

Investigating the factors influencing academic staff attitudes toward the formation of a technological university

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Abstract

The Irish institute of technology sector is undergoing a major restructuring that will culminate in mergers, to form technological universities (TU). It is essential that the perspective of key stakeholders is fully considered throughout this process, in order to facilitate a successful transition. This research investigates the factors influencing attitudes of academic staff toward their institute becoming a TU. A theoretical model was developed, based on the extant literature, and validated using partial least squares structural equation modelling. Academic staff attitudes to the proposed change were found to relate to their sense of organisational commitment and their contribution to teaching and research. Levels of happiness and job satisfaction were also found to influence their sense of organisational affiliation and belonging. Those with greater organisational commitment and a greater research focus were more likely to report a positive attitude to the change. Academic staff with a predominately teaching focus reported a relatively more negative attitude to the change. These findings facilitate the prescription of targeted initiatives to secure stakeholder support, throughout the transition. Staff wellbeing initiatives can improve job satisfaction and cement organisational commitment, positively influencing attitude to the change. Promoting research activity, while reaffirming the importance of teaching, can also serve to promote a positive attitude to the change in status. The unique model presented in this research has the potential to inform stakeholder management in the implementation of major organisational change in higher education both nationally and internationally.

Keywords: attitude to change; job satisfaction; organisational change, organisational commitment; partial least squares structural equation modelling; technological university

1. Introduction

Institutes of technology in Ireland are currently engaged in a process of major transformation and consolidation. This follows the international trend away from small, specialist institutions, located at single sites and towards larger, more comprehensive, multi-site institutions within higher education (Cai et al. 2016; Harman and Harman 2003; Harkin and Hazelkorn 2015; Vellamo et al. 2020). In Ireland, this move has been prompted by the recommendations of the National Strategy for Higher Education to 2030 (Higher Education Strategy Group 2011) culminating in the Technological Universities Act, 2018, that has paved the way for consortia of institutes of technology to apply for technological university (TU) designation (Higher Education Authority 2022). Technological University Dublin became the first Irish TU to achieve such designation in 2019 and five TUs, in total, have been established since the process began.

According to the Higher Education Authority (2022), TUs will be distinguished by a focus on the provision of vocational and professional science and technology education and industry focused research, in accordance with the international expectations of a technical university (de la Torre et al. 2017; Larsen, Geschwind, and Broström 2020; Perez-Esparrells and Orduna-Malea 2018). Academics in the institute of technology sector typically combine teaching and research in variable proportions (Slowey, Kozina, and Tan 2014). The transformation from institutes of technology to TUs is expected to lead to increased research performance from the relatively low bases of the antecedent institutions. This expectation may be interpreted as a significant challenge for academics with a principally teaching focus, resulting in a less favourable attitude to the change (Houghton 2020). In contrast, academics who are research active may welcome the greater research focus, heralded by the transformation, with enthusiasm (Harkin and Hazelkorn 2015; Houghton 2020).

International experience suggests that mergers and status changes in higher education are complex organisational transformations involving changes in structure, culture, values, mission, strategy and organisational identity (Hinfelaar and O'Connell 2013; Vellamo et al. 2020). Staff reactions are universally recognised as a major determinant of success for any organisational change (Oreg, Vakola, and Armenakis 2011). Understanding staff perspectives toward this proposed transformation and the factors underpinning these attitudes is, therefore, invaluable in navigating this transition successfully.

The aim of this study was to investigate the factors influencing academic staff attitudes toward the formation of a TU. Greater insight into academic staff perspectives facilitates more effective stakeholder management in institutes of technology embarking on TU formation and, more generally, institutes that are increasing their perceived academic status. The model presented in this paper will, consequently, inform stakeholder management in the implementation of major organisational change both nationally and internationally in higher educational settings.

2. Theoretical framework and research hypotheses

2.1. The ABC model of attitude to change

The dominant conceptualisation of attitude to a specific organisational change is the tripartite or ABC model of attitude to change (ATC) (Ajzen 1984; Oreg, Vakola, and Armenakis 2011; Piderit 2000; Tsaousis and Vakola 2018; Vakola 2004). The model contends that attitude to change comprises emotional, behavioural and cognitive components. This multidimensional conceptualisation permits a holistic understanding of employees' reaction to change (Piderit 2000).

