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Can the Theory of Planned Behaviour improve our understanding of the influence of organisational factors on workers' behaviour?

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Abstract

Understanding and changing workers' behaviour are key goals of Organisational Psychology. The Theory of Planned Behaviour has the potential to make an important contribution to our understanding of how organisational factors influence workers' behaviour and of ways to achieve behaviour change with workers. According to the Theory of Planned Behaviour, intentions, attitudes, subjective norms, and perceived behavioural control are the most proximal predictors of behaviour. Any distal variables, such as organisational factors, only influence behaviour through the theoretical predictors. Though a substantial body of research has applied the Theory of Planned Behaviour to the organisational setting, no research to-date has examined whether the Theory of Planned Behaviour accounts for the influence of organisational variables on workers' behaviour. This paper presents the results of a survey of 273 dental hygienists which applied the Theory of Planned Behaviour to the behaviour of assisting their patients to quit smoking. The findings indicated that organisational factors like the presence of a policy and education or training influenced behaviour only through subjective norms and perceived behavioural control. These results inform understanding of the pathways through which organisational factors influence workers' behaviour. Practical implications of applying the theory to a wide range of work behaviours are highlighted.

There is a sizable body of research examining organisational factors, such as organisational policies or the availability of support, which may influence workers' behaviour and the success of workplace behaviour change interventions. However, in areas such as public health efforts to change health professionals' behaviour, this literature tends to be disparate and lacks

an overall guiding theory about why or how organisational factors influence workers' behaviour. This makes it difficult to understand the results of different studies and how they may generalise to other behaviours. The Theory of Planned Behaviour may be able to provide an important contribution to understanding the effects of organisational factors.

According to the Theory of Planned Behaviour, the most proximal predictor of any behaviour is an individual's intention to perform the behaviour (Ajzen, 1991). In so far as an individual's perceptions of how easy or difficult a behaviour is to perform, or how much control they have over performing the behaviour (self-efficacy and controllability dimensions of perceived behavioural control respectively), are accurate, these perceptions may also predict behaviour (Ajzen, 1991). In turn, an individual's intentions are determined by their perceived behavioural control, attitudes, and perceptions of important others' approval or disapproval of their performance of the behaviour (subjective norms). These relationships are summarised in Figure 1.

Ajzen (1991) argues that any more distal factors, such as environmental variables or personality traits, will only affect behaviour through influencing these theoretical determinants. Consequently, the influence of organisational factors on behaviour should be mediated by Theory of Planned Behaviour variables. Successful mediation of the influence of organisational factors on behaviour may provide valuable information on the pathways through which organisational factors influence behaviour. For example, it would be useful to know whether workplace support makes it easier to perform a desired behaviour, increases the normative pressure on workers to perform the behaviour, or both.

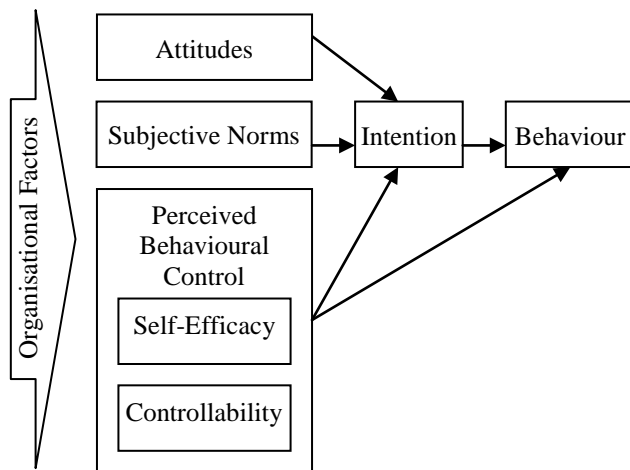


Figure 1: Summary of the Theory of Planned Behaviour (Ajzen, 1991) and the predicted influence of organisational factors.

Previous Applications of the Theory to Organisational Settings

A wide range of studies have applied the theory to workers' behaviour, including health professionals such as GPs (Walker, Grimshaw, & Armstrong, 2001) and nurses (O'Boyle, Henly, & Larson, 2001). However, only a small number of these studies have examined the potential role of organisational factors within a Theory of Planned Behaviour framework. For example, Bunce and Birdi (1998) found doctors' frequency of requesting autopsies, and their relevant attitudes, subjective norms, perceived behavioural control, and intentions, all varied according to level of autonomy. Martocchio (1992) found job satisfaction and organisational commitment predicted financial service workers' attitudes towards, but not frequency of, absenteeism. Kurland (1996) measured a range of factors including experience, income, type of commission, and professional accreditation, but found that none of the variables predicted insurance salespeople's intentions to disclose ethically relevant information to clients. Whether these factors influenced Theory of Planned Behaviour variables was not investigated.

