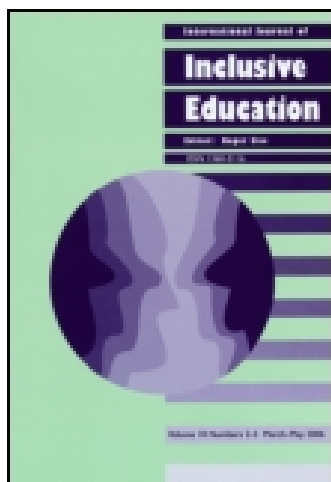


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## Inclusive education: teachers' intentions and behaviour analysed from the viewpoint of the theory of planned behaviour

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The theory of planned behaviour (TPB) claims that behaviour can be predicted by behavioural intention and perceived behavioural control, while behavioural intention is a function of attitude towards the behaviour, subjective norm, and perceived behavioural control. This study aims at providing explanation and prediction of teachers' inclusive education intentions and behaviour under TPB. The main components of TPB were implemented in a survey of 841 teachers from Hong Kong schools in the context of inclusive education. The structural equation modelling results show that TPB fitted the data well ( $\chi^2/df = 2.84$ ; RMSEA = 0.054; GFI = 0.92; CFI = 0.92; and TLI = 0.91). Identified attributes, including teachers' attitude towards inclusive education, feeling social pressure from important others to carry out inclusive education, and confidence on professional training for involved staff, were found to exert significant predictive power on teachers' intention to implement inclusive education. This intention, together with the confidence on professional training for involved staff, predicts their actual inclusive practice. Teachers' perception of social pressure and adequacy of professional training greatly contribute to predict their intention and behaviour towards inclusive education, respectively. TPB appears to be a sound theoretical framework for understanding teachers' inclusive practice. The results have strong implications for teacher empowerment and professional training in inclusive education.

**Keywords:** intention; behaviour; inclusive education; the theory of planned behaviour; structural equation modelling

### Introduction

#### *Development of inclusive practice in Hong Kong schools*

Inclusion is not only a concept about education, but also closely related to the notion of human rights and social justice (Florian 2008; Sapon-Shevin 2003; Topping and Maloney 2005). In recent decades, the belief that inclusive education is probably the main and most useful approach to achieve equal learning opportunities for students with special educational needs (SEN) has been accepted in many countries, especially following the Salamanca Statement (UNESCO 1994). In Hong Kong, the 'White Paper on Rehabilitation – Equal Opportunities and Full Participation: A Better Tomorrow for All' and the Disability Discrimination Ordinance were enacted in 1995 and 1997,

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respectively. These legislated the right of students with SEN to receive regular education in mainstream schools and inclusive education was progressively implemented. Under the current policy in Hong Kong, although students with severe or multiple disabilities who need intensive support services are still educated in special schools, most students with mild SEN are encouraged to study in mainstream schools whenever possible. Schools are required to provide appropriate support to cater to students' SENs and help them to achieve full development (Rehabilitation Advisory Committee 2007). About 60% of Hong Kong mainstreaming schools are provided with extra funding for supporting students with SEN at different levels of need (Sin 2010). The concept of the whole school approach to catering for diversity has been immersed in schools (Forlin and Sin 2010). The development of inclusion in Hong Kong is now moving positively, in terms of human resourcing, financial support, school reform, and professional training at school and policy levels. However, due to complexity of the issue in inclusion, there are always voices for further improvement or changes raised by the stakeholders in the community.

### *Attitudes and training as barriers to inclusion*

It is evident that teachers in mainstream schools play a crucial role in the successful implementation of inclusive education (Forlin and Lian 2008). For example, teachers' positive attitude has been identified as one of the important prerequisites for inclusive education (Cook 2002; Forlin et al. 2007; Kalyva, Gojkovic, and Tsakiris 2007). Negative attitudes to inclusion held by teachers form a major obstacle to inclusive education (Evans and Lunt 2002; The Centre for Special Needs and Studies in Inclusive Education 2003; Tsui, Sin, and Yu 2007). The necessity of adequate professional training for teachers has also been emphasised as a key component for successful inclusive education (Sin 2004). More specifically, professional training plays a significant role in changing teachers' attitudes towards people with disability and/or attitudes towards inclusion (Campbell, Gilmore, and Cuskelly 2003; Sharma, Forlin, and Loreman 2008; Sin et al. 2010), enhancing teachers' self-efficacy and confidence related to teaching students with SEN (Anderson, Klassen, and Georgiou 2007; Forlin and Chambers 2011), and relieving their concerns about their knowledge related to inclusion and stress levels (Chong, Forlin, and Au 2007). However, lack of adequate training for teachers has been commonly found during implementation of inclusive education (Sin 2009; Symeonidou and Phtiaka 2009), and is cited as one of the reasons explaining why teachers are unwilling to implement inclusive education (Brantlinger 1996; Ofori-Addo, Worgbeyi, and Tay 1999). Indeed, the Education Bureau in Hong Kong proposed a framework for teachers' professional development on inclusive education in the years 2007–2012 and 2012–2017. The upskilling of mainstreaming teachers has become one of the early tasks in the process of their development (Sin et al. 2010). It is expected that one outcome of professional training in Hong Kong will be the understanding and empowerment that will change both behaviour and attitudes.