From an epistemological standpoint, there are two competing theories governing the relationship between these three dimensions of attitude and the overall attitudinal response

(Piderit 2000). The piecemeal hypothesis proposes a causal-formative model of attitude to change (Diamantopoulos and Siguaw 2006), whereas the category-based view describes a reflective model (Chang, Franke, and Lee 2016). Due to the associated academic elevation in status and increased requirement to undertake high level research, the attitude to this impending change is judged to cause its three components. This judgement is further predicated on the belief that these reflective dimensions share a common theme, are interchangeable and covary. This research, consequently, adopts the category-based reflective view of the ABC model of attitude to change.

2.2. Research hypotheses

The proposed theoretical model postulates the influence of general happiness, job satisfaction, organisational commitment, teaching contribution and research contribution on the attitude of academic staff to a change in the level of status of their higher education institution, in this case, to the formation of a TU.

2.2.1. General happiness

General happiness or subjective wellbeing is described as an individual's self-reported feelings of psychological wellbeing, happiness and life satisfaction and possesses both a cognitive and emotional dimension (Fisher 2010; Lyubomirsky and Lepper 1999; Stiglitz, Sen, and Fitoussi 2009; Waldron 2010). According to Authentic Happiness Theory, general happiness is achieved through living a pleasant, engaged, and meaningful life (Seligman 2002). This positive affectivity is shown to subsequently lead to work (job) satisfaction (Fisher 2010; Proyer et al. 2012; Rothmann 2013; Schulte and Vainio 2010; Tandler, Krauss,

and Proyer 2020).

Judge et al. (1999) argue that positive affectivity is also a predictor of a positive attitude to change. However, it is suggested that this relationship is mediated through a number of related variables, including organisational commitment (Field and Buitendach 2011; Findler, Wind, and Barak 2007; Fisher 2010; Golparvar and Abedini 2014; Judge and Larsen 2001; Layard 2010; Näswall, Sverke, and Hellgren 2005; Oreg, Vakola, and Armenakis 2011). These positive relationships are reflected in the following hypotheses:

H1a: General happiness is positively related to job satisfaction.

H1b: General happiness is positively related to organisational commitment.

H1c: The positive relationship between general happiness and attitude to change is fully mediated by organisational commitment.

2.2.2. Job satisfaction

Job satisfaction is defined as ‘a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences’ (Locke 1976, 1304). Consistent with the commonality identified in the theoretical foundations for job satisfaction and organisational commitment, there is substantial evidence in the literature that job satisfaction is positively related to organisational commitment (Harrison, Newman, and Roth 2006; Iverson 1996; Meyer and Allen 1991; Meyer et al. 2002; Williams and Hazer 1986). Therefore, the following is hypothesised in the context of this study:

H2: Job satisfaction is positively related to organisational commitment.

Given that general happiness has a positive impact on both job satisfaction and organisational commitment (Field and Buitendach 2011; Money, Hillenbrand, and Da

Camara 2009), and with job satisfaction having a positive impact on organisational commitment, it is further hypothesised that the effect of general happiness on organisational commitment is partially mediated by job satisfaction:

H3: The positive relationship between general happiness and organisational commitment is partially mediated by job satisfaction.

2.2.3. Organisational commitment

Organisational commitment is defined by Mowday, Porter, and Steers (1982, 27) as ‘a strong belief in and acceptance of the organization's goals and values, a willingness to exert considerable effort on behalf of the organization, and a strong desire to maintain membership in the organization’. The literature further reports that organisational commitment is positively related to attitude to change (Field and Buitendach 2011; Holt et al. 2007; Judge et al. 1999; Oreg, Vakola, and Armenakis 2011; Peccei, Giangreco, and Sebastiano 2011; Visagie and Steyn 2011). As the impact of the proposed change for the institution is an elevation in academic status, it is considered that organisational commitment will act as a positive enabler:

H4: Organisational commitment is positively related to attitude to change.