No studies to date have tested the ability of the theoretical variables to mediate the influence of organisational variables on behaviour. However, two studies provide some evidence against it. O'Boyle, Henly, and Larson (2001) found the intensity of activity in a hospital unit (i.e., how busy the work environment was) was negatively associated with nurses' hand washing behaviour, but it was only associated with one of the theoretical predictors, subjective norms, and only

to a limited extent. Norman and Bonnett (1995) found managers' work locus of control, job satisfaction, employment commitment, age, and time in job grade accounted for 15% of variance in their behaviour (seeking a vocational qualification) above the 31% accounted for by the theoretical predictors. However, the study did not report the amount of variance the organisational factors explained without controlling for the theoretical predictors, or whether the factors were related to any of the theoretical predictors, so whether or not partial mediation occurred can not be ascertained. Norman and Bonnett (1995) also did not report which factors contributed to the additional explained variance, so it is unclear which of the factors may be important to include in future research.

In sum, these studies indicate possible roles for several organisational variables, but do not explain how the variables may be incorporated into future applications of the Theory of Planned Behaviour in organisational settings.

Investigating the Ability of the Theoretical Predictors to Mediate the Influence of Organisational Factors on Behaviour

The study presented here was designed to examine the ability of the Theory of Planned Behaviour to account for the influence of organisational factors on behaviour. The work behaviour chosen for the study was the frequency with which dental hygienists provided assistance to patients to quit smoking. This behaviour was chosen as there is considerable research indicating the efficacy of dental professional led brief smoking cessation interventions (Warnakulasuriya, 2002), but Australian research has indicated that levels of uptake of these interventions may be less than optimal (Edwards, Freeman, & Roche, 2006). Two stages of research were conducted to test the ability of the Theory of Planned Behaviour to account for the influence of organisational factors on this behaviour.

In the first stage of research, in depth qualitative interviews were conducted with 22 dental hygienists in order to elicit what factors participants felt might influence their provision of assistance to patients to quit smoking. The responses were then examined by two coders using thematic analysis. Ten organisational factors were identified as potentially impacting on behaviour. These were: co-worker support, supervisor support, presence of an organisational policy on providing smoking cessation assistance, level of autonomy, workload, role adequacy (confidence and skills in delivering smoking cessation interventions), role legitimacy (how legitimate a part of their role they saw delivering smoking cessation interventions to be), amount of experience as a dental hygienist, and smoking cessation intervention education or training

undertaken.

The interviews were followed by a second stage of research which comprised a nationwide survey of Australian dental hygienists. The survey measured the Theory of Planned Behaviour variables, organisational factors, and participants' frequency of assisting patients to quit smoking. The method and results of this survey are presented below.

Method

Participants

Dental hygienists were recruited through the dental registration board in each state and territory within Australia, with the exception of New South Wales, where participants were recruited through the Dental Hygiene Association. Of the 833 mailed questionnaires, 47 were returned to sender with outdated or incorrect addresses, and two hygienists indicated they were no longer practising, leaving a total of 784 potential participants.

A total of 362 dental hygienists returned the first questionnaire (46%). Of these, 288 returned the second questionnaire (78%). Six second questionnaires could not be matched to the first questionnaire (2%) and nine participants indicated they did not see any patients in the intervening week (3%), resulting in 273 cases with valid behaviour measures. The analyses reported below were conducted on these 273 cases.

The participants were 264 females (97%) and 9 males (3%). This is consistent with the gender profile of this profession (Australian Institute of Health and Welfare, 2005). The mean age was 37.7 (SD = 9.3). Ten participants were smokers (4%).

Procedures

Participants were mailed an initial questionnaire along with an information sheet about the study, a letter of introduction, and a reply-paid envelope in August, 2005. This initial questionnaire measured the theoretical determinants of behaviour and the organisational factors. No identifying information was required and confidentiality and anonymity was assured. Participants who returned the questionnaire were entered into a draw for one of three gift vouchers. A second copy of the questionnaire was mailed in November 2005 to encourage non-responders to participate.

