the five personality domains according to the Five Factor Model: Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C). Each domain has 12 items. The NEO FFI includes self-descriptive statements that participants respond to, using a 1 (strongly disagree) to 5 (strongly agree) Likert type scale. Scores for each domain are calculated by summing the 12 item responses. A total of 28 NEO FFI items are reverse-worded. Internal consistency for the NEO-FFI scales was calculated using coefficient alpha. Coefficients were 0.67, 0.74, 0.82, 0.41 and 0.76 for N, E, O, A and C respectively.

Procedure

Initially, list of schools of Kolkata (West Bengal, India) was collected from District Inspectorate Offices of Secondary Education, based upon the requirements of the study. The principals of 35 schools were approached for permission to collect the data from their teachers, out of which 28 schools agreed for this study to be conducted. The informed consent was taken from the teachers after rapport. Data were collected

from 400 secondary school teachers by administering the above-mentioned measures.

RESULTS

Descriptive Statistics and correlations between the major variables are shown in Table 1 and Table 2.

Table 1: Means and Standard Deviations of the Variables

Variables	Mean	Standard Deviation
Innovative Work Behaviour	32.68	6.71
Idea Generation	11.21	2.38
Idea Promotion	10.40	2.62
Idea Realisation	11.10	2.60
Teachers' Belief for Innovation	52.86	8.99
Neuroticism	33.22	6.36
Extraversion	40.99	6.61
Openness	40.68	7.70
Agreeableness	41.20	5.06
Conscientiousness	45.94	6.21

From Table 2 it is revealed that three dimensions of Innovative Work Behaviour have a positive relation with Teachers' Belief for Innovation and with personality factors like extraversion, openness, and conscientiousness. However idea generation was found to be negatively correlated with neuroticism.

Table 2: Correlation of IWB dimensions with Teacher's Belief for Innovation and Five Personality factors

Variables	IWB Dimensions		
	Idea Generation	Idea Promotion	Idea Realisation
Teachers' Belief for Innovation	0.62**	0.59**	0.64**
Neuroticism	-0.13*	0.01	-0.07
Extraversion	0.42**	0.37**	0.45**
Openness	0.60**	0.54**	0.59**
Agreeableness	-0.20	0.02	0.02
Conscientiousness	0.40**	0.36**	0.41**

n = 400; * p < .05; ** p < .01

Table 3 provides the results of linear regression analysis testing the predicting capacity of teachers' beliefs and personality factors for innovative work behaviour. All of the study predictors were regressed separately on three dimensions of IWB represented as Model 1, 2 and 3.

Table 3: Results of Regression Analyses for Innovative Work Behaviour Dimensions

Variables	Model 1 Idea Generation			Model 2 Idea Promotion			Model 3 Idea Realisation		
	β	R	R ²	β	R	R ²	B	R	R ²
Teachers' Belief for Innovation	0.37**	0.69	0.48	0.38**	0.63	0.40	0.41**	0.70	0.49
Neuroticism	-0.07			0.07			-0.001		
Extraversion	0.11*			0.10*			0.16**		
Openness	0.29**			0.23**			0.23**		
Agreeableness	-0.14**			-0.07			-0.09*		
Conscientiousness	0.06			0.05			0.05		
F	59.87**			43.83**			61.91**		

n = 400; * p <.05; ** p <.01

In Model 1 and 3 (Table 3), it is evident that Teachers' Belief for Innovation (TBI), Extraversion (E), Openness (O) and Agreeableness (A) are the significant predictors in explaining 48% and 49% of variance on Idea generation and Idea realisation respectively. Model 2 (Table 3) shows TBI, E and O to be significant predictors on Idea promotion explaining 40% variance. In all three models, TBI ($\beta_{model1} = 0.37, <.01$; $\beta_{model2} = 0.38, <.01$; $\beta_{model3} = 0.41, <.01$) and Openness ($\beta_{model1} = 0.29, <.01$; $\beta_{model2} = 0.23, <.01$; $\beta_{model3} = 0.23, <.01$) are the prominent predictors among the other variables. β -value explains belief for innovation as the important predictor than personality factors. Neuroticism (N) and Conscientiousness (C) domains are found to be unable to predict innovative work behaviour.

DISCUSSION

This study builds on the idea that the teachers' belief for innovation and personality patterns plays a role in innovative work behaviour of school teachers. Beliefs and personality dispositions shape a person's particular way of functioning and thus reflected in the resultant behaviours. In context of innovative work behaviour, these two fundamental aspects of an individual have a pivotal role to play.