2.2.4. Staff motivation

The traditional role of an Irish institute of technology is knowledge transfer and skills training at the higher educational level for, predominantly, technology-based, employment (Houghton 2020). Many of the academic staff will, consequently, tend to be more focused on their teaching and associated administration than on conducting academic research. A recent report

from the Technological Universities Research Network (2019) highlighted the requirement for greatly increased research performance, by new technological universities, from the relatively low base of their antecedent institutions. The transformation from institute of technology to TU will, therefore, require academic staff to consider embracing more active research agendas. This expectation may be interpreted as a significant challenge for academics who are primarily engaged in teaching and result in a less favourable attitude to the change (Houghton 2020). Conversely, research active academics may welcome the greater research focus anticipated by the transformation (Harkin and Hazelkorn 2015; Houghton 2020). We therefore propose the following hypotheses:

H5a: Contribution to research is positively related to attitude to change.

H5b: Contribution to teaching is negatively related to attitude to change.

The resulting model is shown in figure 1 below.

3. Methodology

3.1. Context and participants

The population under investigation in this study was the 335 academic staff employed in a single Irish institute of technology. This organisation was part of a consortium applying for designation as a TU. Data were collected using an online, self-completion, survey questionnaire. The first phase of data collection resulted in 106 responses. After a period of two weeks, a reminder resulted in a further 48 responses giving a total 154 participants which represents a response rate of 46%.

There were no significant differences in each of the mean values and variances for the

focal variables from the survey questionnaire for the early responders' and late responders' data. As the late participants responded to a formal reminder, they were treated as proxies for non-responders. Furthermore, due to the overall equivalence in responses and the proportion of responders by gender (46.1% from males) being consistent with the proportion at the institute, the collected data were considered to represent the complete population.

3.2. Variable measures

Each latent variable in the model was measured with validated instruments, adapted for this research context (Table 1) and the resulting relationships between these (Figure 1) modelled as a reflective measurement model (Schuberth 2020). Specifically, the shortened and adapted version of Porter et al.'s (1974) Organisational Commitment Questionnaire (OCQ), advocated by Allen and Meyer (1990), Commeiras and Fournier (2001) and Cramer (1996), was employed. General happiness was measured with an adapted 3-item version of the Subjective Happiness Scale devised by Lyubomirsky and Lepper (1999). Teaching contribution, research contribution and job satisfaction were operationalised as single-item scales following the recommendations of Vakola (2004), Diamantopoulos et al. (2012) and Bergkvist (2015).

Measurement of attitude to change was operationalised utilising a modified version of Tsaousis and Vakola's (2018) three-part Change Recipients' Reaction Measure (CRRE) instrument. This construct was then introduced into the model as a second order reflective-reflective hierarchical component latent variable using the repeated indicators approach (Ringle, Sarstedt, and Straub 2012), formed from the indicators of its three first order latent variable dimensions. A 7-point Likert-type rating scale, with extreme anchors: 1 = strongly disagree and 7 = strongly agree, was utilised for all items, with the exception of the 7-point

semantic differential scale for job satisfaction, with extreme anchors: 1 = very dissatisfied and 7 = very satisfied.

3.3. Method

The hypotheses for the theoretical model were tested by Partial Least Squares Structural Equation Modelling (PLS-SEM) using the Smart-PLS software program (Ringle, Wende, and Becker 2015). PLS-SEM is a second-generation technique for modelling complex causal models that is particularly well suited to validating a broad range of behavioural theory models (Lowry and Gaskin 2014; Nowiński et al. 2019). Cohen (1992), suggests that a relatively small sample size comprising at least 124 cases is sufficient for tests of regression models with the usual statistical power of 80%, a 0.05 significance level for valid regression coefficients and for a multiple coefficient of determination (R^2) value of at least 0.10. Hair, Hult, et al. (2017) argue that this estimate is also applicable for the endogenous latent variables in PLS-SEM models, based on the given level of complexity of the focal variables. It is also especially suited to fitting robust models to small datasets (Hair, Hult, et al. 2017) and so is appropriate for fitting to the study's data.