### *Constructing a structural framework linking intention and behaviour*

Although there are many descriptions of factors associated with teacher performance in the field of inclusive education, very few attempts have been made to build a structural understanding of those variables under a sound theoretical framework which could provide prediction and explanation of teachers' intention and actual behaviour

towards inclusive education. The present study attempts to fill this gap in the literature under the framework of the theory of planned behaviour (TPB) proposed by Ajzen (1985, 1991) as an extension of the theory of reasoned action (Fishbein and Ajzen 1975). TPB outlines relationships among personal attitude towards behaviour, subjective norm, perceived behavioural control, intention, and behaviour. According to the theory, behavioural intention is a function of attitude towards the behaviour, subjective norm, and perceived behavioural control. Behavioural intention, together with perceived behavioural control (as a proxy for actual behaviour control), can predict behaviour (Ajzen 1991). Attitude towards behaviour refers to an individual's favourable or unfavourable feelings about performing any behaviour. Subjective norm is defined as an individual's perception of whether important others think the behaviour should be performed, that is, perceived social pressure to perform or not perform the behaviour. Perceived behavioural control refers to one's perception of the ease or difficulty of performing that behaviour, in other words, the perceived difficulties or challenges in performing a behaviour (Ajzen 1991). Generally speaking, those who have a favourable attitude, positive subjective norm, and high level of perceived behaviour control will be more likely to have the intention to perform the behaviour. The higher the level of intention and perceived behavioural control are, the higher the probability of actual behaviour occurring will be. The components of the theory and their relationship are summarised in Figure 1.

TPB is a persuasive theory which has been widely adopted to investigate various forms of behaviour including recreational activities (Hrubec, Ajzen, and Daigle 2001; Rossi and Armstrong 1999), business and management (Hansen, Jensen, and Solgaard 2004; Morris, Venkatesh, and Ackerman 2005; Shih and Fang 2004), general education (Davis et al. 2002; Ingram et al. 2000; Sideridis and Padelidiadu 2001), as well as inclusive education (Batsiou et al. 2008; Campbell 2010; Kuyini and Desai 2007). For example, Kuyini and Desai (2007) applied multiple regression analyses to examine Ghanaian teachers' attitudes towards inclusive education, knowledge of inclusive education (perceived behaviour control element), and principals' expectation (subjective norm element) of teachers' teaching practice. They found that attitude and knowledge were effective predictors of adaptive instruction in the

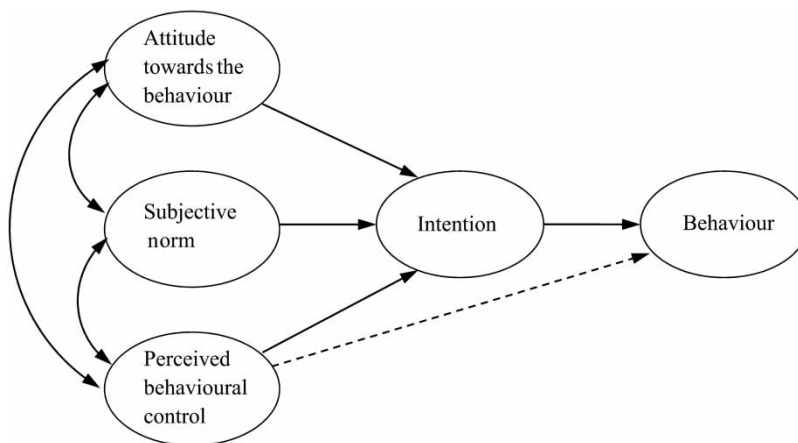


Figure 1. Theory of planned behaviour (Ajzen 1991).

inclusive classroom but principals' expectation was not. However, this study examined the predictive path directly from attitude and subjective norm to behaviour, thereby ignoring the intention element which is a possible mediating variable standing between attitude/subjective norm and behaviour and acts as the immediate antecedent of behaviour. On the contrary, Batsiou et al. (2008) included the intention element but missed the behaviour element in a study investigating the relationships among attitude, subjective norm, knowledge, and intention for Greek and Cypriot primary teachers. Significant correlations were found between intention and attitude, intention and knowledge, attitude and subjective norm, and attitude and knowledge. However, their analysis was limited to descriptive statistics and correlations, without exploring the predictive relationships among the variables. In another study conducted by Campbell (2010) examining the impact of classroom inclusion on nondisabled students, attitude, normative beliefs, perceived control beliefs, and students' intention to include peers with SEN were found to be significantly correlated with each other. Similar to the other two studies, this study failed to provide evidence on the predictive path from attitude, subjective norm, and perceived behaviour control to intention. Based on the current authors' understanding, no studies have been conducted to give a full TPB picture about the possible causal relationship among teachers' intention and its three determinants, attitude, subjective norm, and perceived behaviour control, and actual behaviour in the field of inclusive education.

