Development of a Situational Judgement Inventory for Measuring Practical Intelligence of Employees in the Context of Transformational Organizational Change

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Abstract

The study explains the development of a measuring tool - the Situational Judgement Inventory (SJI) - which measures practical intelligence of employees in the context of transformational organizational change. Test construction is completed in five steps using guidelines provided by Motowidlo et al. (1990). The development of a reliable and valid instrument is expected to help organizations in differentiating employees who are more effective in adapting to the change from those who are less adaptive. It is the first available form of situational judgement inventory to measure practical intelligence in the context of organizational change. The preliminary analysis holds promise for the effective use of situational judgement inventory in the context of organizational change.

Keywords: Situational Judgment Inventory, Practical Intelligence, Tool development

1. Introduction

As per Roffey Park's annual cross-sector work place survey between 2001 and 2005, over 90 percent of the respondents indicated that their organization had undergone some transformational change programme, largely involving restructuring, in the preceding two years (Holbeche, 2006). In spite of the substantial volume of existing literature on change management till date, most significant change initiatives continue to fail to yield the expected benefits. According to Beer and Nohria (2000), seven out of ten change efforts that are critical to organizational success fail to achieve their intended results. Studies show that in most organizations, two out of three transformation initiatives fail. The more things change, the more they stay the same (Sirkin, Keenan & Jackson, 2005). According to research by the Gartner group (quoted by Holbeche, 2006), the main reason why change initiatives fail is the inability of people to adapt and become change-able.

Organizations consist of and are made by people, and hence organizational change is assumed to be mediated through individual changes (Schein, 1980). Thus, members of an organization must be the key source of energy for organizational change processes. However, despite this awareness, research dealing with organizational change has been largely dominated by a macro, system-oriented focus. Though researchers have called for a more micro, person-oriented focus pertaining to issues important in change (Bray, 1994), micro-level research on organizational change remains limited. Several studies have observed that management usually focuses on technical elements of change with a tendency to neglect the equally important human element (Beer & Nohria, 2000; Bovey & Hede, 2001; George & Jones, 2001). Despite the popularity of the technological change approach, several studies demonstrated that adopting this perspective does not always lead to successful change (Beer & Nohria, 2000). On the contrary, many organizational changes result in outright failure because the employees in the organization are not ready for change. Therefore, in order to successfully lead an organization through major change, it is important for management to consider both the human and technical side of change. Some authors even go one step further in stating that if people in an organization are not motivated or ready for change, the organizational change is doomed to fail (Antoni, 2004;

George & Jones, 2001). Accordingly, several authors have called for a more person-focused approach to the study of organizational change (Cunningham et al., 2002; Judge, Thoreson, Pucick & Welbourne,1999; Wanberg & Banas, 2000).

Theorists of intelligence agree that intelligence involves the ability to adapt to the environment (Sternberg & Detterman, 1986). According to researchers, human intelligence as a broad cognitive capacity manifests itself in novel situations that require change or adaptation (Raaheim & Brun, 1985; Sternberg & Detterman, 1986). Successful adaptation to a new social and cultural environment requires intellectual abilities that allow a person not only to perceive and comprehend various novel social situations, but also to acquire those forms of social behavior that are acceptable or desirable in a new culture. These abilities are usually associated with the notions of social intelligence. In 1985, Robert Sternberg proposed the triarchy theory of intelligence comprising analytic, practical and creative intelligence. Analytical intelligence is the ability to analyze and evaluate ideas, solve problems and make decisions, and is measured using conventional intelligence tests and academic tests. Creative intelligence involves the ability to deal with new situations using past experiences and current skills and is usually measured using cartoons and stories. Practical intelligence refers to the ability to adapt to a changing environment and is measured through situational judgement inventories (Sternberg, 2005). From the definitions of the three types of intelligences, it is obvious that practical intelligence is the most relevant in the context of organizational change.

Practical intelligence refers to the ability or expertise to effectively respond to a variety of practical problems or situational demands. It also refers to the contextual knowledge acquired from everyday experience and the ability to apply this knowledge effectively in practical situations to achieve personally valued goals (Sternberg et al., 2000). Practical intelligence involves skills used to implement, apply, or put into practice ideas in real-world contexts. It involves individuals applying their abilities to the kinds of daily problems they confront on the job or at home.