Upon receipt of a completed questionnaire, a second questionnaire was mailed in order to be received by the participant one week following their return of the first questionnaire. The second questionnaire measured frequency of behaviour and participants were instructed to complete it for the week they worked following completion of the first questionnaire. A prospective measure of behaviour was used in order to examine the

ability of the theory to predict future behaviour. The two questionnaires were matched using a unique anonymous code.

Measures

Theory of Planned Behaviour Variables. All theoretical variables were measured according to the guidelines presented by Ajzen and Fishbein (1980) using items with 5-point Likert response scales. The self-efficacy and controllability dimensions of perceived behavioural control were measured and analysed separately. The number of items (and Cronbach's α) for each measure was: intentions, 1 item; attitudes, 4 items (α : .79); subjective norms, 3 items (α : .70); self-efficacy, 3 items (α : .66); controllability, 2 items (α : .32). For all multi-item measures, scores were calculated by finding the mean response to all items after reverse coding negatively-worded items. Scores ranged from 1 (low) to 5 (high).

Organisational Factors. Role adequacy (5 items, α : .89) and role legitimacy (4 items, α : .79) were measured using the relevant subscales adapted from the Alcohol and Alcohol Problems Perceptions Questionnaire (Cartwright, 1980). Workload (3 items, α : .72) and autonomy (3 items, α : .79) were measured using the workload and freedom subscales of the Michigan Organisational Assessment Questionnaire (Cammann, Fichman, Jenkins, & Klesh, 1983). Co-worker support (4 items, α : .85) and supervisor support (4 items, α : .90) were measured using subscales of the Job Content Questionnaire (Karasek et al., 1998). Responses for these six organisational factors were recorded on 5-point Likert scales, with the overall score for each factor calculated as the mean response across items after reverse coding negatively-worded items. Scores for these factors ranged from 1 (low) to 5 (high). Organisational policy was measured with one question asking participants if their dental surgery has a policy which covered addressing patients' smoking (yes/no). Amount of education and training was measured by listing types of education or training (seminars run by Quit, other seminars, TAFE/undergraduate university), and summing the number of categories selected (maximum 3). Experience was measured in years worked as a dental hygienist.

Behaviour. Participants were provided with an inventory of 12 strategies to assist patients to quit smoking, such as discussing the dental health effects of smoking or referring the patient to a pharmacist, and asked to report how many times in the last week they had performed each strategy with a patient regarding their smoking. The strategies were based on participants' responses in the prior qualitative

interviews. Participants were also asked to estimate how many patients they had seen in the last week who they thought smoked. The number of strategies used with patients was summed and divided by the estimated number of smokers seen to yield a strategies per smoker score for behaviour.

Results

As the means and standard deviations of the study factors show in Table 1, frequency of behaviour was high, with participants on average performing three strategies per smoker per visit. Levels of all the theoretical determinants were above the midpoint, indicating high levels of intentions, attitudes, norms, self-efficacy and controllability. Levels of the organisational factors were also positive: role adequacy, role legitimacy, autonomy, and co-worker and supervisor support were high, and workload was low.

Just over a quarter of participants (28%) were aware of an organisational policy in their dental surgery concerning assisting patients to quit smoking. Approximately two thirds (61%) of participants had undertaken at least one form of education or training to assist patients to quit smoking.

Table 1: Means (and standard deviations) for behaviour, the theoretical determinants, and organisational factors (N = 273).

Variable	M (SD)
Behaviour (strategies per smoker)	3.15 (2.10)
Theoretical determinants	
Intention	3.95 (.94)
Attitudes	3.99 (.54)
Subjective norms	3.83 (.72)
Self-efficacy	3.42 (.71)
Controllability	3.38 (.89)
Organisational factors	
Role adequacy	3.40 (.87)
Role legitimacy	3.87 (.62)
Workload	2.21 (.75)
Autonomy	3.81 (.78)
Co-worker support	4.33 (.61)
Supervisor support	4.14 (.76)
Amount of education or training	0.75 (.71)

Note. All scales except behaviour and amount of education or training range from 1 (low) to 5 (high).

Ability of the Theory to Account for the Influence of Organisational Factors on Behaviour

The full model was tested using Structural Equation Modelling with AMOS 4.0. Controllability, workload, autonomy, experience, education or training, supervisor and co-worker support were not associated with behaviour or the theoretical determinants of behaviour, and hence were removed. Education predicted levels of role adequacy ($r = .33, p < .001$) and role legitimacy ($r = .19, p < .001$), suggesting a potentially more distal role for this factor. The final model is presented in Figure 2. The goodness of fit indices for the presented model were $\chi^2 (22) = 143.85 (p < .001)$, NFI = .83, CFI = .84, RMSEA = .14, indicating less than acceptable fit of the data. The model accounted for 29% of variance in behaviour, a large effect according to Cohen's (1992) effect size guidelines ($f^2 = .41$).