### *Aims of the study*

This study aims at addressing the above shortfalls by constructing a structural framework linking intention and behaviour in inclusion by using the concepts of TPB, and conducting a survey with teachers as the subjects. Teachers' attitude to inclusive education was elicited by items asking about their levels of agreement to including students with various types of SEN at different levels into mainstream class. The subjective norm was examined through teachers' reported perceptions of the important others (e.g. parents of students with SEN and parents of students without SEN), who advocate the implementation of inclusive education. It is assumed that those perceptions formulate a kind of social pressure on teachers. Given that professional training was of great importance for successful implementation of inclusive education and lack of training was perceived by teachers as one of the major difficulties (Anderson, Klassen, and Georgiou 2007; Leatherman 2007), the perceived behavioural control in this study was operationally defined as teachers' perception of whether professional training for staff involved (e.g. principal, teacher, teaching assistant) is adequate or not, that is, if teachers perceived the training to be adequate, they tend to perceive inclusive education as a less difficult task and *vice versa*. Teachers' intention towards inclusive education is examined by items asking about their willingness to work for inclusive education. Finally, the actual target behaviour is explored by a scale through which teachers report their inclusive practice in their daily work.

In line with the operational definitions and framework, the objective of this study is to examine the extent to which TPB can predict and explain the intention and actual behaviour of inclusive practice. The hypothesis is that intention can be predicted from inter-related determinants including attitude, subjective norm, and perceived behavioural control and, furthermore, the actual behaviour of inclusive practice can be predicted from intention and perceived behavioural control. A teacher with favourable attitude towards inclusive education, feeling social pressure from important others to

carry out inclusive education, and with perceived behaviour control would be more likely to have an intention to carry out inclusive education. Teachers with higher level of intention and perceived behaviour control are more likely to execute inclusive practice.

## Method

### Sample

A total of 841 teachers working in Hong Kong mainstreaming schools were involved in the survey. Within this sample, there were 205 (24.4%) males, 617 (73.4%) females, and 19 (2.3%) without gender information, 498 (59.2%) from primary schools, and 343 (40.8%) from secondary schools. The majority of participants fell into the three age ranges, that is, 20–29 years (244, 29%), 30–39 years (287, 34.1%), and 40–49 years (205, 24.4%).

### Instruments

A survey instrument titled ‘Survey of Equal Learning Opportunities’ was developed for the purpose of investigating Hong Kong teachers’ responses to inclusive education. It included five scales concerning teachers’ attitude, subjective norm, perceived behaviour control, intention, and behaviour in that context. The scale tapping ‘intention to inclusive education’ is a translated Chinese version of the subscale of the Multidimensional Attitudes Towards Inclusive Education Scale (MATIES) developed by Mahat (2008) to examine Australian mainstream school teachers’ intention to implement inclusive education; the four remaining scales were developed expressly for the purpose of this study. The scale development was guided by the procedure suggested by DeVellis (2011). The survey development team consisted of four inclusive education experts and an assessment expert. It started from a construct map illustrating the traits to be surveyed and the relationships among them. The research team generated a pool of 110 potential items based on literature review, available instruments, and qualitative focus group discussions with inclusive education experts and teachers. The initial item pool was subject to review by the research team and teachers with inclusive education experience. The relevance of items, anomalies, and ambiguities in item wording and possible bias were checked. The draft questionnaire was then trailed in two mainstream schools (one primary and one secondary) and a total of 34 teachers participated in the pilot. Revision was made to the questionnaire based on pilot results and the details of the version of the questionnaire used in this project are presented in Table 1. The questionnaires were printed in Chinese and required

Table 1. Scales for measuring components of TPB.

Scale	Acronym	Number of items	Cronbach’s alpha in pilot
Attitude scale	ATT	27	0.95
Subjective norm scale	SNS	4	0.71
Perceived behaviour control scale	PBC	5	0.90
Intention scale (Mahat 2008)	INT	6	0.89
Behaviour scale	BEH	5	0.82

around 20–25 min for teachers to answer all questions. A four-point Likert scale was used for all scales, ranging from Strongly Disagree (1), Disagree (2), Agree (3) to Strongly Agree (4).

The attitude scale (ATT), which includes 27 items, was used to gauge teachers' attitudes towards inclusive education by asking about their levels of agreement on including students with nine types of SENs (at mild, moderate, or severe levels) into mainstream schools. A sample item is 'Do you agree that students with mild hearing impairment should be included in regular classes?'

The four items in SNS were used to examine teachers' perceptions of whether important others, that is, parents of students with SEN and without SEN, teachers, and the community, advocate for inclusion in schools. For example, 'The parents of students with SEN believe that schools should carry out inclusive education.'

Perceived behaviour control was inferred from participants' views on the adequacy of professional training for the five categories of staff involved in inclusive education including principal, teacher, teaching assistant, school administrative staff, and professional team members (e.g. social worker and counsellor). Five items were included in PBC, for example, 'I believe that the training of the principal in my school is adequate to support inclusive education.'