Practical problems are ill-defined, have incomplete information, do not have a clearly correct answer and often have multiple solutions - each with varying degrees of effectiveness, as well as different liabilities and assets (Sternberg & Hedlund, 2002). In addition, practical or real world situational demands on the job often go beyond technical task knowledge to include requirements of contextual knowledge (knowledge of the interpersonal, organizational and resource environment that affects how work gets accomplished) and adaptability requirements (Chan & Schmitt, 2002; Pulakos, Arad, Donovan and Plamondon, 2000; Sternberg et al., 2000). Thus, practical intelligence undoubtedly plays an important role in influencing an individual's adaptiveness to a novel situation. Literature indicates that intelligence as well as affect have an influence on readiness to change (George & Jones, 2001). However the direct relationship between intelligence and readiness to organizational change is yet to be explored. While several studies have attempted to trace the relationship between emotional intelligence and change implementation (Chrusciel, 2006; Huy, 1999; Vakola & Nikoloau, 2005), very few studies have looked into other aspects of intelligence.

Practical intelligence has been investigated in many environments with various populations. Table 1 provides a comprehensive picture of the various studies that have been done using practical intelligence as predictor variable. The tools used for measuring practical intelligence are also given in this list. From the table it can

Table 1: Studies on practical intelligence

Study	Dependent variable	Tool used for measuring practical intelligence
Atwater and Yammarino (1993)	Leadership behaviour in military	Constructive thinking Inventory
Nevo and Chawarski (1997)	Success in immigration	Self-reported questionnaire Supervisor's ratings
Colonia- Willner (1998)	Managerial job performance	Tacit knowledge inventory for managers
Fox and Spector (2000)	Simulated interview outcomes	Smith and McDaniel, Work problems survey (SJI)
Sternberg et al. (2001)	Distinctiveness of academic and practical intelligence among rural adolescents of Western Kenya	Tacit knowledge for natural herbal medicines (Multiple choice)
Grigorenko and Sternberg(2001)	Everyday adaptive functioning	Self-reported questionnaire Vignettes
Hedlund et al.(2003)	Leadership effectiveness of military leaders	Tacit knowledge of military leaders-SJI
Grigorenko et al. (2004)	Estimating the relative contributions of conventional knowledge and everyday-life knowledge in predicting the ratings on Yup'ik-valued traits in Alaskan community	Yup'iks scale of practical intelligence (multiple choice items)
Chamovitz and Greenspan (2005)	Diagnostic process of mental retardation	Video
Grigorenko, Sternberg and Strauss (2006)	Teacher effectiveness in dealing with problematic classroom situations	Vignettes (SJI)
Mottu, Allik, Konstabel, Kangro and Pullmann(2008)	Personality traits	
Joseph, Ang, Chang and Slaughter (2010)	Soft skills of IT professionals	Soft skills for IT (SSIT)- Vignettes

be noted that researchers have studied practical intelligence in domains as diverse as bank management, immigration, academic psychology, primary education, clerical work, and military leadership adaptation.

1.1 Practical intelligence and adapting to change

Studies exploring the direct relationship between practical intelligence and adapting to change have been very few. Nevo and Chawarski (1997) explored the relationship between non-academic aspects of intelligence (tacit knowledge and practical intelligence) and success in immigrating to a new country. The study was conducted among 65 Russian scientists who had immigrated to Israel. The results indicated that practical intelligence and tacit knowledge are important factors in the adaptation to the requirements of life in a new country. Grigorenko and Sternberg (2001) tested the efficacy of triarchy theory of intelligence as a basis for predicting self-reported adaptive functioning in a rapidly changing Russian society. Analytical, practical, and creative intelligence were all found to be related in some degree to self-reported everyday adaptive functioning. Of the three kinds of intelligence, practical intelligence proved to be the most consistent and strongest predictor of self-reported adaptive functioning. In general, successful adaptation to a new environment requires intellectual abilities that allow a person to orient easily in unfamiliar settings, to find similarities between familiar and unfamiliar situations to easily categorize new objects, and to function effectively under a relatively high level of uncertainty. Thus practical intelligence is considered to be a significant predictor of immigrants' adaptation to a new country (Nevo & Chawarski, 1997) and also in general to everyday adaptive functioning (Sternberg & Grigorenko, 2001). Based on these two studies it can be extrapolated that practical intelligence will be a significant predictor of employee adaptation to change, in the context of organization-wide, transformational changes.

1.2 Situational Judgement Inventory

Situational judgement inventories or situational judgement tests are most commonly used in measuring practical intelligence. Although there is considerable controversy over what these tests actually measure (Schmitt & Chan, 2006), many have argued that they at least partially measure ability to use common sense (Schmitt & Chan, 2006; Sternberg, Wagner, Williams & Horvath., 1995). The contents of a typical situational judgment inventory (SJI) describe realistic demands that arise in practical or everyday situations. SJI performance is a manifestation of knowledge and ability dimensions which can be collectively referred to as what Sternberg and his colleagues have termed practical intelligence (Motowidlo, Dunnette & Carter, 1990; Sternberg et al., 2000).