Prior to validating the standardised paths of the PLS-SEM, representing the research hypotheses, the overall model was initially appraised for possible misspecification. Initially, the dimensionality of the reflective attitude to change construct was validated with exploratory factor analysis. The KMO statistic for sampling adequacy represents the proportion of the variance for the indicators that might be caused by underlying construct dimensions. Using a principal component extraction method, the fitted value of 0.903 provides strong evidence in support of this. The accompanying Bartlett's test for sphericity was also highly significant ($\chi^2=1109.77$, $p < 0.001$) further demonstrating that there is a

distinct structure present in these data. The subsequent factor analysis with three factors explained 0.711 proportion of the overall variance in the attitude to change construct, with a four factor model representing 0.768. All indicators further fitted onto their three designated first order constructs using an Oblimin rotation. This shows that attitude to change is appropriately represented by the parsimonious and theoretically justified three-dimensional model. Attitude to change was therefore represented in the model as a reflective second order component construct, comprised of the three reflective first order constructs of behavioural reaction, cognitive reaction and emotional reaction, using the repeated indicators approach (Hair, Hult, et al. 2017).

Following the recommendation of Hair, Hult, et al. (2017) the model was then validated in two stages. In the first, the measurement, outer, model was tested for internal consistency reliability by Cronbach's Alpha and Rho_A coefficients (Dijkstra and Henseler 2015) for the model constructs being greater than 0.7. Convergent validity is appraised by the average variance extracted (AVE) for each construct exceeding 0.5 (Fornell and Larcker 1981). Discriminant validity is satisfied by: 1. The loadings for the indicators being greatest on their designated constructs, exceeding each of the values of their cross loadings on the remaining constructs; 2. Satisfying the Fornell and Larcker criterion for the second-order model; and, 3. The heterotrait-monotrait (HTMT) ratios (Henseler, Ringle, and Sarstedt 2015) for each pairwise comparison of the model constructs being less than 0.85 (Kline 2011), disregarding the HTMT ratios for comparisons with its first-order dimension constructs due to the replicated measures modelling.

In the second stage, the hypothesised relationships for the structural inner model, were validated using bootstrap t-tests. Following the advice by Hair, Hult, et al. (2017), 5000 bootstrap replicates of the corresponding standardised path coefficients were obtained for

these tests. The hypothesised full mediating effect of general happiness on attitude to change by organisational commitment (H1c) and that for the partial mediating effect of general happiness on organisational commitment by job satisfaction (H3) were also tested using the relevant bootstrap replicated path coefficients, following the procedure advocated by Preacher and Hayes (2008).

To establish whether each of the impacting constructs in the model also have a substantive effect on their endogenous constructs, the effect size (f^2) for each relationship was calculated. Cohen (1988) recommended that the magnitude for effects greater than 0.02, 0.15, and 0.35 can be considered as representing: small, medium, and large effects, respectively.

To appraise the predictive relevance of the model, the Stone-Geisser Q^2 values (Chin 1998; Geisser 1974; Stone 1974) for paths from the reflective constructs to their designated endogenous constructs are calculated using the blindfold procedure. The cross-validated redundancy measure was used, with an omission distance of six. Predictive relevance for each relationship for a corresponding endogenous construct is indicated by a positive Q^2 value (Gómez, Aranda, and Santos 2017; Hair, Sarstedt, et al. 2017).

4. Results

4.1 Common method variance

As the data were collected from a single instrument, using a common data collection method, there is the possibility of common method variance (CMV) being present. This was appraised using Harman's single-factor test (e.g. Podsakoff et al. 2003). From exploratory factor analysis, a single factor accounted for 0.367 of the total variance which is less than the Harman's benchmark of 0.5 and the suggested, relaxed, value of 0.7 'before substantial

concern about inflated relationships would arise' (Fuller et al. 2016, 3197). This was further confirmed at the factor level, using the full collinearity assessment approach (Kock 2015), with each construct exhibiting a variance inflation factor of less than 3.3 (Table 2). There is, therefore, no evidence of CMV in these data.