INT was adopted from MATIES developed by Mahat (2008). MATIES contains three subscales: one for affective attitude, one for cognitive attitude, and one for behaviour intention. The Cronbach's alpha for these three subscales are 0.77, 0.78, and 0.91, respectively (Mahat 2008). This study adopted a Chinese translation of the behaviour intention subscale due to its high reliability (0.91) and appropriateness in the Hong Kong context. INT includes six items such as 'I am willing to encourage students with SEN to participate in all social activities in the regular classroom.' It is assumed that the responses to these items indicate the extent of the participants' intention in implementing inclusive education.

Teachers' behaviour towards inclusive education was further examined by the BEH scale of five items such as 'Staff collaborate with each other on educating students with SEN.' Participants' responses to these items indicate the extent of their involvement in school practice in inclusion.

Cronbach's alpha was used to examine internal consistency of scales for each of the concepts. On the sample used in this study, Cronbach's alpha for all scales were higher than 0.70. The coefficient was 0.81 for ATT, 0.72 for SNS, 0.83 for PBC, 0.81 for INT, and 0.82 for BEH. The results indicated the high internal consistency among items in all scales. The results of confirmatory factor analysis using AMOS showed strong evidence of construct validity for each scale. The factor loadings of items ranged from 0.61 to 0.72 for ATT, 0.42 to 0.79 for SNS, 0.51 to 0.83 for PBC, 0.47 to 0.87 for INT, and 0.66 to 0.75 for BEH.

### ***Procedure of data collection***

An invitation letter addressing the purpose, method, and significance of the study was sent to all Hong Kong primary and secondary mainstream schools. Four copies of questionnaires accompanying an instruction letter were then sent to 139 primary schools and 91 secondary schools that agreed to participate in the survey. Each school was asked to invite the Special Needs Coordinator and other three teachers involved in inclusive education (one teacher with at least 10 years teaching experience, one with 2–9 years teaching experience, and one with no more than 1 year teaching experience) to

complete the questionnaire. The instruction letter provided guidelines on how to administer the survey in schools and specified that the students with SEN in this study covered nine types of disabilities (i.e. Hearing Impairment, Visual Impairment, Physical Disabilities, Intellectual Disabilities, Emotional and Behavioural Difficulties, Attention Deficit and Hyperactivity Disorder, Autism Spectrum Disorder, Communication Difficulties, and Specific Learning Disabilities) according to Hong Kong government's definition (Education Department 2002).

### **Data analysis**

Structural equation modelling (SEM) using AMOS 19 with maximum likelihood (ML) estimation was adopted for data analysis and testing the hypotheses. The SEM consists of two components, that is, the measurement model and structural model. The measurement model focuses on the measurement of latent (unobserved) variables, in this case: intention, attitude, subjective norm, and perceived behavioural control which may not be directly observed but can be inferred from measured indicators. The structural model deals with the relationships among those latent variables.

The fit statistics used in this study to check the model data fit were chi-square ( $\chi^2$ ) and relative chi-square ( $\chi^2/\text{df}$ ), goodness-of-fit index (GFI), comparative fit index (CFI), the Tucker–Lewis index (TLI), and the standardised root-mean-square error of approximation (RMSEA). In general, the outcomes, such as  $\chi^2/\text{df}$  less than 3.0 (Kline 1998), GFI, CFI, and TLI values greater than 0.90 (Garson 2009), and RMSEA less than 0.06 (Hu and Bentler 1998, 1999), were considered to be signs of good fit.

## **Results**

### **Preliminary analysis**

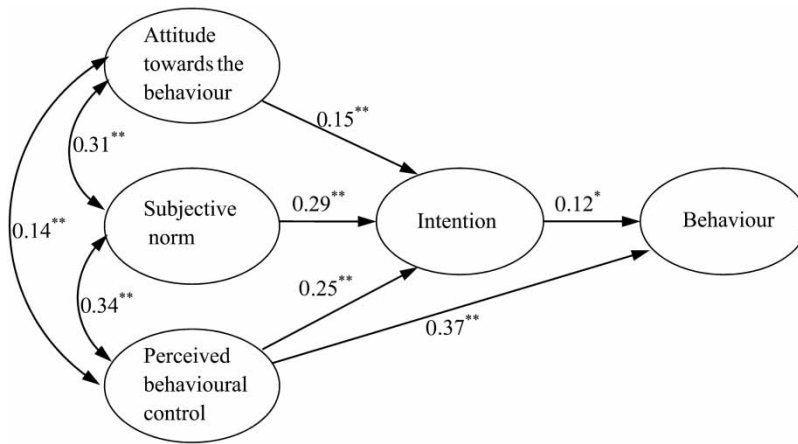
Table 2 presents the means of main scale components in TPB. Teachers scored higher than the mid-point (2.5 in a four-point Likert scale) of the scale on most of components including subjective norm ( $M = 2.66$ ), perceived behaviour control ( $M = 2.65$ ), intention ( $M = 2.88$ ), and behaviour ( $M = 3.06$ ). These results indicate that teachers tend to have relatively high levels of social pressure, confidence of professional training for staff involved in inclusive practice. Teachers also demonstrated strong intention towards and high level of practice in inclusive education. However, teachers' attitude to inclusive education was less positive ( $M = 2.39$ ). A closer investigation would find that teachers have positive ( $M = 3.09$ ), slightly negative ( $M = 2.38$ ), and strongly negative ( $M = 1.68$ ) attitudes towards including students with mild, moderate, and severe disabilities into mainstream classes, respectively. It can also be seen from Table 2 that gender has no substantial impact on teachers' scores on these scales. Primary school teachers showed a significantly higher level of perceived behaviour control and actual behaviour than secondary school teachers did ( $p < 0.01$ ). Significant differences at  $p < 0.05$  or  $p < 0.01$  were also observed on all scales, except that in the subjective norm, among different age groups, favouring younger groups.