Motowidlo et al., (1990) noted that SJIs emanate from the tenet of behavioral consistency (past behavior is the best predictor of future behavior). That is, by eliciting a sample of current behavior, one can predict how someone will behave in future (Wernimont & Campbell, 1968). SJI items are samples of behavior in that the respondents are presented with a job situation and are asked to evaluate various behavioral responses.

Motowidlo et al., (1990) described the diversity of stimuli that have been utilized in situational judgment tests as varying along a continuum of fidelity or similarity to the actual job situation. According to these authors, high fidelity stimuli are those that provide test takers the opportunity to respond in a manner that mimics actual job behavior. Low fidelity simulations are generally paper-and-pencil tests that provide written descriptions of hypothetical scenarios that might

occur on the job. Test takers respond to such stimuli by describing how they would behave, usually through the indication of a choice of action from among several alternatives.

SJIs are typically paper-and-pencil tests comprised of stems and responses describing work related situations that are designed to measure one's judgement at work (McDaniel & Nguyen, 2001). SJIs have also been developed and presented in video format (Chan & Schmitt, 1997; Weekley & Jones, 1997). Regardless of the format, stems and responses may vary on length, complexity, reading level and nesting (McDaniel & Nguyen, 2001). With reference to complexity, some items may be relatively uncomplicated in that they present one main stimulus. Other stems may be more complex because they present more than one stimulus.

SJIs can vary according to their readability (Sacco et al., 2000). These scholars investigated how differences in the reading level compositions of SJIs are related to sub-group differences and validities of SJIs. They noted that the length and readability of the stems may directly influence the cognitive loading of the SJI.

Finally, SJIs can vary on whether or not the test contains sub-scenarios. Typically, the sub-scenario provides additional information and increases the complexity and cognitive loading of the original situation. Most SJIs are not constructed in this fashion, that is, stems are typically independent of each other.

SJI response options also vary. Some SJIs propose solutions to problems, to which respondents rate their agreement (Chan & Schmitt, 2002). Others offer multiple solutions from which respondents choose the best and/or worst option (Motowidlo et al., 1990).

One of the earliest tests that used SJI with the response options was one of the subtests of the George Washington social intelligence test (GWSIT), namely - judgment in social situations. Army psychologists attempted to assess the judgment of soldiers during World War II (Northrop, 1989). In the late 1950s and early 1960s, SJIs were also used by large organizations as part of a battery of selection tests to predict managerial success. The first instrument to be classified as a situational judgment test was developed in the late 1950's to help select supervisors(Mowry, 1957).More recently, there has been renewed interest in the use of situational judgment measures for predicting job performance. Motowidlo et al. (1990) renewed interest in SJIs when they examined "low-fidelity simulations" for selecting entry-level managers. Wagner and Sternberg (1991) published a test called the Tacit Knowledge Inventory for Managers (TKIM) which is based on their theory of tacit knowledge. These scenarios differ from those of typical SJIs in that the TKIM scenarios are considerably more lengthy and detailed. Wagner and Sternberg (1985) reported the conduct of five studies examining the criterion-related validity of the TKIM in academic and business settings. Sternberg et al. (2000) also reported that these measures were unrelated to measures of general cognitive ability.

1.3 Applicability of SJIs

Whetzel and McDaniel (2009) attribute the resurgence of SJI research and practice to several factors. The Motowidlo et al. (1990) article was the first article concerning SJIs in a major personnel selection journal and generated substantial interest. Secondly, meta-analytic summaries of research have documented that SJIs have useful levels of validity as predictors of job performance (McDaniel, Morgeson, Finnegan, Campion, & Braverman, 2001; McDaniel, Hartman, Whetzel & Grubb., 2007). Thirdly, researchers and practitioners have long sought valid measures with lower sub-group differences than general cognitive ability. Research has

demonstrated that SJIs have less race-based adverse impact than cognitive measures (Chan & Schmitt, 1997; Motowidlo & Tippins, 1993; Motowidlo et al., 1990; Weekley & Jones, 1997; Whetzel, McDaniel & Nguyen, 2008). Finally, SJIs have face and content validity because they describe work-related situations (Salgado, Visweswaran & Ones, 2001). This makes SJIs appealing to staffing decision makers and applicants alike. SJIs are significant predictors of many important organizational outcomes.

Multiple studies have found SJIs to predict managerial job performance at levels comparable to other common selection predictors such as personality tests and structured interviews (McDaniel et al., 2001). SJIs have been found to be predictive of organizational outcomes across different levels of the organization that range from entry-level employees to managers (Clevenger, Pereira, Wiechmann, Schmitt, & Harvey, 2001; Motowidlo et al.,1990).