Intentions and self-efficacy scores were centred in order to include the interaction term for these variables. The interaction term significantly predicted behaviour. Intentions and self-efficacy interacted to predict behaviour such that when self-efficacy levels were high, the relationship between intentions and behaviour increased.

To test the ability of the theoretical determinants to account for the influence of the organisational factors on behaviour, additional paths were entered between the organisational factors and behaviour. None of these paths were significant, indicating the organisational factors did not directly influence behaviour.

Discussion

The results of the structural equation model indicated that the Theory of Planned Behaviour accounted for the influence of organisational factors on dental hygienists' assistance to patients to quit smoking. Specifically, the findings suggest that policies influenced behaviour through increasing perceptions of norms. Role adequacy was associated with increased self-efficacy, while role legitimacy was associated with more positive attitudes, subjective norms and self-efficacy. However, the results need to be interpreted with caution in light of the less than ideal fit of the model, indicating departure

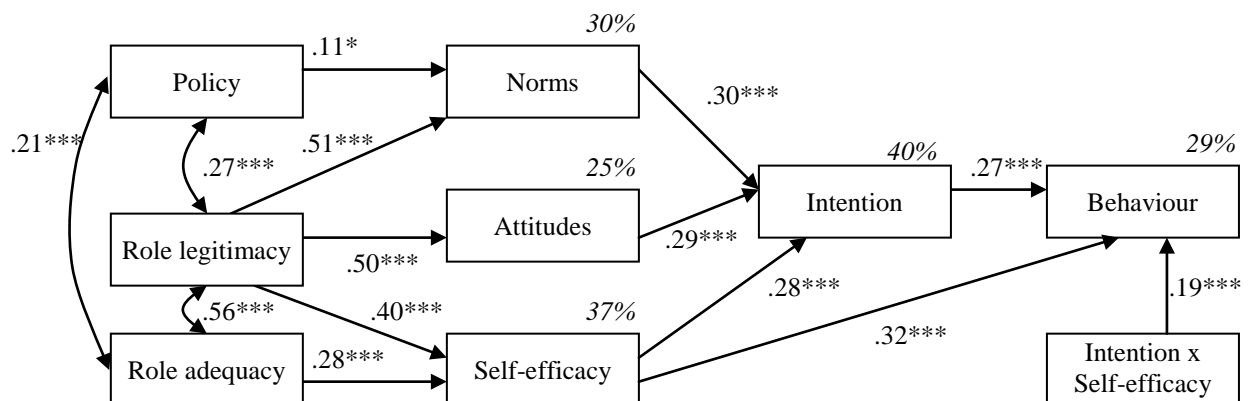


Figure 2: Standardised path coefficients for the structural equation model of the influence of organisational factors on Theory of Planned Behaviour variables. * $p < .05$, *** $p < .001$

of the model from the data. The lack of effect found for controllability may also reflect the poor internal consistency of this two item measure.

Nevertheless, these findings suggest that the Theory of Planned Behaviour could make important contributions to knowledge of how organisational factors influence behaviour. For example, the results indicate that organisational policies may influence behaviour by increasing normative pressure on workers to perform the behaviour. Consequently, organisations may wish to ensure relevant policies are in place, and consider implementing strategies to increase workers' self-efficacy and attitudes concerning the behaviour when introducing policies to ensure uptake of behaviour. The findings also highlight the potential importance of workers' self-efficacy in performance of behaviour.

The failure to find associations between experience, co-worker and supervisor support, workload, autonomy, and education or training, and theoretical variables or behaviour indicates that these factors may not have influenced behaviour. The more distal role of education and training indicated by the findings accords with previous research which suggest training may not necessarily result in changes to work practice, and that workplace factors such as workplace norms or availability of resources to perform the behaviour can influence workers' ability to transfer training into practice (Goldstein & Ford, 2002).

In conclusion, this study found support for the ability of the Theory of Planned Behaviour to account for the influence of organisational factors on workers' behaviour. The study demonstrates the considerable potential contribution the Theory of Planned Behaviour could make to understanding work behaviours and to behaviour change efforts in general in the organisational setting.

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