### **Structural equation modelling**

Before introducing the SEM in data analysis, a list-wise deletion method was utilised to deal with the records with missing data, so as to build up a complete data set on which

Table 2. Mean table of main components in TPB.

	Attitude	Subjective norm	Perceived behaviour control	Intention	Behaviour
Gender					
Male ( $N = 205$ )	2.37	2.61	2.67	2.92	3.03
Female ( $N = 617$ )	2.40	2.67	2.65	2.87	3.08
$T$	-0.630	-1.642	0.505	1.558	-1.728
School type					
Primary ( $N = 498$ )	2.39	2.67	2.69	2.88	3.11
Secondary ( $N = 343$ )	2.39	2.64	2.60	2.87	3.00
$T$	0.005	1.059	2.647**	0.558	3.808**
Age range					
20-29 ( $N = 244$ )	2.46	2.67	2.81	2.94	3.10
30-39 ( $N = 287$ )	2.41	2.70	2.64	2.88	3.06
40-49 ( $N = 205$ )	2.30	2.61	2.53	2.81	2.99
$F$	5.234**	2.705	19.568**	5.909**	4.270*
Overall	2.39	2.66	2.65	2.88	3.06

\* $p < 0.05$ .\*\* $p < 0.01$ .Figure 2. Structural equation model of TPB. \* $p < 0.05$ , \*\* $p < 0.01$ .

the model was built and tested. For the proposed model guided by TPB, the chi-square ( $\chi^2 = 631$ ,  $df = 222$ ) was significant at the 0.01 level; however, the  $\chi^2/df = 2.84$  was less than 3.0 – falling into the acceptable range. Other measures of fit statistics such as RMSEA (0.054), GFI (0.92), CFI (0.92), and TLI (0.91) also showed a fairly good fit between the data and the model.

The results were consonant with the relationships implied by the application of the TPB model. Figure 2 reveals low to median, but significant correlations, ranging from 0.14 to 0.33, among the three concepts, that is, attitude, subjective norm, and perceived

Table 3. Total and indirect effects on behaviour.

Variables	Direct effect	Indirect effect	Total effect
Attitude	–	0.02	0.02
Subjective norm	–	0.03	0.03
Perceived behaviour control	0.37	0.03	0.40
Intention	0.12	–	0.12

behavioural control. Standardised regression weights showed that subjective norm had the greatest predictive power to intention ( $\beta = 0.29, p < 0.01$ ), followed by perceived behaviour control ( $\beta = 0.25, p < 0.01$ ) and attitude ( $\beta = 0.15, p < 0.01$ ). Specifically, a 1 standard deviation increase to intention implies increases in subjective norm, perceived behaviour control, and intention of 0.29, 0.25, and 0.15 standard deviations, respectively. Furthermore, both perceived behavioural control ( $\beta = 0.37, p < 0.01$ ) and intention ( $\beta = 0.12, p < 0.05$ ) had predictive power on behaviour. Perceived behaviour control had a more significant impact on behaviour than did intention.

Both intention and perceived behaviour control have direct effects on behaviour while attitude, subjective norm, and perceived behaviour control have an indirect effect, mediated via intention, on teacher inclusion behaviour. The effect coefficients are presented in Table 3.

## Discussion

The purpose of this study is to examine the extent to which TPB can predict and explain the intentions and behaviour related to inclusive education for primary and secondary school teachers. In the survey, all components of the theory including attitude, subjective norm, perceived behavioural control, intention, and behaviour were assessed and, therefore, a full TPB picture about the relationships among those components was provided. This is a further step from previous studies that missed the behaviour component (e.g. Batsiou et al. 2008; Campbell 2010) or excluded the intention component (Kuyini and Desai 2007) when applying TPB in the field of inclusive education. The results reveal that, in general, teachers had a slightly negative attitude to inclusive education, but perceived a fairly high level of social pressure and perceived behaviour control to implement inclusive education. Teachers also had positive intention and quite high level of engagement in inclusive practice.

The results of SEM analysis supported the primary hypothesis proposed in this study. TPB appeared to be a sound theoretical framework to understand teachers' intention and behaviour towards inclusive practice. Their attitudes towards inclusive education, subjective norm (feeling social pressure from important others to carry out inclusive education), and perceived behaviour control (confidence on professional training for staff involved) have significant predictive power on teachers' intention to implement inclusive education, and, furthermore, this intention, together with the perceived behaviour control, can predict their actual inclusive practice. As argued by Kuyini and Desai (2007), such investigation of the relationships between the variables that influence the success of inclusive education is more meaningful to policy and practice than isolated descriptions of those variables.