SJIs are also significant predictors of organizational outcomes in a variety of jobs, such as customer service personnel and engineers. These findings suggest that situational judgment may not be domain-specific, and may be assessed for use in a variety of situations. SJIs are particularly useful for the measurement of constructs that are defined as situated action (situation is a very important factor in determining what people will do). In this regard, Bledow and Frese (2009) developed a situational judgement test for measuring the construct of personal initiative.

SJIs represented a compromise between the efficiency offered by paper-and-pencil intelligence tests, and the job-specific reasoning required by elaborate job simulations. "These low fidelity management decision-making measures were found to be related to interpersonal, problem-solving, and communication effectiveness in a number of domains" (Salter & Highhouse, 2009, p: 394).

Given, the absence of an appropriate tool in extant literature to measure practical intelligence in the context of organizational change, it was decided to develop a situational judgment inventory for this purpose.

2. Tool Development

Based on findings from literature, practical intelligence can be expected to play an important role in employees' adaptation to organizational change too. However, no instrument is available in extant literature to measure employees' practical intelligence in the context of organizational change. Since organizational change is a very broad construct, comprising various types of change, it was deemed better to limit the scope of the study to a particular type of change. Large-scale changes such as organizational mergers and acquisitions, restructurings and downsizing efforts have become common occurrences, and researchers have found that changes of this type are often associated with significant, negative consequences for individuals in terms of their attitudes and well-being (George & Jones, 2001). Rafferty and Simons (2006) reported different degrees of readiness for incremental and transformational changes. Specifically, respondents reported higher change readiness for incremental, fine-tuning changes as opposed to transformational changes. Since transactional (incremental) changes have become common in organizations, people show relatively high readiness for such changes. Transformational change however calls for very high levels of adaptability and resilience from individuals; hence, it was felt that SJI would prove to be a more relevant tool in a transformational change context than any other type of change. Accordingly, it was decided to conduct a study to develop a situational judgement inventory in order to measure the practical intelligence of employees in the context of transformational change. Transformational change is radical or

second order in nature. It requires a shift in assumptions made by the organization and its members. Transformation can result in an organization that differs significantly in terms of structure, processes, culture and strategy (Burke & Litwin, 1992). Since the extent of individual change required is far greater in transformational organizational change than in any first order change, it is expected that adaptiveness of individual employees would be tested more in the former than in the latter. Hence, it is expected that individual readiness to change would be a more relevant issue during transformational change as compared to other organizational change initiatives. Accordingly, this paper focuses specifically on the context of transformational change in organizations while measuring practical intelligence. Using guidelines adapted from the methods described by Motowidlo et al. (1990), test construction was completed in five phases:

(1) Development of critical incidents,

(2) Organization of incidents into competency domains,

(3) Generation of response alternatives,

(4) Evaluation of responses, and

(5) Construction of the final instrument.

Due to practical difficulties and economic constraints, low-fidelity simulations are preferred over high-fidelity simulations (Kanning, Grewe, Hollenberg, & Hadouch, 2006). Hence, for the purpose of this study too, low fidelity simulations were used.

2.1 Developing critical incidents

The initial step in the development of critical incidents was to identify subject matter experts, in the context of organizational change. The mean work experience of the subject matter experts was 15 years and they all had considerable experience in handling organizational change. Ten subject matter experts were briefed about the context of the study and they were interviewed by the researcher. Based on the interview, critical incidents were developed, which were later developed into items.

The sample questions that were used to interview the subject matter experts are given in appendix A. The prompts for generating critical incidents were adapted from Anderson and Wilson (1997). While interviewing the respondents were asked to give responses in the context of organizational change and this ensures that all the responses are relevant for the development of critical incidents.

In the first step, 31 stems were formed based on the interviews with subject matter experts. The next step was to sort the stems into KSAs (knowledge, skills and abilities) competencies. A critical incident might link to multiple KSAs. This linkage provides preliminary evidence for content validity. Wagner and Sternberg (1985) found that three dimensions are critical for adaptation to any environment: managing self, managing task and managing others. Managing oneself refers to knowledge about self-motivational and self-organizational aspects of managerial performance. Managing others refers to knowledge about managing one's subordinates, and to knowledge about how to interact with one's peers and superiors. Managing tasks refers to knowledge about how to do specific tasks well. A critical incident might link to multiple KSAs. This linkage provides preliminary evidence for content validity. In this step the numbers of stems were reduced to 26, as overlapping stems were removed. The response alternative for each stem was also developed based on the interviews with the subject matter experts.