The results of this study showing a degree of predictability of innovative work behaviour by teachers' belief for innovation (TBI) concur with the results of other related literatures. For instance, according to Pajares (1992) teachers' beliefs can give insight into the reasons behind teachers' actions. Teachers tend to adopt new classroom practices based on their personal beliefs of new practices in teaching (Yocum, 1996). Innovative Work Behaviour (IWB) involves some major work activities or tasks (i.e. recognition of opportunity and idea generation, idea promotion and idea realisation (Janssen, 2000, Scott & Bruce, 1994). Results of this study show all the three dimensions of IWB were significantly predicted by TBI. This may be due to the fact that beliefs about teaching and learning forms an "intuitive screen"

through which teachers interpret professional development and teaching reforms (Buchanan, Burts, Bidner, White, & Charlesworth, 1998). Beliefs can either further promote or hinder change (Prawat, 1992). If teacher's believe that they are capable of successfully executing the innovation tasks and the educational reforms are compatible with their beliefs then it is highly likely that new ideas will be adopted in the classroom (Levin & Wadmany, 2006). But if they are less confident in performing those tasks then they will become resistant toward innovation. Thus whether teacher will perform innovative behaviour or not will depend upon the extent of teachers' belief for innovation.

Exploring the personality patterns of school teacher reveals openness and extraversion to be the positive predictors of all dimensions of IWB and agreeableness to be the negative one for idea generation and realisation. There is good empirical evidence of a positive association between various characteristics associated with innovation and those used to depict openness (Feist, 1998). This factor of personality is associated with new ways of thinking and embracing change (Patterson, 2002). Thus openness was found to be significantly related with IWB and also one of the major predictor of the same, in this study. Teachers scoring high on openness will be more imaginative, original, flexible and unconventional in their teaching techniques. Previous research suggests that extraversion predicts performance measures of innovation (Patterson, 2002; Batey & Furnham, 2006). Innovative individual is sensation-seeking, risk taker and activity oriented (Amabile, 1983), which characterize the extraversion dimension of personality. Extraverted teacher will be more willing to experiment with their teaching techniques and seek for variation rather than pursuing monotonous lecturing in class. Agreeableness was not significantly correlated with IWB in this study but has been found to be a significant negative predictor for idea generation and realisation. Innovative individuals are frequently described as challenging, rebellious, non-conforming, and argumentative (Patterson, 2002), while agreeableness

dimension describes a compliant feature. For generation of new ideas and successful application of them a teacher has to be challenging enough to go against the odds. Teachers, who have a tendency to comply with regular rules and norms, will generally follow traditional method of teaching and show resistance towards innovation. Further, results revealed that neuroticism was significantly and negatively related to idea generation, but was not a significant predictor for any of the IWB dimensions. The association between neuroticism and innovation has not been studied empirically across varied work contexts and thus differential findings are observed depending on the domain of interest (Patterson, 2002). The neuroticism factor mainly deals with the emotional stability of an individual which includes facets like anxiety, hostility, depression, self-consciousness and vulnerability (Costa & McCrae, 1992). A person high on neuroticism worry about things, get angry easily, often feel depressed, easily get intimidated and panic easily. These characteristics are quite a contrary to the idea generation activity which involves creation of original, useful and novel ideas. Idea generation being a constructive task may therefore have been adversely related to neuroticism. Another noticeable finding in this study was that conscientiousness being positively and significantly correlated with IWB. Vast majority of research has demonstrated that lack of conscientiousness is associated with innovation (Runco, 2004). Defined by terms such as fastidious, ordered, neat and methodical, the evidence shows that individuals high on conscientiousness oppose changes at work, and are more likely to conform to traditional norms (Patterson, 2002). Therefore a conscientious teacher would not be an innovative one, but contradictory findings have been found in the present study. Conscientiousness of FFM includes a broad range of facets, where in one hand it includes facets like order, dutiful and on the other hand competence and achievement striving features also represent the domain. The dilemma is that innovation is usually positively associated with achievement motivation and persistence (Amabile, 1983; Costa & McCrae, 1992) but negatively associated with being methodical and dutiful. Therefore this may be the reason behind positive association between conscientiousness and IWB. The conscientiousness factor with a broad range, including both pro as well as adverse features for innovativeness, thus has lessened capacity to predict IWB.

The striking result of this study is that beliefs are relatively more important than personality factors for predicting IWB. People's beliefs include their mental representations of the nature and workings of the self, of their relationships, and of their world (Dweck, 2008). Beliefs organise and shape people's goals and strivings, as well as their construal of and reactions to the environment, to create consistent patterns of experience and actions (Dweck, 2008). Allport (1964) defined personality in terms of consistent patterns of experience and action that are evident across multiple

situations or life contexts. Belief interventions can change the consistent pattern of experience and action. Beliefs, with their power to mould experience and action are thus more important in predicting behaviour than personality. Teachers' belief for innovation being the mental representation regarding teaching related innovation tasks have more predicting capacity than openness and extraversion trait of a school teacher.

CONCLUSION

In today's world of rapid changes and educational reforms taking place, innovative work behaviour is a thrust area which needs to be enhanced among school teachers. The present study implies that teacher's belief for innovation, openness, and extraversion traits are crucial determiners of innovative work behaviour of school teachers. Teacher's belief for innovation, the major predictor of IWB, is a construct of immense importance and thus further systematic investigation of the same is a necessary and valuable avenue of educational enquiry.

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