Some of the findings in this study echoed those of previous studies. For example, Heflin and Bullock (1999) reported that younger teachers held more positive attitudes towards inclusion. The same results were found in this study and, furthermore, younger teachers showed higher levels of perceived behaviour control, intention, and actual engagement of inclusive practice. Low to median (0.14–0.34) but significant correlations among the three determinants of intention, that is, attitude, subjective norm, and perceived behaviour control, were found in this study. This is consistent with previous studies (e.g. Batsiou et al. 2008). This study also found that attitude and teachers' perception on adequacy of professional training were predictors of their intention towards inclusive education. This finding supported the argument that teachers are more likely to engage fully in developing inclusive schools with a sound and relevant knowledge base and positive attitude towards inclusion (Forlin 2010). This study provides some interesting additional findings from those of other studies. Gender differences in attitude towards inclusive education favouring female teachers were reported previously (e.g. Ellins and Porter 2005; Leyser and Tappendorf 2001) but not in this study. Further, these results reveal that teachers' attitude towards inclusive education appear to be slightly negative. This is probably due to the fact that teachers were asked whether they would like to include students with disabilities at moderate or severe level. In fact, teachers are positive about including students with mild disabilities but negative about including students with moderate or severe disabilities. This is consistent with a previous report (Forlin, Douglas, and Hattie 1996) that teachers' attitudes towards inclusion became less positive as the severity of disabilities increased. The implication of this finding is that, at present, teachers are just willing to teach students with mild disabilities in mainstream classes. Teachers' rejection of including students with moderate or severe disabilities may lie in low confidence, shortage of resources, and past failure experiences. The policy-makers should take serious considerations on teachers' readiness when promoting full inclusion.

The results reveal that subjective norm is the most powerful predictor of intention, followed by perceived behaviour control and then attitude. This finding is somewhat different from what we might expect from other studies, even if not in the field of inclusive education. For example, Omondi et al. (2010) reported that attitude had stronger predictive power than subjective norm and perceived behaviour control for predicting diabetics' intention to engage in physical activities. Hrubes, Ajzen, and Daigle (2001) also noted that attitude appeared to be more important than subjective norm and perceived behavioural control in predicting intention towards hunting. A likely explanation for this finding is that teachers' intentions towards inclusive education are more likely to be triggered by external factors (e.g. social pressure and external conditions) rather than their intrinsic momentum (e.g. their own attitudes). When a teacher recognises that important others, such as parents, other teachers, and the community endorse inclusive education, or they felt that the necessary prerequisites (professional training in this case) for inclusive education are present, they are more likely to form an intention to implement inclusive education even though they might not have very positive attitudes to inclusive education. The interpretation of this finding might need to take into account cultural factors. According to Hofstede's (2001) cultural dimension of individualism/collectivism, members of individualistic cultures emphasise self-sufficiency, while those in collectivistic societies acknowledge their obligations to the group and tend to form their value judgements based on group norms. In a collectivism-dominant society like Hong Kong, when social preference towards inclusive education,

which is perceived by teachers as opinions of important others, is established, teachers tend to internalise it and regard it as an obligation to the society as well as their professionalism.

The results also show that both intention and perceived behaviour control exert significant predictive impact on behaviour, particularly that the perceived behaviour control has a larger effect. In other words, teachers' perception of the adequacy of professional training provided to relevant staff was a more important determinant of their engagement in inclusive education practice than was their intention. This finding uncovers a different pattern for predicting behaviour under the framework of TPB. For example, Ingram et al. (2000) found almost equal predictive power from intention and perceived behaviour control in predicting students' behaviour in applying to graduate school, while in the study of Omondi et al. (2010), intention exhibited far stronger influence on behaviour than perceived behaviour control did. This finding further emphasises the importance of perceived behaviour control in the mechanism of engaging teachers in the practice of inclusive education. It also echoes the claim that adequate professional training is a necessary prerequisite for the success of inclusive education (Anderson, Klassen and Georgiou 2007; Leatherman 2007; Sin 2004) because of the significant impact of professional training on teachers' intention and behaviour towards inclusive practice as showed in the present study. The results reveal that younger teachers have significant higher scores on scales of attitude, perceived behavioural control, intention, and behaviour than their older peers. A possible explanation is that younger teachers are more likely to have training related to inclusive education during their pre-service education since inclusive education courses (e.g. managing classroom diversity) were introduced in teacher education several years ago in Hong Kong. In this sense, although teacher training at both pre-service and in-service levels are necessary, the latter is in a more urgent need. The teachers' professional development in inclusive education advocated by the Hong Kong government should be kept on and advanced and the training should be delivered in an effective and reflective manner.

The generality of these findings must be considered in the light of certain limitations of the present study. First, the teachers' responses from a self-report scale were used in the study as indicators of their actual behaviour. It would be more valid if direct observations of behaviour were used in future studies. Moreover, it is recommended that data on behaviour be collected after the data on intention. It would be cautious to collect both data simultaneously because the target of intention is teachers' future behaviour but not their past behaviour. Second, the sample of this study was selected from Hong Kong schools only. Cultural differences are likely to be a crucial factor affecting these psychosocial variables. Further studies with samples from different cultures are recommended to examine the implications of TPB in the context of inclusive education.