2.2 Response instructions

The response instructions tell the respondents how to evaluate the item responses. The response instructions for SJIs can generally be classified into two categories, viz. (1) behavioral tendency or 'would do' instructions, and (2) knowledge tendency or 'should do' instructions. There are several different response formats. When response instructions request that a respondent pick a single response to address the problem scenario (identify the behavior that you would most [or least] likely do, identify the most effective [or ineffective] response), the means are used to identify the response judged to be correct. McDaniel et al. (2007) conducted a meta-analysis of 62 validity coefficients (21 behavioural tendency instructions and 41 knowledge tendency instructions) and concluded that the response instructions influenced the constructs measured. More specifically, they found that knowledge based instructions had higher criterion-related validities than did behavioural tendency instructions.

SJIs employing knowledge instructions were more highly correlated with cognitive ability than behavioural tendency instructions and the latter was found to be more related to personality constructs than knowledge-based SJIs. Nguyen, Biderman and McDaniel (2005) observed that knowledge instructions (Pick the best/worst) were more resistant to faking and had a stronger relationship with cognitive ability than did behavioural tendency instructions. Hence for our tool, the respondents were asked to pick the best and the worst response.

The SJI literature identifies four types of scoring methods: (1) Empirical, (2) Theoretical (3) Expert-based / Rational, and (4) Hybrid. In the empirical approach, items or options are scored according to their relationships with a criterion measure (Hogan, 1994). In theoretical scoring, theory can be used to identify the best and worst options. Expert scoring creates keys based on the responses of individuals with substantial knowledge about the topic. Decision rules must be implemented in order to identify consensus around the appropriate answer(s).

A hybrid key is a mix of empirical and rational keying. Often, expert judges are asked to reach consensus concerning which responses are preferred (Weekley & Ployhart, 2006). Consensus may also be based on the responses of applicants, incumbents, or supervisors of incumbents. In such applications, the averages of the respondents are considered the correct response (i.e., the test answer key).

The most common method to develop expert-based scoring is to ask the subject matter experts (SMEs) to make judgements about the items. SMEs examine each item and its options to identify the best and worst choices, which are scored as correct or incorrect, respectively (Bergman, Drasgow, Donovan & Henning, 2006). The expert-based profile for this tool was developed based on responses from 14 SMEs. Those who were involved in the development of critical incidents were not considered here. Their average work experience was 20 years. Care was taken to ensure that there was equal proportion of experts both from industry as well academics. They were asked to go through each situation and the response alternatives produced and give their feedback on the following:

1) Whether the situation was relevant
2) Whether responses given against each situation were relevant
3) Whether they could think of any other possible response, other than those listed
4) To identify which action would be the BEST ACTION (B) and which would be the WORST ACTION (W).

SMEs individually read each item and identified which options they believed were best or worst. Based on this, the expert scoring profile was developed. This procedure of inter-rater agreement also helped in establishing the content validity of the instrument. Inter-rater agreement is obtained by calculating the proportion of number of experts assigning items to the expected domain over the total number of experts. Based on inter-rater agreement score, some of the items were removed. We required that at least one-half of the SMEs select an option as best or as worst response. Thus the final number of items in the tool was brought down to 14 from the initial pool of 26 items.

The following table gives the details of the expert scoring profile along with the inter-rater reliabilities

Table 2: Inter-item reliabilities of items

Sl No	Item	Best Response	Worst response	Dimension
1	You are not convinced about the change in the organization. You do not think it will benefit the organization in any way.	Express your concerns to your supervisor but abide by the change-0.92	Neither expresses your concern nor abides with the change-0.92	Managing task
2	Your company has laid off workers because of a recent downsizing move. Now you have more work to do.	Take this as an opportunity to learn new things and put extra efforts-0.58	Continue doing the same amount of work- 0.69	Managing task
3	Some of your co-workers are pessimistic about a change programme which you think will benefit the organization. But the pessimistic attitude of your co-workers is negatively influencing the employee morale.	Talk to the pessimistic coworkers and convince them to change their attitudes- 0.61	Just ignore them and go ahead with your work-0.84	Managing others
4	Your supervisor is showing favoritism towards some of your colleagues who are not contributing to the extent that you are for the organizational change activities.	Convey your feelings diplomatically to the supervisor if you are convinced about the favouritism- 0.69	Stop contributing to the organizational change activities-0.69	Managing others
5	You are given a new responsibility in the organization following an organizational restructuring. You are not very happy with it as you think it does not tap all your potential.	Do the work but tell your boss how you feel about it-0.65	Keep postponing the work you are supposed to do- 1.00	Managing self
6	Your team is given the responsibilities of handling a new project. However, you feel that one of the team members is not contributing to the team because of personal problems.	Talk to the person and try to help him-0.62	Report the matter to your supervisor-0.50	Managing others