4.2. Measurement model analysis

All Cronbach's alpha and Rho_A values for the constructs exceeded the minimum threshold value of 0.7 (Hair, Sarstedt, et al. 2017) as shown in Table 2. This suggests internal consistency reliability is present in the data. The AVE for each construct also exceeded the threshold value of 0.5, demonstrating convergent validity (Fornell and Larcker 1981).

All indicators loaded onto their designated construct both, with values greater than 0.7, demonstrating sufficient indicator reliability (Hair, Hult, et al. 2017) and exceeding their cross-loadings on the other constructs; the maximum cross loading being 0.658 for Beh4, an indicator for the behavioural reaction construct, on the emotional reaction construct (Table 2).

The path coefficients for the three dimensions for attitude to change represent the loadings for the second-order reflective construct and all exhibit indicator reliability by exceeding 0.7. The square-root of the AVE for each construct was also greater than its correlations with the remaining constructs in the structural model (Table 3), consequently, satisfying the Fornell-Larcker criterion for discriminant validity. All constructs were also found to have a HTMT ratio of less than the threshold value of 0.85 (Table 4). There was, therefore, sufficient evidence from the data, that the model had discriminant validity.

4.3. Structural model analysis

The coefficient of determination (R^2) for the single item job satisfaction construct is equal to 0.10, with the multiple coefficient of determination for the remaining endogenous constructs, organisational commitment and attitude to change, being 0.35 and 0.309, respectively (Table 2). Moreover, the first-order construct dimensions for attitude to change, behavioural reaction, cognitive reaction, and emotional reaction have R^2 values of: 0.733, 0.862, and 0.713, respectively (Table 2). All meet the R^2 lower threshold value of 0.1, suggested by Falk and Miller (1992), and so the presence of these constructs in the structural model is appropriate.

The effect sizes for the paths representing the hypothesised relationships are exhibited in Table 5. These vary from 0.024 for the negative impact of contribution to teaching on attitude to change, to 0.386 for the positive mediating effect of job satisfaction on the positive relationship of general happiness on organisational commitment. In all cases, the lower bound of 0.02 for a recognised small effect (Cohen 1988) is satisfied.

The model also has adequate predictive power with the Stone-Geisser Q^2 statistic for the endogenous variables all being positive (attitude to change, 0.149; behavioural reaction, 0.484; cognitive reaction, 0.614; emotional reaction, 0.473; job satisfaction, 0.084; organisational commitment, 0.241).

The bootstrap t-tests for the standardised path coefficients, together with the associated effect size values, are exhibited in Table 5. All path coefficients are significant using a two-tailed test with the marginal exception of the positive relationship between general happiness and organisational commitment that is hypothesised to be partially mediated by job satisfaction. The associated path coefficient for this relationship is only weakly significant ($p=0.055$). This relationship is, however, hypothesised to have a positive relationship and is significant for a one-tailed test. ($p<0.03$). In addition, both the full

mediating effect for the relationship of general happiness on attitude to change by organisational commitment (H1c), and the partial mediating of the effect for the relationship between general happiness and organisational commitment by job satisfaction (H3) were also confirmed (Table 5).

Finally, as a measure of overall goodness-of-fit for reflective PLS-SEMs, SmartPLS estimates the standardised root mean square residual (SRMR). The value of 0.077 for the estimated model (Henseler et al. 2014) satisfies the upper bound of 0.080 recommended by Hu and Bentler (1998), further suggesting the model provides an adequate fit to the data.

5. Discussion

The literature suggests higher levels of general happiness will, on average, lead directly to greater organisational commitment and increased job satisfaction (Fisher 2010; Williams and Hazer 1986). The results of this study substantiates these relationships. The direct effect of job satisfaction on organisational commitment (Harrison, Newman, and Roth 2006; Iverson 1996; Meyer and Allen 1991; Meyer et al. 2002) and job satisfaction partially mediating the direct effect of general happiness on organisational commitment are also demonstrated. It also confirms that general happiness and a feeling of wellbeing by academic staff has an indirect positive effect on their attitude to a change in status of their organisation to a higher status institution. This effect is fully mediated by organisational commitment.