### **Notes on contributors**

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## References

- Ajzen, I. 1985. From intentions to actions: A theory of planned behaviour. In *Springer series in social psychology*, ed. J. Kuhl and J. Beckmann, 11–39. Berlin: Springer.
- Ajzen, I. 1991. The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes* 50, no. 2: 179–211.
- Anderson, C.J.K., R.M. Klassen, and G.K. Georgiou. 2007. Inclusion in Australia: What teachers say they need and what school psychologists can offer. *School Psychology International* 28, no. 2: 131–47.
- Batsiou, S., E. Bebetos, P. Panteli, and P. Antoniou. 2008. Attitudes and intention of Greek and Cypriot primary education teachers towards teaching pupils with special educational needs in mainstream schools. *International Journal of Inclusive Education* 12, no. 2: 201–19.
- Brantlinger, E. 1996. Influence of preservice teachers' beliefs about pupil achievement on attitudes toward inclusion. *Teacher Education and Special Education* 19, no. 1: 17–33.
- Campbell, J., L. Gilmore, and M. Cuskelly. 2003. Changing student teachers' attitudes towards disability and inclusion. *Journal of Intellectual and Developmental Disability* 28, no. 4: 369–79.
- Campbell, M. 2010. An application of the theory of planned behaviour to examine the impact of classroom inclusion on elementary school students. *Journal of Evidence-Based Social Work* 7, no. 3: 235–50.
- Chong, S.C.S., C. Forlin, and M.L. Au. 2007. The influence of an inclusive education course on attitude change of pre-service secondary teachers in Hong Kong. *Asia-Pacific Journal of Teacher Education* 35, no. 2: 161–79.
- Cook, B.G. 2002. Inclusive attitudes, strengths, weaknesses of pre-service general educators enrolled in a curriculum infusion teacher preparation program. *Teacher Education and Special Education* 25, no. 3: 262–77.
- Davis, L., S. Johnson, J. Cribbs, and J. Saunders. 2002. A brief report: Factors influencing African American youth decisions to stay in school. *Journal of Adolescent Research* 17, no. 3: 223–34.
- DeVellis, R.F. 2011. *Scale development: Theory and applications*. 3rd ed. Thousand Oaks, CA: Sage Publications.
- Education Department. 2002. *Understanding and help students with special educational needs: A guide to teaching*. Hong Kong: Education Department.
- Ellins, J., and J. Porter. 2005. Departmental differences in attitudes to special educational needs in the secondary school. *British Journal of Special Education* 32, no. 4: 188–95.
- Evans, J., and I. Lunt. 2002. Inclusive education: Are there limits? *European Journal of Special Needs Education* 17, no. 1: 1–14.
- Fishbein, M., and I. Ajzen. 1975. *Belief, attitude, intention, and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Florian, L. 2008. Special or inclusive education: Future trends. *British Journal of Special Education* 35, no. 4: 202–8.
- Forlin, C. 2010. Teacher education reform for enhancing teachers' preparedness for inclusion. *International Journal of Inclusive Education* 14, no. 7: 649–54.
- Forlin, C., and D. Chambers. 2011. Teacher preparation for inclusive education: Increasing knowledge but raising concerns. *Asia-Pacific Journal of Teacher Education* 39, no. 1: 17–32.
- Forlin, C., G. Douglas, and J. Hattie. 1996. Inclusive practices: How accepting are teachers? *International Journal of Disability Development and Education* 43, no. 2: 119–33.
- Forlin, C., and M.-G.J. Lian. 2008. Contemporary trends and issues in educational reform for special and inclusive education. In *Reform, inclusion and teacher education: Towards a new era of special education in the Asia-Pacific region*, ed. C. Forlin and M.-G.J. Lian, 3–12. Abingdon: Routledge.
- Forlin, C., T. Loreman, U. Sharma, and C. Earle. 2007. Demographic differences in changing pre-service teachers' attitudes, sentiments and concerns about inclusive education. *International Journal of Inclusive Education* 13, no. 2: 195–209.
- Forlin, C., and K.F. Sin. 2010. Developing support for inclusion: A professional learning approach for teachers in Hong Kong. *International Journal of Whole Schooling* 6, no. 1: 7–26.