Sl No	Item	Best Response	Worst response	Dimension
7	For the last few months, you were a part of an organizational change. However, you feel that the change is not benefiting you in terms of your career prospects.	Talk with your supervisor and identify how to align your career prospects with the organizational change.-0.84	Refuse to be a part of the change process any longer-0.58	Managing self
8	You are in charge of managing a particular change in the organization. You notice that some employees are not co-operating with the change but at the same time they are performing in terms of bringing business to the organization.	Talk to them to understand the reasons for their non cooperation-0.61	Give them pink slips as attitude matters more than performance-0.85	Managing others
9	Your organization is undergoing a major restructuring activity. Some of the employees might be losing their jobs, and your job is also in danger.	Put great deal of effort in the change process so that your performance will be noted and you will not lose your job- 0.54	Continue working in the same way you used to do before-0.54	Managing self
10	The change initiatives in the organization are taking a back seat because of the interference (from too many people) of some extra constitutional powers (powerful people) in the organization. Your work is directly being influenced by these people.	Make it clear to the top management that you cannot perform if this type of interference continues- 0.46	Keep quiet and continue your work, as displeasing these people might prove harmful to your job -0.81	Managing others
11	Your place of work is being updated but you have not received the same equipment / training/ technology as your co-workers.	Assume this was a mistake and ask the boss about it-0.69	Refuse to do your work until you get new equipment/ training/ technology-0.69	Managing task

Sl No	Item	Best Response	Worst response	Dimension
12	You are very interested in the organization's current change activities. You feel that you can contribute more to the change activities than your assigned responsibilities.	Discuss your ideas with the supervisor and ask him to give you more responsibilities-0.61	Quit, and join another organization which will give you more responsibilities-0.87	Managing self
13	The person who is leading the change program in your organization regularly calls meetings to communicate regarding the change. However, he is communicating more about the negative aspects of the change in a blunt manner, which is creating fear and apprehensions among the employees.	Have a talk with this person and convince him to change his approach-0.58	Stop attending meetings called by him-0.92	Managing others
14	Your organization is undergoing a change and you have suggested a new idea to your organization which will facilitate the change process. However, due to some political reasons your idea was not used.	Wait for an opportune moment and offer the idea again-0.69	Forget about it, since there is nothing you can do about it-0.73	Managing self

2.3 Scoring key

The scoring procedure for the respondent answers was based on the procedure recommended by Motowidlo et al. (1990). Respondents were asked to indicate which according to them is the best and worst response. Each respondent's scoring profile is to be compared with the expert scoring profile

Under this method scores on each item can range from -2 to +2 and are calculated as follows:

To receive a '+2', the respondent has to choose both his responses correctly. The respondent would have to choose as the best response the expert's "best' answer and as the worst response the expert's "worst' response.

To receive '-2', the respondent has to choose both his responses wrong. The respondent would have to choose as the best response the expert's "worst' answer and as the worst response the expert's "best' response.

To receive '+1', the respondent should identify either of the expert's' best or 'worst' action but not both.

To receive '-1', the respondent should choose as the best response the expert's 'worst' or choose as the worst response the expert's 'best' answer but not both.

A '0' was received by those choosing distracters (i.e. neither the best nor the worst response indicated by expert's profile) for both questions.

The score for each item is the sum of the points received from responses to the best and worst questions and a total test score is created by summing across the situational items.

3. Tool Assessment

3.1 Reliability

Estimating the reliability of SJIs is problematic for several reasons. First, SJIs typically assess multiple constructs and are often construct-heterogeneous at the item level (McDaniel & Whetzel, 2005). The scale and item heterogeneity makes Cronbach's alpha an inappropriate reliability index (Cronbach, 1949, 1951). Parallel form reliability is also rare because it requires the use of different item content to measure the same constructs. Because it is difficult to identify particular constructs assessed using SJIs, construct equivalence across forms can be problematic. Due to these test development and data collection problems, many researchers continue to provide internal consistency estimates with or without acknowledging that they underestimate the reliability (Chan & Schmitt, 1997; Pulakos & Schmitt, 1996; Pulakos, Schmitt, & Chan, 1996) of SJIs. Test-retest reliability is a more appropriate reliability estimate for SJIs but it is rarely reported. Several studies have scrutinized the test-retest reliability of SJIs. For instance, Bruce and Learner (1958) found test-retest reliabilities that ranged from 0.77 to 0.89 for the "Supervisory Practices Test". Ployhart, Porr and Ryan (2004) reported a test-retest reliability of 0.84. In short, these early and recent studies show that the test-retest reliability of SJIs (with sufficient length) is satisfactory. Hence, for the purpose of the study, test-retest reliability was established. The tool was administered to a sample of 45 students enrolled for a postgraduate management programme. Only those with minimum of two years of work experience and those who had direct experience with organizational change were consid-