Organisational commitment was found to have a significant positive effect on attitude to change, consistent with previous findings in the literature (Field and Buitendach 2011; Holt et al. 2007; Judge et al. 1999; Oreg, Vakola, and Armenakis 2011; Peccei, Giangreco, and Sebastiano 2011; Visagie and Steyn 2011). This suggests that academic staff who were more committed to the institute, and experienced a stronger affiliation with the organisation, were more likely to exhibit a positive attitude to the proposed change.

A major tenet of the stated TU mission is to strengthen and deepen research capability, compared to that present in the current institute of technology setting (Technological Universities Research Network 2019). Academic staff with a principally teaching focus may be apprehensive about the requirement for a greater emphasis and commitment to undertaking research. Therefore, it is unsurprising to observe the negative relationship between contribution to teaching and attitude to the change. On the contrary, active researchers in the existing organisation are likely to welcome the attendant elevation of the research mission and therefore expressed a relatively more positive attitude to the proposed change.

These findings allow the prescription of a variety of approaches to improve the attitudes of academic staff towards TU formation, consequently reducing resistance to the change (Kotter 2007). Initiatives to improve job satisfaction would be expected to lead to superior organisational commitment, which, in turn, would be expected to increase positive attitudes to the change (Oshagbemi 1997, 2003). The model also suggests that efforts to improve organisational commitment among academic staff, directly, would have a positive effect on attitude to the change. Therefore, precedence should be given to actions that increase employee empowerment, teamworking and relevant training, throughout the change process, as these are known to engender commitment (Hanaysha 2016). The study also reveals the importance of general wellbeing programmes, to improve employee happiness, in achieving these objectives.

The change would also be viewed more positively if the institute emphasised the importance of teaching quality to the newly formed TU and the consequent continued value of teaching-oriented staff. Concurrently, efforts to encourage predominately teaching focused staff, in particular, to embrace a greater research focus has the potential to further promote a positive attitude to the change. Institutional resources, policies and procedures are

paramount in promoting research activity. In order to promote enhanced research activity, institutions should invest in mentoring and mentoring communities, improve infrastructure, engage in cluster hiring in areas of institutional expertise, revise institutional policies to prioritise research, reduce teaching workloads for researchers and modify promotion criteria to incentivise research activity (Huenneke et al. 2017).

6. Limitations and future research

This research investigated the factors influencing academic staff attitudes to the formation of a TU. It particularly focused on the divergence in attitudes between teaching and research focused academics. Future research may involve a qualitative or mixed-methods study that investigates the specific aspirations and anxieties, that instigate stakeholders' attitudes to the change. As attitudes are dynamic and may change over time (Rafferty, Jimmieson, and Armenakis 2013) these can best be studied using a longitudinal design to track shifts in attitude to the change, as the transformation progresses.

Given the importance of knowledge transfer to the mission of TUs, both nationally (Higher Education Authority 2022) and internationally (OECD 2022; Perez-Esparrells and Orduna-Malea 2018), future research should include this in any subsequent investigation of the resultant output from staff that can be attributed to the newly created institute.

This research could also be extended to other jurisdictions across Europe and further afield where comparable transformations have taken place or are planned to take place. It is also pertinent for institutes who are looking to increase their credentials and ratings by strategically increasing their research capability.

7. Conclusion

This research builds upon the existing theory of organisational change and introduces a novel model for academic staffs' attitude to change, predicated on an impending increase in academic status for their higher education institution. It is then validated for the case of an Irish institute of technology that is in the process of acquiring TU status. The findings confirm that job satisfaction partially mediates the positive effect of general happiness and wellbeing on commitment to the organisation and that this commitment has a positive effect on the attitude to the imminent change. It further demonstrates the positive and direct impact that research commitment has on the attitude to the change. The relatively more negative attitude to change associated with a greater commitment to teaching is also confirmed.