- Garson, G.D. 2009. Structural equation modeling. <http://faculty.chass.ncsu.edu/garson/PA765/sem.htm>
- Hansen, T., J.M. Jensen, and H.S. Solgaard. 2004. Predicting online grocery buying intention: A comparison of the theory of reasoned action and the theory of planned behaviour. *International Journal of Information Management* 24, no. 6: 539–50.
- Heflin, L.J., and L.M. Bullock. 1999. Inclusion of students with emotional/behavioural disorders: A survey of teachers in general and special education. *Preventing School Failure* 43, no. 3: 103–24.
- Hofstede, G. 2001. *Culture's consequences*. 2nd ed. Thousand Oaks, CA: Sage Publications.
- Hrubes, D., I. Ajzen, and J. Daigle. 2001. Predicting hunting intentions and behavior: An application of the theory of planned behavior. *Leisure Sciences* 23, no. 3: 165–78.
- Hu, L., and P.M. Bentler. 1998. Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods* 3, no. 4: 424–53.
- Hu, L., and P.M. Bentler. 1999. Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling* 6, no. 1: 1–55.
- Ingram, K.L., J.G. Cope, B.L. Harju, and K.L. Wuensch. 2000. Applying to graduate school: A test of the theory of planned behavior. *Journal of Social Behavior and Personality* 15, no. 2: 215–26.
- Kalyva, E., D. Gojkovic, and V. Tsakiris. 2007. Serbian teachers' attitudes towards inclusion. *International Journal of Special Education* 22, no. 3: 31–6.
- Kline, R.B. 1998. *Principles and practice of structural equation modeling*. New York: Guilford Press.
- Kuyini, A.B., and I. Desai. 2007. Principals' and teachers' attitudes and knowledge of inclusive education as predictors of effective teaching practices in Ghana. *Journal of Research in Special Educational Needs* 7, no. 2: 104–13.
- Leatherman, J.M. 2007. 'I just see all children as children': Teachers' perceptions about inclusion. *The Qualitative Report* 12, no. no. 4: 594–611.
- Leyser, Y., and K. Tappendorf. 2001. Are attitudes and practices regarding mainstreaming changing? A case of teachers in two rural school districts. *Education* 121, no. 4: 751–61.
- Mahat, M. 2008. The development of a psychometrically-sound instrument to measure teachers' multidimensional attitudes toward inclusive education. *International Journal of Special Education* 23, no. 1: 82–92.
- Morris, M.G., V. Venkatesh, and P.L. Ackerman. 2005. Gender and age differences in employee decisions about new technology: An extension to the theory of planned behaviour. *IEEE Transactions on Engineering Management* 52, no. 1: 69–84.
- Ofori-Addo, L., N. Worgbeyi, and K. Tay. 1999. *Inclusive education in Ghana: A report for the Ghana government*. Accra: Ministry of Employment and Social Welfare.
- Omondi, D.O., M.K. Walingo, G.M. Mbagaya, and L.O.A. Othuon. 2010. Understanding physical activity behavior of type 2 diabetics using the theory of planned behavior and structural equation modeling. *International Journal of Human and Social Sciences* 5, no. 3: 160–7.
- Rehabilitation Advisory Committee. 2007. *Hong Kong Rehabilitation Programme Plan (2005–2007)*. Hong Kong: Health, Welfare and Food Bureau.
- Rossi, A.N., and J.B. Armstrong. 1999. Reasoned action vs. planned behavior: Testing the suitability and sufficiency of a popular behavior model using hunting intentions. *Human Dimensions in Wildlife* 4, no. 3: 40–56.
- Sapon-Shevin, M. 2003. Inclusion: A matter of social justice. *Educational Leadership* 61, no. 2: 25–8.
- Sharma, U., C. Forlin, and T. Loreman. 2008. Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. *Disability & Society* 23, no. 7: 773–85.
- Shih, Y., and K. Fang. 2004. The use of a decomposed theory of planned behaviour to study internet banking in Taiwan. *Internet Research* 14, no. 3: 213–23.
- Sideridis, G.D., and S. Padelidiu. 2001. The motivational determinants of students at risk of having reading difficulties: Planned behaviour theory and goal importance. *Remedial and Special Education* 22, no. 5: 268–79.
- Sin, K.F. 2004. Teacher education on catering for diverse learning needs. *Hong Kong Special Education Forum* 7, no. 1: 102–9.

- Sin, K.F. 2009. *Report of the difficulties and challenges of the integrators with hearing impairment in Hong Kong schools*. Hong Kong: Hong Kong Society for the Deaf.
- Sin, K.F. 2010. The practice of inclusive education in an Asian city: Hong Kong SAR. In *A long walk to school: Global perspectives on inclusive education*, ed. V. Timmons and P.N. Walsh, 63–79. The Netherlands: Sense Publishers.
- Sin, K.F., K.W. Tsang, C.Y. Poon, and C.L. Lai. 2010. Upskilling all mainstream teachers. What is viable? In *Teacher education for inclusion, changing paradigms and innovative approaches*. ed. C. Forlin, 236–45. London: Routledge.
- Symeonidou, S., and H. Phtiaka. 2009. Using teachers' prior knowledge, attitudes and beliefs to develop in-service teacher education courses for inclusion. *Teaching and Teacher Education* 25, no. 4: 543–50.
- The Centre for Special Needs and Studies in Inclusive Education. 2003. *Case studies of four integrated schools in Hong Kong*. Hong Kong: The Hong Kong Institute of Education.
- Topping, K., and S. Maloney. 2005. Introduction. In *The RoutledgeFalmer reader in inclusive education*, ed. K. Topping and S. Maloney, 1–14. New York: RoutledgeFalmer.
- Tsui, K.T., K.F. Sin, and H. Yu. 2007. *Research report of the inclusive education implementation in Hong Kong primary schools*. Hong Kong: HKSES and HKPERA.
- UNESCO. 1994. *The Salamanca statement and framework for action on special needs education*. Paris: UNESCO.