ered for the study. Out of the 45 participants, 19 of them had been a part of mergers and acquisitions, 12 had been part of top management change and the remaining 14 had been part of ERP implementation. The mean age of the respondents was 25 years and their mean work experience was 3 years. Out of the 45 respondents, only 5 were females and the rest were males. The time interval between the test and retest was one month. The overall test-retest reliability of the instrument was found to be (r= 0.698), as given in table 3, significant at 0.01 level of significance. The internal consistency of the scale has been tested by finding coefficient alpha and it was found to be (r = 0.65), significant at 0.01 level of significance. However, this is to be interpreted cautiously as the 14 items in the test are not unidimensional in nature and are influenced by general as well as context specific factors. For estimating the reliability of a situational judgement inventory, literature is in favour of test-retest reliability compared to Cronbach's alpha (Motowidlo et al.,1990).

Table 3: Test-Retest reliability

Variable(s)	N	Mean	Standard deviation	Time Interval	Pearson Correlation
Practical intelligence 1 (PR1)	45	1.106	0.323	1 month	0.698**
Practical intelligence 2 (PR2)	45	1.086	0.300		

** indicates 0.01 level of significance

3.2 Validity

There are two primary types of evidence related to the validity of SJI scores. The first is evidence related to the constructs measured by SJIs. The second is evidence concerning the prediction of job performance. Since most situational judgement tests have been developed to predict the job performance of supervisors, criterion-related validity is often established. For the present study, content and construct-related validity are reported.

3.2.1 Content validity

The content validity of the tool was assessed by the SMEs. Since the critical incidents were developed after interview with experts from both industry and academia, content validation was ensured from the initial stages itself. At the second stage of expert scoring profile, they were asked to go through each situation and to report whether the situations as well as the responses to each situation are relevant. They were also asked whether they could come up with any other response for the situations. At the third stage they were asked to choose the best and worst response for each situation from the given alternatives, the results of which are presented in table 2. These procedures of inter-rater agreement helped in establishing the content validity of the instrument. An inter-rater agreement (r=0.81) is obtained by calculating the proportion of number of experts assigning items to the expected domain over the total number of experts.

3.2.2 Construct validity

Since the situations in most SJIs often involve interpersonal or work style and preference issues, psychologists have sought to understand the constructs measured by SJIs by investigating their relationship to personality. Mullins and Schmitt (1998) reported that SJI was most strongly correlated with conscientiousness (r=0.26) and agreeableness (r=0.22) factors of the Neuroticism-Extroversion-Openness Inventory (NEO) five factor inventory. Similarly, Smith and McDaniel (1998) found that their SJI was correlated with measures of conscientiousness (r=0.32) and neuroticism (r=0.22). Because conscientiousness is also a personality construct most consistently and highly correlated related to job performance, the empirical validity of SJIs maybe partially a function of their relationship to conscientiousness (Clevenger et al., 2001). The construct validity of this instrument was found by finding the correlation between practical intelligence and three dimensions of NEO personality inventory-conscientiousness, agreeableness and conscientiousness. For the present study, the measure of conscientiousness, agreeableness and conscientiousness was taken from the Neo-personality inventory of Costa and McCrae (1992). The measure of SJI and conscientiousness, agreeableness and emotional stability were administered on a sample of 71 employees in an IT organization who all had been part of an acquisition. Employees who had minimum two years of work experience alone were considered for the study. SJI was found to be correlated with conscientiousness (r= 0.341), agreeableness (r=0.24) and emotional stability (r= 0.32) as given in table 4, which is in accordance with the existing literature (Smith & McDaniel, 1998; Mullins & Schmitt, 2008). Hence the tool can be said to have construct validity. The correlation between SJI and agreeableness was found to be only 0.24 whereas the meta-analysis by McDaniel et al. (2001) reported a high correlation of 0.37 between SJI and agreeableness. Out of the three personality dimensions, conscientiousness was found to be highly correlated with SJI score, followed by emotional stability and agreeableness.

However this approach is not without limitations. Construct validity of SJIs have generally been found by correlating personality with SJI's without giving much thought to logical linkages between relationships (Mullins &Schmitt,2008;Smith & McDaniel,1998). While this practice may provide broad and exploratory evidence for convergence, it has revealed the need for more precise validation techniques. If SJI's are to be widely used and accepted, test developers should have something more in the way of evidence to show that a test designed to measure, for example, interpersonal effectiveness or problem-solving effectiveness, does in fact measure these dimensions. However in the absence of other better methods, this still seems to be the preferred method used by researchers.