Overall, the model provides an understanding of academic staff attitudes to change, leading to more appropriately nuanced and informed decision making and interventions by senior management. This, in turn, can facilitate a successful transition, resulting in a sustainable future for the new institution (Dzimińska, Fijałkowska, and Sułkowski 2018). The findings are argued to have a greater currency, within and beyond the Irish higher education sector, and not solely limited to the context of the case study.

Disclosure statement

The authors report there are no competing interests to declare.

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Table 1. Latent variables, indicators and item descriptions

Latent variable & indicators	Item description
Behavioural Reaction (Tsaousis and Vakola 2018)	
Beh1	I will share knowledge or information to help the TU formation to be successful
Beh2	I am willing to help the TU formation to be successful
Beh3	I am trying to convince others about the benefits of TU formation
Beh4	If needed, I would fight for the success of the TU formation
Cognitive Reaction (Tsaousis and Vakola 2018)	
Cog1	I believe that the TU formation will benefit the institute
Cog2	The TU formation will not help the development of the institute (r)
Cog3	I believe that TU formation is appropriate for the institute
Cog4	I believe that the process of change required for TU formation will be very effective
Emotional Reaction (Tsaousis and Vakola 2018)	
Emo1	The changes proposed by the TU formation are unpleasant for me (r)
Emo2	Due to the TU formation, I am less satisfied with my job (r)
Emo3	The TU formation is giving me a headache (r)
Emo4	The TU formation makes me emotionally tired (r)
Teaching Contribution	
Teach	I consider that I make a substantial teaching contribution to my institute
Research Contribution	
Research	I consider that I make a substantial research contribution to my institute
Organisational Commitment (Allen and Meyer 1990; Porter et al. 1974)	
OC1	I am willing to put in a great deal of effort in order to help the institute be successful
OC2	I talk up the institute to my friends as a great organisation to work for
OC3	I am proud to tell others that I am part of the institute
OC4	The institute inspires me and this leads to an improvement in my performance at work
OC5	I am extremely glad that I chose to work at the institute
OC6	I really care about the fate of the institute
OC7	For me, the institute is the best of all possible organisations for which to work
Job Satisfaction (Vakola 2004)	
JSat	How satisfied are you with your current job?
General Happiness (Lyubomirsky and Lepper 1999)	
Hap1	In general, I consider myself a happy person
Hap2	I consider myself happier than most of my peers
Hap3	I enjoy life regardless of whatever is going on and try to get the most out of everything

Note: (r) = reverse coded.

Table 2. Measurement model quality criteria

Indicator	Loading	AVE	α	Rho_A	R²	VIF
ATC	-	0.769	0.920	0.923	0.31	1.45
ATC-Behavioural Reaction	0.923	0.675	0.838	0.846	0.73	-
Beh1	0.833					
Beh2	0.873					
Beh3	0.739					
Beh4	0.835					
ATC-Cognitive Reaction	0.962	0.724	0.872	0.874	0.86	-
Cog1	0.911					
Cog2	0.823					
Cog3	0.856					
Cog4	0.810					
ATC-Emotional Reaction	0.876	0.690	0.850	0.850	0.71	-
Emo1	0.799					
Emo2	0.812					
Emo3	0.862					
Emo4	0.847					
General Happiness		0.715	0.806	0.859	n.a.	1.20
GHap1	0.903					
GHap2	0.763					
GHap3	0.863					
Organisational Commitment		0.729	0.938	0.940	0.35	1.93
OC1	0.807					
OC2	0.892					
OC3	0.912					
OC4	0.849					
OC5	0.856					
OC6	0.816					
OC7	0.838					
JSat*	1.000	1.000	1.000	1.000	0.10	1.54
Research*	1.000	1.000	1.000	1.000	n.a.	1.10
Teach*	1.000	1.000	1.000	1.000	n.a.	1.10

Cronbach's alpha (α); Average variance extracted (AVE); Variance inflation factor (VIF); Single item constructs (*); Exogenous construct (n.a.)