One notable exception to this is the construct validation attempt made by Chan and Schmitt (1997). In order to establish that a video and paper and pencil SJI were measuring the same constructs, they performed a confirmatory factor analysis to test for measurement invariance. They found equal factor loadings across methods, suggesting that both forms of the SJI were indeed tapping the same thing. Unfortunately, such attempt at construct validation is time consuming and is generally not practiced because of practical difficulties.

Table 4: SJI Construct correlations

Variable(s)	N	Mean	Standard deviation	Correlation
Conscientiousness	71	3.916	0.437	0.341
Agreeableness	71	3.194	0.716	0.24
Emotional stability	71	4.010	0.415	0.32

3.2.3 Criterion validity

Various studies have examined whether SJIs are good predictors of job performance (Chan & Schmitt, 1997; Hanson & Borman, 1989; Motowidlo et al.,1990; Smith & McDaniel, 1998). McDaniel et al. (2001) conducted the first meta-analysis of the criterion-related validities of SJIs (across 95 studies) in employment settings and the correlation between SJI and job performance was found to be 0.34. Since the inventory was situated in an organizational context, job performance served as criterion measure for testing the criterion validity of SJI in the present study also. The job performance of 71 employees in an organization which has recently gone through an acquisition served as the criterion. The job performance data were collected from company records. The organization used a common performance appraisal instrument for all the employees and it consisted of several performance dimensions like communication skills, interpersonal skills and problem solving skills. The job performance evaluation was done at two levels- by the supervisors and self-evaluation by the employees. The organization provided us with the overall performance evaluation score and it was on a ten point scale. The correlation between SJI and job performance was found to be 0.29. Table 5 denotes the correlation between practical intelligence and job performance.

Table 5: SJI criterion correlation

Variable(s)	N	Mean	Standard deviation	Correlation
Practical intelligence	71	1.211	0.495	0.29
Job performance	71	6.733	1.328	

4. Discussion

This study was conducted on the assumption that there is no tool in extant literature to measure the practical intelligence of employees with respect to transformational organizational change. The inventory was developed following steps prescribed by Motowidlo et al. (1990). The consistency of the tool was checked by calculating the test-retest reliability and the tool is found to have a reliability of 0.69. The tool was subjected to content validation, construct validation and criterion validation. The construct and criterion validity of the tool was found to be quite satisfactory. According to Bledow and Frese (2009), in contrast to many Likert-type scales, SJIs do not base measurement on decontextualized and generalized statements

but on specific behavioral examples and this prevents ambiguity with respect to the meaning respondents attach to each items. SJIs are expected to have significant relevance for both applicants and practitioners. Applicants should respond well to SJIs because, unlike intelligence and personality tests, the items appear job-related; a well-developed SJI should show clear overlap between the content of the items and job duties (Bauer & Truxillo, 2006). Practitioners should respond well to SJIs because the tests are relatively easy to administer and score. Assessment centers and other work samples, on the other hand, are often costly to develop and administer, and can be time-consuming and difficult to score.

Although the results that are reported here should be regarded as a preliminary step in developing an instrument to assess employees' practical intelligence in the context of organizational change, the results are encouraging. This should encourage researchers to further explore the possibilities of using situational judgement inventories for measuring other specific constructs.

5. Limitations

The inventory is not without limitations. The total number of participants used in various stages of test construction was smaller than that in Motowidlo's (1990) studies. The expert scoring key was developed based on 15 experts. Increasing the number of experts would have perhaps added greater generalizability to the scoring profile. Another limitation is the relatively small sample size used for testing the reliability as well validity of the inventory.

Notwithstanding these limitations, the preliminary analysis holds promise for the effective use of situational judgement inventory in the context of transformational organizational change. Recent studies indicate that situational judgement inventories may not be domain specific and can be used in a variety of situations. However, since the scope of the pilot was limited to the context of organizational change, suggestions regarding SJI have been made only in this context in the paper. This instrument will have to be tested in different contexts to statistically prove its applicability in different contexts.

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Appendix A
Sample prompts for generating critical incidents

- Think about a time when someone really did a good job.
- Think about a time when someone could have done something differently.
- Think of a recent work challenge you faced and how you handled it.
- Think of something you did in the past that you were proud of.
- Think of a time when you learned something the hard way. What did you do and what was the outcome?
- Think of a person whom you admire on the job. Can you recall an incident that convinced you that the person was an outstanding performer?
- Think of a time when you realized too late that you should have done something differently. What did you do and what was the outcome?
- Think about the last six months. Can you recall a day when you were particularly effective? What did you do that made you effective?
- Think of a time when you saw someone do something in a situation and you thought to yourself, "If I were in that same situation, I would handle it differently." What was the scenario you saw?
- Think about mistakes you have seen workers make when they are new at the job.
- Think about actions taken by more experienced workers that help them to avoid making mistakes.

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