Table 3. Fornell-Larcker criterion: Construct correlations ($\sqrt{\text{AVE}}$ along lead diagonal)

	ATC	GHap	JSat	OC	Research	Teach
ATC	0.877					
GHap	0.133	0.845				
JSat	0.265	0.306	1			
OC	0.506	0.316	0.573	0.854		
Research	0.260	0.067	0.022	0.125	1	
Teach	-0.187	0.165	0.004	-0.079	-0.168	1

Table 4. Heterotrait-monotrait (HTMT) ratios

	ATC	Beh	Cog	Emo	GHap	JSat	OC	Research
Beh	n.a.							
Cog	n.a.	0.838						
Emo	n.a.	0.626	0.813					
GHap	0.163	0.196	0.119	0.130				
JSat	0.277	0.278	0.240	0.238	0.322			
OC	0.543	0.632	0.467	0.386	0.349	0.586		
Research	0.273	0.287	0.220	0.239	0.082	0.022	0.131	
Teach	0.196	0.097	0.168	0.269	0.191	0.004	0.082	0.168

Note: (n.a.) = not applicable as a dimension of ATC

Table 5. Path Coefficients (β), Loadings (λ), Effect size (f^2) and research hypotheses

Path	β	f^2	Hypothesis
General Happiness \rightarrow Job Satisfaction	0.306***	0.110 ^a	H1a Accepted
General Happiness \rightarrow Organisational Commitment	0.155 [†]	0.032 ^a	H1b Accepted
General Happiness \rightarrow Organisational Commitment \rightarrow Attitude to Change	0.075*	0.288 ^b	H1c Accepted
Job Satisfaction \rightarrow Organisational Commitment	0.526***	0.385 ^c	H2 Accepted
General Happiness \rightarrow Job Satisfaction \rightarrow Organisational Commitment	0.163***	0.386 ^c	H3 Accepted
Organisational Commitment \rightarrow Attitude to Change	0.474***	0.320 ^b	H4 Accepted
Research \rightarrow Attitude to Change	0.180**	0.061 ^a	H5a Accepted
Teach \rightarrow Attitude to Change	-0.120*	0.024 ^a	H5b Accepted
Loading	λ		
Attitude to Change \rightarrow Behavioural Reaction	0.856***	-	-
Attitude to Change \rightarrow Cognitive Reaction	0.928***	-	-
Attitude to Change \rightarrow Emotional Reaction	0.844***	-	-

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$, [†] $p \leq 0.05$ (one-tailed test); Path coefficient (β); Loadings (λ); Effect size (f^2); ^aSmall effect; ^bMedium effect; ^cLarge effect.

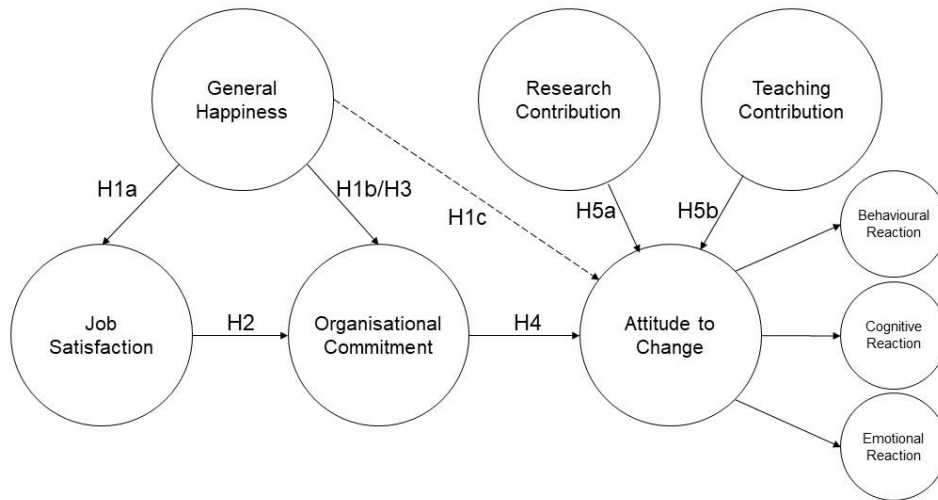


Figure 1. Proposed model of attitude to change